GENERAL CATALOGUE OF

"Champion"

Blowers
Forges
Tuyere Irons
Forge Shop
Drills
Vises
Power Hack
Saw Machines
Saw Mandrels
Grinders
Buffers
Polishers
Exhaust Fans
Mine Fans
Fans for Heating, Cooling, Ventilating, Drying and Mechanical Draft

Arbor Presses
Screw Plates
Taps
Dies
Tap Wrenches
Charcoal Grills

Tire
Shrinkers
Tire Benders
Power
Hammers
Punches
Shears

MANUFACTURED BY

The Champion Blower & Forge Company
Lancaster, Pa., U. S. A.

CABLE ADDRESS—"CHAMPION LANCASTER" (PENNSYLVANIA)
THE 400 CHAMPION "PATENTED" HIGH-SPEED SPIRAL GEARING SHOWN IN DETAIL

The only Blower manufactured with Ball Bearings in the crank shaft. This Blower is Ball Bearing throughout.

The blade has counter balance weight and is adjustable as to length.

Wood Grip is bushed with a Steel bushing.

Blower adjustable to different heights.

Ball Bearings.

Spring Toy Oiler.

Phosphor Bronze Gear.

Note width of Blast Wheel at the tip. The Fan Blade must be wide or it does not handle the proper amount of air.

Fan Case outlet radial which produces the same blast with crank turning either direction.

The 400 Champion "Patented" High-Speed Spiral Gearing in transparent cut shows the machinery in detail as every part is fitted up when in working order.

This transparent cut, in connection with the gearing cut, shows the inner workings of the 'Famous 400' Gearing, so that the inexperienced can understand and appreciate its high grade construction.

The Fan Case is pear-shaped with outlet radial which produces the same blast with the crank turning either direction.

Each Turn of the Crank produces 48 complete Revolutions of the Blast Wheel. All Blower Speeds should be counted before purchasing, as high speed of the Fan Wing can only make a High Pressure White Heat Blast.

The blade on the blast wheel are not tapered or narrow, but are the same width at the tip of the blade as at the hub, therefore must throw a larger volume of air than a tapered blade. This wide blade gives the operator full benefit of the blast from every revolution of the crank and with the high-speed spiral gearing produces a white heat pressure blast, equal to a blower run by power.

All this means that the Champion 400 Blower, with 12" fan case and wide blade blast wheel, produces more volume at a higher pressure than any other 15" hand blower with narrow or tapered blade.

The 400 Champion "Patented" High-Speed Spiral Gearing has been manufactured by us for many years and is in use on over a million Champion Steel Blowers and Forges, distributed to every section of the globe.

The 400 Spiral Shaft with Fan Wing attached is the only piece of the entire gearing that runs at high speed.

Every piece in the High-Speed Spiral Gearing is built large, powerful and substantial. Fully equal to ten times the high speed required to run a Blower.

The 4-inch Special Phosphor Bronze Spiral Gear and the Tool Steel Spiral Shaft are the same size in diameter and teeth used on Spirals running at 20,000 revolutions per minute, carrying heavy loads.

The 400 Champion Concaved Spiral Gear, riding the Spiral Shaft lengthwise, meshes eight (8) full teeth continuously, which forever makes lost motion or noise impossible.

The 400 Champion Ball Bearings are all adjustable with cups and covers lathe-turned from the solid tool steel bar and hardened like glass, then ground and polished to the finish of a mirror, thus making the most perfect and durable High-Speed Adjustable Bearing that can be manufactured.

CHAMPION BLOWERS & FORGE CO.
LANCASTER, PA, U.S.A.

www.OzarkToolManuals.com
THE FAMOUS 400 CHAMPION BLOWER
The Original Cut Gear Hand Blower, with Over a Million in Use

This is the Blower that Has Revolutionized the World's Blacksmiths' Fires and Made Them a Most Profitable Business.

The Famous 400 Champion Blowers and Forges, after many years of work with over a million in use, unquestionably stand in a class of their own.

The users are their staunchest supporters and it is our desire that those who are not familiar with their value ask what the Owners Say, and particularly those who have used them many years, as it is the only blower as good after many years' use as when new.

The 400 "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron and complete piping is furnished with the 400 Blower without extra charge. This Tuyere, in combination with the high speed of the "Famous 400" Blower, produces a circular, rotary, "whirlwind," white heat blast which heats iron at least one-third quicker and with an equal saving in coal, as no heat is wasted by being blown up the chimney.

The 400 Blower and "Whirlwind" Blast Tuyere represents in every respect the greatest value in a Blast Producer. Its Gearings, in connection with the Adjustable Ball Bearings, are constructed from the highest grade of Special Phosphor Bronze and Tool Steel, turned and finished with special Automatic Machinery, thus making the Blower run in the most accurate and smooth manner that can be constructed by human hands.

The 400 Blower can be supplied with 6 x 1-inch tight and loose pulley for both hand and power drive, or can be mounted on a short pedestal for bench use.

No. 400 Bench

<table>
<thead>
<tr>
<th>No.</th>
<th>Fan</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>12&quot;</td>
<td>160 lbs.</td>
<td>Facanex</td>
</tr>
<tr>
<td>400</td>
<td>12&quot;</td>
<td>145 lbs.</td>
<td>Fag.</td>
</tr>
</tbody>
</table>

Champion Steel Blacksmith Blower is made for either right- or left-hand fires. Right-hand Blowers always furnished unless otherwise specified.
CHAMPION STEEL RIVET FORGES
The Original Ball Bearing Rivet Forge
Made with Adjustable Ball Bearings Only

The No. 401 Champion Steel Rivet Forge can be seen working on 89 out of every 100 structural steel buildings being built in the United States today. The same may be said of all railroads, bridge builders, and boiler makers. The No. 401 Forge has not only been adopted by this class of trade in the United States, but also throughout the entire world.

Champion Steel Rivet Forges have been on the market for many years and are used by the great majority of Railroads, Bridge Builders, Boiler and Structural Iron Workers of the world, also very desirable for garages. Nothing was ever seen to even approach them for a strong positive blast. We can guarantee them to increase the work over and above any other make of Rivet Forge 25%. Their Gearing is the "Famous 400" Champion "Patented" High Speed Spiral Gearing. They run noiseless, and can be taken apart for transportation, and again set up in a few minutes. They will produce blasts to weld 3-1/2 to 4-inch iron in ten minutes. No. 401 Steel Rivet Forge is used on 99 out of 100 Structural Steel Buildings constructed. Crank Turns either way to make the blast. Each Turn of the crank produces 46 complete Revolutions of the Fan Wing.

<table>
<thead>
<tr>
<th>No.</th>
<th>Height</th>
<th>Fan Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>18&quot;</td>
<td>9&quot;</td>
<td>135 lbs.</td>
<td>Faschhoosler</td>
</tr>
<tr>
<td>401</td>
<td>22&quot;</td>
<td>9&quot;</td>
<td>145 lbs.</td>
<td>Faschhoosler</td>
</tr>
<tr>
<td>401</td>
<td>24&quot;</td>
<td>12&quot;</td>
<td>150 lbs.</td>
<td>Faschhoosler</td>
</tr>
</tbody>
</table>

With Half Hood—Full or Closed Hood, extra

CHAMPION BLOWER FORGE CO.
LANCASTER, PA., U.S.A.
CHAMPION STEEL RIVET TOOLMAKERS' AND BOILERMAKERS' FORGES
Made with Adjustable Ball Bearings Only

Size of Hearth, 24 x 24 Inches
Size of Hearth, 30 x 30 x 6 Inches
Size of Hearth, 24 x 30 x 6 Inches
Fan, 9 Inches in Diameter
Fan, 12 Inches in Diameter
Fan, 12 Inches in Diameter

Champion Steel Forges are made of heavy steel with legs welded to the Hearth and thoroughly braced, making it a stiff and powerful forge large enough in Blast for most any work.

Hearth is formed from a single sheet of No. 10 gauge steel plate with edges reinforced with 3/4-inch angle iron, making it seamless—therefore, rust proof and indestructible.

The Blower and all machinery can be taken off for transportation.

For further information as to the construction of machinery: refer to pages 2 and 3.

Crank turns either way to make blast.

Each turn of the crank produces 40 complete revolutions of the Fan Wing.

It is especially adapted for Horseshoers, Garages, Toolmakers, Jewelers, Machine Repairs, Tempering Tools, Tank Builders, Miners, Prospectors, making repairs on Boilers, Oil Field Work, Steam and Elevated Railroads.

No. 404 with Shield

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>404</td>
<td>40 x 40 x 6&quot;</td>
<td>9&quot;</td>
<td>169 lbs</td>
<td>Fachabais</td>
</tr>
<tr>
<td>405</td>
<td>40 x 40 x 6&quot;</td>
<td>12&quot;</td>
<td>175 lbs</td>
<td>Fachabais</td>
</tr>
<tr>
<td>406</td>
<td>40 x 40 x 6&quot;</td>
<td>12&quot;</td>
<td>240 lbs</td>
<td>Fachabais</td>
</tr>
<tr>
<td>407</td>
<td>40 x 40 x 6&quot;</td>
<td>12&quot;</td>
<td>260 lbs</td>
<td>Fachabais</td>
</tr>
<tr>
<td>407</td>
<td>40 x 40 x 6&quot;</td>
<td>12&quot;</td>
<td>280 lbs</td>
<td>Fachabais</td>
</tr>
<tr>
<td>407</td>
<td>40 x 40 x 6&quot;</td>
<td>12&quot;</td>
<td>280 lbs</td>
<td>Fachabais</td>
</tr>
</tbody>
</table>

With water tank, extra

CHAMPION STEEL BLACKSMITHS' FORGES
Made with Adjustable Ball Bearings Only

Nos. 408, 409, 407 and 407½ Champion Steel Blacksmiths' Forges represent the "Famous 400" Champion Steel Blower shown on pages 2 and 3, converted into a most complete and practical Blacksmiths' Forge. These Forges have been universally adopted as the same of success as a Blacksmiths' Forge. Their construction in Bracing and Bridging of angle steel for stiffness is perfection.

Hearth is formed from a single sheet of No. 10 gauge steel plate with edges reinforced with 3/4-inch angle iron, making it absolutely seamless—therefore, rust proof and indestructible.

These Forges are furnished regularly with No. 400 Champion "Whirlwind" Blast Anti-clinker Heavy Nest Tuyere Iron without extra cost.

It has the benefit received from the condensation of the heat to the center of the fire from the circular rotary Whirlwind Blast with no waste of heat going up the chimney, and will soon save enough in the cost of coal alone to pay for the Forge.

These Forges meet every demand from light up to the heaviest work.

Crank turns either way to make a Blast.

Each turn of the Crank produces 40 complete Revolutions of the Blast Wheel. All Blower Speeds should be counted before purchasing, as high speed of the Fan Wing can only make a High Pressure White Heat Blast.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>408</td>
<td>30 x 30 x 6&quot;</td>
<td>12&quot;</td>
<td>300 lbs</td>
<td>Fachabais</td>
</tr>
<tr>
<td>409</td>
<td>30 x 30 x 6&quot;</td>
<td>12&quot;</td>
<td>315 lbs</td>
<td>Fachabais</td>
</tr>
<tr>
<td>407½</td>
<td>30 x 30 x 6&quot;</td>
<td>12&quot;</td>
<td>360 lbs</td>
<td>Fachabais</td>
</tr>
<tr>
<td>407½</td>
<td>30 x 30 x 6&quot;</td>
<td>12&quot;</td>
<td>360 lbs</td>
<td>Fachabais</td>
</tr>
</tbody>
</table>

Horseshoers' Full Hood, extra

Water Tank, extra

No. 408 and 409 Forges are same as No. 408 and 409 Forges less Blower Head, Blower Arm and Pipe.
CHAMPION CAST IRON BLACKSMITH FORGES

Size of Hearth, 28 x 40 Inches  Size of Hearth, 32 x 45 Inches  Fan, 12 Inches in Diameter

Made with Adjustable Ball Bearings Only

Champion Cast Iron Blacksmith Forges are large and supplied with a deep Coal Box which is entirely out of the way, keeping the coal in any degree of dampness.

The Blower used is the Famous 400 Champion "Patented" High-Speed Spiral-Gearced Blower shown on pages 2 and 3.

The Forge is supplied with the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

The Blast of these Forges is sufficient for the heaviest as well as the lightest work and for use in Blacksmith shops, Garages, Machine shops, etc., and any special work.

Crank turns either way to make a Blast.

Each Turn of the Crank produces 66 complete Revolutions of the Blast Wheel, making a High Pressure White Heat Blast.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fun</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>433</td>
<td>32 x 45&quot;</td>
<td>12&quot;</td>
<td>400 lbs.</td>
<td>Fabrizii</td>
</tr>
<tr>
<td>433A</td>
<td>28 x 40&quot;</td>
<td>12&quot;</td>
<td>325 lbs.</td>
<td>Fredamere</td>
</tr>
<tr>
<td>433B</td>
<td>17 x 24&quot;</td>
<td>100 lbs.</td>
<td>Fullrow</td>
<td></td>
</tr>
</tbody>
</table>

No. 433. Water Tank, Extra
No. 11 Forge same as No. 433. Forge less Blower Head, Blow Arm and Pipe

CHAMPION LARGE CAST IRON FORGES

Made with Adjustable Ball Bearings Only

The Champion Large Cast Iron Blacksmith Forges represent the largest Blacksmith Forges built. For Railroad Shops, Plow Works, Heavy Wagon Works, and Blacksmith Shops making extra heavy work a specialty.

The Heaths are built of cast iron and very heavy, that can be built up with fire brick, giving every advantage that can be had with a Forge built out of stone or brick.

The Blower attached to these Forges is the Famous 400 Champion "Patented" High-Speed Spiral-Gearced Blower illustrated on pages 2 and 3.

Supplied with the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fun</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>430</td>
<td>35 x 42&quot;</td>
<td>7&quot;</td>
<td>12&quot;</td>
<td>200 lbs.</td>
</tr>
<tr>
<td>430A</td>
<td>35 x 42&quot;</td>
<td>34&quot;</td>
<td>17 x 24&quot;</td>
<td>100 lbs.</td>
</tr>
</tbody>
</table>

No. 430. Water Tank, Extra

CHAMPION BOILERMAKERS' RIVET AND MACHINISTS' FORGES

With Cast Iron Hearth

Made with Adjustable Ball Bearings Only

No. 434 Champion Boilermakers' Forge, with shield, is supplied with the No. 400 Champion "Patented" High-Speed Spiral Gearced Blower as shown on pages 2 and 3.

Size of hearth makes it a large Forge for Boilermakers' Bridge Builders, Ship Builders, Railroad Shops, Tank Builders, and Garages. It is guaranteed to supply sufficient blast for welding 4-inch iron in ten minutes with great ease.

No. 435 Champion Machinists' Forge is the same as the No. 434 Forge with Half Hood. For Machinists, Plumbers, Miners, Marble Workers, Millers, Railroad Repair Shops, Locksmiths, Fitters and Manufacturers.

No. 437 Champion Rivet Forge is a desirable Forge for Jewelers, Bicycle Repairers, Tool Rooms, Tool Builders, Miners, Prospectors, Boilermakers, Bridge Builders, Elevated Railroads, etc.

Crank Turns either way to make a Blast.

Each Turn of the Crank produces 66 complete Revolutions of the Fan Wheel.

No. 438 Champion Toolmakers' Forge is the same as the No. 437 Forge, with Half Hood.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fun</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>434</td>
<td>22 x 35&quot;</td>
<td>12&quot;</td>
<td>Wind Shield</td>
<td>90°</td>
</tr>
<tr>
<td>435</td>
<td>22 x 35&quot;</td>
<td>12&quot;</td>
<td>Half Hood</td>
<td>30°</td>
</tr>
<tr>
<td>436</td>
<td>17 x 24&quot;</td>
<td>17 x 24&quot;</td>
<td>Half Hood</td>
<td>30°</td>
</tr>
<tr>
<td>437</td>
<td>22&quot;</td>
<td>9&quot;</td>
<td>Wind Shield</td>
<td>35°</td>
</tr>
<tr>
<td>438</td>
<td>22&quot;</td>
<td>9&quot;</td>
<td>Half Hood</td>
<td>35°</td>
</tr>
</tbody>
</table>

No. 11S Forge same as No. 438 less Blower Hoses, Blow Arm and Pipe.

www.OzarkToolManuals.com
CHAMPION LANCASTER GEARED BLOWERS

Trade Mark Registered
No. 146,439, Sept. 6, 1921

No. 40L

The Champion Lancaster Geared Blowers show improvement in general construction, which makes them the best low-priced blower that has ever been placed on the market.

The improvement consists of an increase in the size of the gear case, allowing larger gears and larger bearings, whereby the life of the blower is doubled, and the fan case is constructed heavier and stronger.

The Champion Lancaster Geared Blowers are well built, low priced, direct-driven blowers which meet the demand for a lower priced blower than the Famous 400 Champion "Patented" High Speed Spiral-Geared Blower, shown on pages 2 and 3. This Blower is supplied with the Champion Patent Adjustable Nozzle Tuyère Iron and Pipe complete. Extra large gears are used, all accurately cut, running in a bath of oil and all lubricated same as on our higher priced Blowers. The high speed spindle is equipped with ball bearing—the only Ball Bearing Blower at its price on the market. It is smooth running, with the crank turning either direction to make the blast.

<table>
<thead>
<tr>
<th>No.</th>
<th>Fan</th>
<th>Weight</th>
<th>Cape</th>
</tr>
</thead>
<tbody>
<tr>
<td>40L Legs</td>
<td>12&quot;</td>
<td>100 lbs.</td>
<td>Fabustem</td>
</tr>
<tr>
<td>40L Bench</td>
<td>12&quot;</td>
<td>75 lbs.</td>
<td>Fabustem</td>
</tr>
</tbody>
</table>

The No. 40 Champion Lancaster Gearing is large and accurately cut. All the higher speed gears are helical cut, insuring smooth easy running. The shafts are bushed, permitting replacement if wear develops in any bearing at a nominal cost, without discarding the entire Blower. The high-speed shaft is equipped with ball bearing, insuring easy running.

No. 40L

Ball Bearing

www.OzarkToolManuals.com
CHAMPION LANCASTER GEARED BLACKSMITH FORGES

Size of Hearth, 32 x 45 Inches  Fan, 12 Inches in Diameter
Size of Hearth, 28 x 40 Inches

Champion Lancaster Geared Blacksmith Forges are well-built, direct-drive Blacksmith Forges with Cast Iron Hearth which has been built to meet the demand for cheaper Forges.

The Blower and Gearing used on these Forges are precisely the same as the No. 40 Blower shown on page 7.

The Tuyere Iron used on this Forge is a Heavy Nest Ball Tuyere Iron, weighing 50 lbs.

It therefore represents complete, well-built Blacksmith Forges at a very reasonable price.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>22 x 45&quot;</td>
<td>12&quot;</td>
<td>12°</td>
<td>205 lbs.</td>
<td>Fabulo</td>
</tr>
</tbody>
</table>

No water tank, extra

CHAMPION LANCASTER GEARED AGRICULTURAL FORGE

Size of Hearth, 23 x 35 Inches  Fan, 12 Inches in Diameter

No. 43 Champion Lancaster Geared Agricultural Forge is the same in its direct gearing for making blast as the No. 40 Lancaster Geared Blower, page 7. This makes a well-built, low-priced, direct-drive forge; a good blast producer and is recommended for farmers' use. It is well finished in every respect with a large size hearth and fan, and is a suitable Agricultural Forge where a direct-drive forge of these dimensions is required.

No. 42 Champion Lancaster Geared Direct-Drive Agricultural Forge is the same as No. 43, except that it has a shield in place of a half hood.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>23 x 35&quot;</td>
<td>12&quot;</td>
<td>12°</td>
<td>215 lbs.</td>
<td>Fabrefactor</td>
</tr>
<tr>
<td>42</td>
<td>23 x 35&quot;</td>
<td>12&quot;</td>
<td>30°</td>
<td>200 lbs.</td>
<td>Fabrikere</td>
</tr>
</tbody>
</table>

CHAMPION LANCASTER GEARED AGRICULTURAL FORGE

With Shield

Size of Hearth, 22 Inches  Fan, 10 Inches in Diameter

No. 45 Champion Lancaster Geared Agricultural Forge with shield is a suitable direct-drive forge for Farmers, Garage and general use where a well-built, cut-geared, low-priced, good blast producer is desired. The gearing for making blast is similar to the No. 40 Lancaster Geared Blower, page 7. It is a strong light forge for all kinds of portable work. It can be easily carried about and makes the best low-priced rivet forge ever manufactured for heating or preheating with coal or charcoal.

No. 46 Champion Lancaster Geared Agricultural Forge with half hood is the same in construction and finish as No. 45, except that it is supplied with half hood in place of shield, making it suitable for tempering tools and inside work in garages and elsewhere.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>22&quot;</td>
<td>10&quot;</td>
<td>135 lbs.</td>
<td>Fabaraz</td>
</tr>
<tr>
<td>46</td>
<td>22&quot;</td>
<td>10&quot;</td>
<td>145 lbs.</td>
<td>Fabison</td>
</tr>
</tbody>
</table>

www.OzarkToolManuals.com
CHAMPION LANCASTER GEARED RIVET FORGES

Size of Hearth, 18 inches Fan, 10 Inches in Diameter

No. 48 Champion Lancaster Geared Rivet Forge is a moderate priced forge with Ball Bearings on the high speed shaft. This Steel Forge is supplied with the Lancaster Geared Blower used and shown on Forge No. 48, shown on page 8, making it a very convenient light and serviceable Rivet Forge at a moderate price.

For further particulars as to gearing and construction of this Blower, read description of No. 40 Blower on page 7.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>18&quot;</td>
<td>10&quot;</td>
<td>30&quot;</td>
<td>110 lbs.</td>
<td>Fabo</td>
</tr>
<tr>
<td>48A</td>
<td>18&quot;</td>
<td>10&quot;</td>
<td>30&quot;</td>
<td>180 lbs.</td>
<td>Faboter</td>
</tr>
<tr>
<td>48B</td>
<td>24&quot;</td>
<td>10&quot;</td>
<td>30&quot;</td>
<td>125 lbs.</td>
<td>Faborast</td>
</tr>
<tr>
<td></td>
<td>With half hood, extra</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHAMPION LANCASTER GEARED ARMY AND NAVY FOLDING FORGE

Size of Hearth, 18 x 22 x 7 inches Fan, 10 Inches in Diameter

No. 49 Champion Lancaster Geared Army and Navy Folding Forge is of the latest design, with the legs, tuyere pipe and blower head detachable, yet when assembled—rigidly attached in their proper position. When the loose parts are detached and packed in the case, they are firmly held in place, withstanding any amount of rough handling without breakage. This Forge is equipped with pressed steel handle to lift the forge about.

The Gearing is the same type as the Lancaster Geared Blower, shown on page 9, equipped with helical high-speed gearing, making it the best low-priced Folding Forge on the market.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>18 x 22 x 7&quot;</td>
<td>19&quot;</td>
<td>26&quot;</td>
<td>110 lbs.</td>
<td>Franker</td>
</tr>
</tbody>
</table>

CHAMPION LANCASTER GEARED BLACKSMITH STEEL FORGES

Nos. 47½, 47¾, 44¾ and 44¾A Champion Lancaster Geared Blacksmith Steel Forges are large, substantially built Forges with Heavy Neck Tuyere Iron.

No. 48½ and 48¾ have Tuyere like No. 48 Forge. Hearth is formed from a single sheet of No. 10 gauge steel plate, with edges reinforced with 3/4-inch angle iron, making it seamless—therefore, rust proof and indestructible; with legs securely riveted and substantially braced to the hearth.

The Blower is the No. 40 Blower with a Heavy Neck Tuyere Iron, making an excellent low-priced Blacksmith Forge.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>48½</td>
<td>24 x 24 x 6&quot;</td>
<td>12&quot;</td>
<td>Wind Shield</td>
<td>30&quot;</td>
<td>170 lbs.</td>
</tr>
<tr>
<td>44½</td>
<td>30 x 30 x 6&quot;</td>
<td>12&quot;</td>
<td>Wind Shield</td>
<td>30&quot;</td>
<td>295 lbs.</td>
</tr>
<tr>
<td>44¾</td>
<td>24 x 24 x 6&quot;</td>
<td>12&quot;</td>
<td>Wind Shield</td>
<td>30&quot;</td>
<td>265 lbs.</td>
</tr>
<tr>
<td>47½</td>
<td>30 x 36 x 6&quot;</td>
<td>12&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>300 lbs.</td>
</tr>
<tr>
<td>47¾</td>
<td>30 x 40 x 6&quot;</td>
<td>12&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>315 lbs.</td>
</tr>
<tr>
<td>44½</td>
<td>30 x 30 x 6&quot;</td>
<td>12&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>300 lbs.</td>
</tr>
<tr>
<td>48½</td>
<td>24 x 24 x 6&quot;</td>
<td>12&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>285 lbs.</td>
</tr>
<tr>
<td>44¾A</td>
<td>24 x 24 x 6&quot;</td>
<td>12&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>275 lbs.</td>
</tr>
<tr>
<td></td>
<td>With water tank, extra</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHAMPION EUREKA GEARED BLOWER
NO. 140

48 Revolutions of Blast Wheel to One Turn of Crank

The Champion Eureka Geared Blower is built to meet the de-
mands of the small blacksmith and farmer, who desires a low-priced
blower producing a blast sufficient for all needs.

This blower is built with high-speed helical gearing, giving 48
revolutions of the blast wheel to one turn of the crank, and the
gearing is enclosed in a dust-proof, oil-tight, rigid cast iron gear
cone. It is smooth running, with crank turning either direction to
make the blast.

It is furnished with a Ball Tuyere Iron and pipe complete.

<table>
<thead>
<tr>
<th>No.</th>
<th>Fan</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>140</td>
<td>10&quot;</td>
<td>60 lbs.</td>
<td>Gabusntaler</td>
</tr>
</tbody>
</table>

NO. 140 CHAMPION EUREKA GEARING
SHOWN IN DETAIL

The No. 140 Champion Eureka Gearing is spur cut on the slow
speed shaft and helical on the high
speed gear and pinion, making it
noiseless and easy running through-
out with greater speed to the fun
shaft per turn of the crank. The
High Speed shaft runs on the ball
thrust at the end of the shaft.
All gears are set in a cast-iron,
dust-proof gear case, insuring
rigidity not found in any other style at
equal price.

CAST IRON ANVIL

Champion Cast Anvils are made of the highest grade, tough
cast iron, with face channeled and ground to an extremely smooth
finish. These anvils are made in seven sizes, weighing approxi-
mately 10, 20, 30, 50, 75, 100 and 150 pounds each.

<table>
<thead>
<tr>
<th>No.</th>
<th>Height</th>
<th>Overall</th>
<th>Machined</th>
<th>Surface</th>
<th>Hardie</th>
<th>Rate</th>
<th>Round</th>
<th>Rate</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>4.5&quot;</td>
<td>7.5&quot;</td>
<td>5 x 2&quot;</td>
<td>0 x 0&quot;</td>
<td>4 x 4&quot;</td>
<td>none</td>
<td>10 lbs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>5.5&quot;</td>
<td>9&quot;</td>
<td>6 x 2&quot;</td>
<td>0 x 0&quot;</td>
<td>5 x 5&quot;</td>
<td>none</td>
<td>20 lbs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>6.5&quot;</td>
<td>11&quot;</td>
<td>7 x 2&quot;</td>
<td>0 x 0&quot;</td>
<td>6 x 6&quot;</td>
<td>none</td>
<td>30 lbs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>7.5&quot;</td>
<td>15&quot;</td>
<td>10 x 2&quot;</td>
<td>0 x 0&quot;</td>
<td>8 x 8&quot;</td>
<td>none</td>
<td>50 lbs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>8.5&quot;</td>
<td>17.5&quot;</td>
<td>11 x 2&quot;</td>
<td>0 x 0&quot;</td>
<td>10 x 10&quot;</td>
<td>none</td>
<td>75 lbs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>9.5&quot;</td>
<td>20&quot;</td>
<td>12 x 2&quot;</td>
<td>0 x 0&quot;</td>
<td>12 x 12&quot;</td>
<td>none</td>
<td>100 lbs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>11&quot;</td>
<td>25&quot;</td>
<td>15 x 2&quot;</td>
<td>0 x 0&quot;</td>
<td>15 x 15&quot;</td>
<td>none</td>
<td>150 lbs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHAMPION FORGE CO.
LANCASTER, PA., U.S.A.
CHAMPION EUREKA GEARED FORGES

With Cast Iron Hearth

48 Revolutions of Blast Wheel to One Turn of Crank

Size of Hearth, 23 x 30 Inches
Size of Hearth, 20 x 26 Inches
Size of Hearth, 18 x 20 Inches

Champion Eureka Geared Forges are equipped with a Cut-Geared, Crank-Driven Blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio, 48 revolutions of the blast wheel to one turn of the crank, makes a strong, steady, high-pressure blast with smooth easy turning—crank turning either direction. The gear case is cast iron, rigid, oil-tight and dust-proof.

No. 142

The large size hearth makes it very desirable for Machinists, Garages, Farmers, etc., or any place where a good commodious forge is desired.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>142</td>
<td>23 x 30</td>
<td>10&quot;</td>
<td>Windshield</td>
<td>30&quot;</td>
<td>140 lbs.</td>
</tr>
<tr>
<td>143</td>
<td>23 x 30</td>
<td>10&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>145 lbs.</td>
</tr>
<tr>
<td>242</td>
<td>20 x 26</td>
<td>10&quot;</td>
<td>Windshield</td>
<td>30&quot;</td>
<td>115 lbs.</td>
</tr>
<tr>
<td>243</td>
<td>20 x 26</td>
<td>10&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>120 lbs.</td>
</tr>
<tr>
<td>104</td>
<td>18 x 20</td>
<td>8&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>90 lbs.</td>
</tr>
</tbody>
</table>

CHAMPION EUREKA GEARED FORGES

With Cast Iron Hearth

48 Revolutions of Blast Wheel to One Turn of Crank

Diameter of Fan, 8 Inches

Champion Eureka Geared Forges are larger in hearth than is usually put on low-priced forges.

These Improved Forges are equipped with a cut-geared, crank-driven blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio gives 48 revolutions of the blast wheel to one turn of the crank, making a strong, steady, high-pressure blast with smooth, easy turning—crank turning either direction. The gear case is cast iron, rigid, oil-tight and dust-proof, giving modern advantages making them especially desired for general medium light work, such as Repairers, Garages, Farmers, etc.

No. 147

Size of Hearth, 22 Inches

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Fan</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>147</td>
<td>22&quot;</td>
<td>5&quot;</td>
<td>Wind Shield</td>
<td>30&quot;</td>
<td>80 lbs.</td>
</tr>
<tr>
<td>148</td>
<td>22&quot;</td>
<td>5&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>82 lbs.</td>
</tr>
<tr>
<td>145</td>
<td>18&quot;</td>
<td>5&quot;</td>
<td>Wind Shield</td>
<td>30&quot;</td>
<td>78 lbs.</td>
</tr>
<tr>
<td>146</td>
<td>18&quot;</td>
<td>5&quot;</td>
<td>Half Hood</td>
<td>30&quot;</td>
<td>72 lbs.</td>
</tr>
</tbody>
</table>

No. 145

Size of Hearth, 18 Inches
CHAMPION EUREKA GEARED FORGES
With Pressed Steel Hearth

48 Revolutions of Blast Wheel to One Turn of Crank
Size of Hearth, 24 x 35 x 3 Inches  Fan, 12 Inches in Diameter

No. 143-S Forge with Half Hood for indoor work is a good light-weight, medium-sized steel forge.

The Gears are cut and lay in a bath of oil, thus the Forges are silent running and durable.

These Forges are supplied with Heavy Nest Ball Tuyere Iron, so a large are can be produced to take ten work.

The above Forge can be supplied with a two different blower heads:

<table>
<thead>
<tr>
<th>No.</th>
<th>Head</th>
<th>Hearth</th>
<th>Hood</th>
<th>Fan</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>143S 140</td>
<td>24 x 35 x 3'</td>
<td>Half Hood</td>
<td>12&quot;</td>
<td>30&quot;</td>
<td>145 lbs.</td>
<td>Front</td>
<td></td>
</tr>
<tr>
<td>143S 140</td>
<td>24 x 35 x 3'</td>
<td>Shield</td>
<td>12&quot;</td>
<td>30&quot;</td>
<td>140 lbs.</td>
<td>Front</td>
<td></td>
</tr>
<tr>
<td>43S 40</td>
<td>24 x 35 x 3'</td>
<td>Half Hood</td>
<td>12&quot;</td>
<td>30&quot;</td>
<td>155 lbs.</td>
<td>Front</td>
<td></td>
</tr>
<tr>
<td>43S 40</td>
<td>24 x 35 x 3'</td>
<td>Shield</td>
<td>12&quot;</td>
<td>30&quot;</td>
<td>150 lbs.</td>
<td>Front</td>
<td></td>
</tr>
</tbody>
</table>

CHAMPION EUREKA GEARED FORGES
With Pressed Steel Hearth

48 Revolutions of Blast Wheel to One Turn of Crank
Diameter of Fan, 8 Inches

Champion Eureka Geared Forges are well-made, roomy, low-priced Forges for garage, machine shop, ranch or farm trade for general use. Are equipped with a cut-gear, crank-driven Blower—helical gears being used to give smooth running and noiseless operation. All gears run in a dust-proof, oil-tight gear case, which is cast iron—lining the gears up true, as there is no give like a steel gear case. Has double bearing supports to end of the shaft and the high-speed shaft is equipped with ball end thrust bearing, eliminating friction. Hearths are pressed steel—made of heavy gauge. Forge legs are bolted to heavy hearths and braced at bottom, making the best all around low-priced Forges on the market.

No. 143-S Forge has short legs, proving an extremely convenient Forge for prospectors.

No. 145-S Forge
Size of Hearth, 18 Inches

CHAMPION ELECTRIC STEEL FORGES
For Homecraft Service and General Repair Work

Sturdy Motor, without radio interference.
Blast regulated by damper on intake.
Toggle Switch for starting and stopping on fan case.
Ten feet of Cord, and attachment plug furnished.
Pipe Legs, fully braced, used to guarantee rigid foundation.
Motor for 110 volts, 60 cycles, single phase, only.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Size</th>
<th>Half Hood or Shield</th>
<th>Fan</th>
<th>Ht.</th>
<th>Wt.</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4143S Steel</td>
<td>24 x 35&quot;</td>
<td>Shield</td>
<td>10&quot;</td>
<td>30</td>
<td>145 Sorgen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4143S Steel</td>
<td>33 x 35&quot;</td>
<td>Half Hood</td>
<td>10&quot;</td>
<td>30</td>
<td>150 Sorgen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4147S Steel</td>
<td>24&quot;</td>
<td>Shield</td>
<td>5&quot;</td>
<td>30</td>
<td>52 Sotalia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4148S Steel</td>
<td>24&quot;</td>
<td>Half Hood</td>
<td>5&quot;</td>
<td>30</td>
<td>52 Sotalia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4147S Steel</td>
<td>18&quot;</td>
<td>Shield</td>
<td>5&quot;</td>
<td>30</td>
<td>48 Sotaque</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4146S Steel</td>
<td>18&quot;</td>
<td>Half Hood</td>
<td>5&quot;</td>
<td>30</td>
<td>59 Sotetto</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHAMPION MODERN PORTABLE FORGES
NEAT — COMPACT — STRONG — USEFUL

No. 1146S with Hand Blower  No. 1143S with Hand Blower  No. 1146SE with Electric Blower

Our neat popular-priced line, especially serviceable for Home Workshop, Schools, Industrial as well as Farm Trade.

The modern streamlined design and general efficiency and compactness of these forges, with the fuel storage space beneath the hearth of the forge is of particular advantage. The smaller sizes hold 100 lbs. of blacksmith coal or coke, the larger sizes up to 200 lbs. The upper door in the base receives the fuel, which feeds automatically to the lower storage reservoir; then fuel is removed as required from the lower door. This fuel storage space is compact and keeps the room in which the forge is used, neat and always clean.

Champion Eureka Cut-Gear Hand Blowers will furnish blast to heat iron 3" thick in ten minutes. Cut gears run in oil, in dust-proof, oil-tight gear case—crank turns either direction—without noise or vibration.

Champion Electric Blowers have sturdy motor, without radio interference. Blast regulated by damper on intake side. Toggle switch for starting and stopping, on fan case—attachment cord and plug. Motor for 110 volts, 60 cycles, single phase, only.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth Size</th>
<th>Depth</th>
<th>Blower</th>
<th>Half-Hood or Shield</th>
<th>Fan</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1145S</td>
<td>18&quot; Diam.</td>
<td>3&quot;</td>
<td>Hand</td>
<td>Shield</td>
<td>8&quot;</td>
<td>30&quot;</td>
<td>70</td>
<td>Celeratia</td>
</tr>
<tr>
<td>1146S</td>
<td>18&quot; Diam.</td>
<td>3&quot;</td>
<td>Hand</td>
<td>Half-Hood</td>
<td>8&quot;</td>
<td>30&quot;</td>
<td>75</td>
<td>Celerature</td>
</tr>
<tr>
<td>1147S</td>
<td>24&quot; Diam.</td>
<td>3&quot;</td>
<td>Hand</td>
<td>Shield</td>
<td>8&quot;</td>
<td>30&quot;</td>
<td>75</td>
<td>Celerature</td>
</tr>
<tr>
<td>1145S</td>
<td>24&quot; Diam.</td>
<td>3&quot;</td>
<td>Hand</td>
<td>Half-Hood</td>
<td>8&quot;</td>
<td>30&quot;</td>
<td>100</td>
<td>Celerauroid</td>
</tr>
<tr>
<td>1143S</td>
<td>24&quot; x 35&quot;</td>
<td>3&quot;</td>
<td>Hand</td>
<td>Half-Hood</td>
<td>10&quot;</td>
<td>30&quot;</td>
<td>185</td>
<td>Celerphus</td>
</tr>
<tr>
<td>1145SE</td>
<td>18&quot; Diam.</td>
<td>3&quot;</td>
<td>Electric</td>
<td>Shield</td>
<td>8&quot;</td>
<td>30&quot;</td>
<td>70</td>
<td>Celeriart</td>
</tr>
<tr>
<td>1146SE</td>
<td>18&quot; Diam.</td>
<td>3&quot;</td>
<td>Electric</td>
<td>Half-Hood</td>
<td>8&quot;</td>
<td>30&quot;</td>
<td>75</td>
<td>Celebrable</td>
</tr>
<tr>
<td>1147SE</td>
<td>24&quot; Diam.</td>
<td>3&quot;</td>
<td>Electric</td>
<td>Shield</td>
<td>8&quot;</td>
<td>30&quot;</td>
<td>75</td>
<td>Celebrable</td>
</tr>
<tr>
<td>1145SE</td>
<td>24&quot; x 35&quot;</td>
<td>3&quot;</td>
<td>Electric</td>
<td>Half-Hood</td>
<td>10&quot;</td>
<td>30&quot;</td>
<td>185</td>
<td>Celebromas</td>
</tr>
</tbody>
</table>
CHAMPION DIRECT-CONNECTED ELECTRIC BLOWERS

No. 20. For One to Two Ordinary Fires
or for any purpose requiring 100 cu. ft. of air per minute, and 2 oz. pressure
Nos. 21, 121, 221, 321 to burn Buckwheat, Rice or Barley Coal for heating.

No. 20 Champion Constant Speed Electric Blower is recommended for one to two fires, or as a Blower for similar blast requirements such as Dry Rooms, Refrigerators, Forced Draft for boilers, heating furnaces, for heating oil field kilns or general Oil Field work, in connection with heating kilns for cooking candy, as well as for ventilation.

When used in connection with two forge fires, each forge must have a blast gate to regulate the blast each forge requires. The best results are obtained when the Blower is set as close as possible to the work it is intended to do and avoid sharp turns in piping.

<table>
<thead>
<tr>
<th>No.</th>
<th>H. P.</th>
<th>Height</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>1/12</td>
<td>15&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>121</td>
<td>1/16</td>
<td>15&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>221</td>
<td>1/10</td>
<td>18&quot;</td>
<td>15&quot;</td>
</tr>
<tr>
<td>321</td>
<td>1/2</td>
<td>21&quot;</td>
<td>18&quot;</td>
</tr>
</tbody>
</table>

For use with five square feet of grate surface
4 1/2" 250 1 1750 65 lbs. Facar
For use with ten square feet of grate surface
4 1/2" 400 1 1750 70 lbs. Faccen
For use with fifteen square feet of grate surface
6" 600 1 1750 70 lbs. Faccion
For use with twenty square feet of grate surface
6 1/2" 600 1 1750 70 lbs. Fachear

NOTE: Above can be furnished as an Exhaust Fan if specially ordered.

CHAMPION DIRECT-CONNECTED ELECTRIC BLOWER

No. 2. For One to Four Ordinary Fires
or for any purpose requiring 200 cu. ft. of air per minute, and 2 1/2 oz. pressure

No. 2 Champion Constant Speed Electric Blower has been on the market for many years with thousands in use and giving the highest degree of satisfaction. We recommend this Blower for four forge fires, and will operate equally as well for producing blast for other purposes such as heating furnaces, forced draft in boiler rooms, furnishing fresh air for ventilation, Dry Rooms, Laundries, Oil Field work, Machine Shops; in fact, any place where air is required.

When used in connection with forge fires, each forge must have a blast gate to regulate the blast each forge requires. The best results, of course, are obtained when the Blower is set as near to the work as possible and avoid sharp turns in the piping.

<table>
<thead>
<tr>
<th>No.</th>
<th>Height</th>
<th>Outlet</th>
<th>Inlet</th>
<th>R. P. M.</th>
<th>B. P.</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>15&quot;</td>
<td>31&quot;</td>
<td>41&quot;</td>
<td>3500</td>
<td>1/2</td>
<td>70 lbs.</td>
<td>Facat</td>
</tr>
</tbody>
</table>

NOTE: Above can be furnished as an Exhaust Fan if specially ordered.

CHAMPION DIRECT-CONNECTED ELECTRIC BLOWER

No. 3. For One to Six Ordinary Fires
or for any purpose requiring 350 cu. ft. of air per minute, and 3 oz. pressure

No. 3 Champion Direct-Connected Constant Speed Electric Blower goes out to those looking for a real delivery of blast; therefore, in attaching a Motor to a Blower, we had no hesitancy in selecting the Champion Steel Pressure type of Fan Case, as we knew full well that with the large motor we supply, it would give satisfaction.

No. 3 Champion Electric Blower will operate six forge fires, and can be used for many other purposes such as on small foundry cupolas, furnaces, forging shops, heating drill bits for oil field work, forced draft for steam boilers, supplying fresh air for ventilating, or forcing air long distances where strong pressure is desired, laundry and dry rooms.

When used in connection with forge fires, a blast gate is required on each forge to regulate the blast required by each forge. The best results are obtained when Blower is set as near to the work as possible, avoiding sharp turns in the piping.

<table>
<thead>
<tr>
<th>No.</th>
<th>Height</th>
<th>Outlet</th>
<th>Inlet</th>
<th>R. P. M.</th>
<th>B. P.</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>20&quot;</td>
<td>41&quot;</td>
<td>6&quot;</td>
<td>3500</td>
<td>1/2</td>
<td>185 lbs.</td>
<td>Fact</td>
</tr>
</tbody>
</table>

NOTE: Above can be furnished as an exhaust fan if specially ordered.

Directions for Ordering Constant Speed Electric Blowers
1st.—Is current direct or alternating.
2d.—If alternating, kind cycles, phase and voltage.
3d.—60 cycles 110 or 220 volts furnished regularly.
4th.—Other cycles or voltages are special.

Champion Blower Forge Co.
Lancaster, Pa. U.S.A.
THE CHAMPION VARIABLE SPEED ELECTRIC PRESSURE BLOWER

The Original Variable Speed Electric Blower

With totally enclosed regulator to comply with all National and Local Underwriters' Requirements

The Blowers with the BIG MOTOR have

Universal Motor for Both Alternating and Direct Current. Pressure from over 2,000 Revolutions Per Minute. Detached Totally Enclosed Regulator with Six Speeds, 10-foot Attachment Cord and Plug to attach to any Light Socket

Champion Variable Speed Electric Blowers are especially built for blowing forge fires, furnaces, organs, and any other work requiring efficient blast.

These Blowers have the fan-case designed the same as our Steel Pressure Blowers, made by us for over forty-eight years and with snail-shape fan-case are built for high-pressure blast and durability.

The motor has silk-covered wire of the best insulation, is built with hammered steel shaft, sealed ball bearing, commutator with twenty-four bars of hard drawn copper, and large flat brushes which are staggered so that one brush does not track after the other on the commutator, insuring thereby double wearing life to the commutator.

Over 100,000 Champion Electric Blowers already sold have given us valuable experience, which we are glad to extend to our customers.

1st. The great failure in motor building is in overrating capacity, not allowing anything for endurance.

2nd. The CHAMPION uses all modern methods of electrical design, and furnishes a motor fully 40% above requirements in power capacity, therefore giving GIANT POWER, thus insuring full capacity and endurance.

3rd. All Champion MOTORS are ball bearing and fully enclosed with sufficient units of power guaranteed to run the Blower at highest speed of over 2,000 revolutions per minute, and at high pressure open and away from the fire for 10 hours without a single stop.

4th. All Champion Motors are built from the very highest grade of materials, best workmanship, and machinery of the latest up-to-date designs employed in winding and manufacturing the motor.

<table>
<thead>
<tr>
<th>No.</th>
<th>For Regular Use 1100 to 2500 R.P.M.</th>
<th>For Extra Heavy Use 1100 to 2825 R.P.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Height</td>
<td>Outlet</td>
</tr>
<tr>
<td>30</td>
<td>15&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>4000</td>
<td>13.25&quot;</td>
<td>3.25&quot;</td>
</tr>
<tr>
<td>4450</td>
<td>13&quot;</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>

Note.—Above can be furnished as an Exhaust Fan if specially ordered.

If No or 31 blowers are to be used for continuous duty use constant speed blowers No 21 for 1750 R.P.M. or No 20 for 3450 R.P.M.
NO. 400 CHAMPION "WHIRLWIND" BLAST ANTI-CLINKER HEAVY NEST TUYERE IRON

For General Blacksmiths

A Tuyere Iron that makes a "Whirlwind" Blast


With Over One Million "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Irons sold in forty years, with every user ready to testify that it heats iron one-third quicker, besides a great reduction in Coal Bills when figuring up profits at the end of the year's work, Explains Why:

The "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is:— A Tuyere Iron true to its name; A Tuyere Iron that produces a circular, rotary blast: A Tuyere Iron that will not blow the heat or hot air up and out of the chimney: A Tuyere Iron from which less blast is wasted 6 inches above the Tuyere Nest than 4 feet above any other Tuyere Iron: A Tuyere Iron that concentrates the blast and heat in the Tuyere Nest, thus makes a hotter fire and heats one-third quicker.

Don't delay installing the "Whirlwind" Blast in your fires as it saves at least one-half the heating elements of your coal pile from going up the chimney in waste.

The "Whirlwind" is no secret. We invite comparison. Hold your hand over the top of the "Whirlwind" Blast Tuyere when the blower is in blast and do the same with any other Tuyere Iron and you will immediately discover that less blast is lost 6 inches above the "Whirlwind" Blast Tuyere than 4 feet above any other Tuyere. It will pay to take the time to look this up.

The "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is supplied with a revolving pick to remove the clinkers out of the side slots, therefore, the slots can always be kept open without disturbing the fire from the top, assuring you at all times a full capacity of blast and guaranteeing a clean powerful fire.

No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is 8 inches deep, 81/2 inches wide and 10 1/2 inches long, over all 12 1/2 inches; Weight, 55 lbs. Code: Fabulonics.

CHAMPION HEAVY NEST TUYERE IRONS

No. 4 Champion Heavy Nest Tuyere Iron is intended for large fires of all kinds. It is also very desirable for Horseshoers. It requires no cleaning up. Its walls are heavy enough to withstand the hottest fires. Size of nest 8 inches deep at lowest curve point. Sides are 8 1/2 inches high. Length of nest 12 inches, with a width of 10 inches over the top.

<table>
<thead>
<tr>
<th>No.</th>
<th>Over All Dimension</th>
<th>Inside Depth</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>14 1/2 x 13 1/2</td>
<td>5 1/2</td>
<td>70 lbs</td>
<td>Frangent</td>
</tr>
</tbody>
</table>

CHAMPION PATENT ADJUSTABLE NOZZLE TUYERE IRON

No. 400B Champion Heavy Nest Ball Tuyere Iron is furnished with a center blast heavy nest, ball and rod. This is strictly a first-class Tuyere Iron and will give satisfaction wherever used.

<table>
<thead>
<tr>
<th>No.</th>
<th>Over All Dimension</th>
<th>Inside Depth</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>400-B</td>
<td>11 1/4 x 14</td>
<td>4</td>
<td>50 lbs</td>
<td>Frangelle</td>
</tr>
</tbody>
</table>


www.OzarkToolManuals.com
CHAMPION ELECTRIC STEEL BLACKSMITH FORGE NO. 440

The No. 440 Champion Electric Driven Steel Forge represents a large steel plate forge, with perpendicular sides 6 inches high, with the Champion No. 50 One Fire Variable Speed Electric Blower as shown on page 15, making it a very complete electrical outfit for those desiring a spacious steel-hearth forge; materially reducing the cost of a built-up brick hearth, to which an electric blower would have to be attached.

In ordering give voltage only.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>440</td>
<td>30 x 36&quot;</td>
<td>30&quot;</td>
<td>285 lbs.</td>
<td>Facture</td>
</tr>
<tr>
<td>449</td>
<td>30 x 40&quot;</td>
<td>30&quot;</td>
<td>300 lbs.</td>
<td>Facturer</td>
</tr>
<tr>
<td>453</td>
<td>24 x 24&quot;</td>
<td>30&quot;</td>
<td>270 lbs.</td>
<td>Facturatest</td>
</tr>
<tr>
<td>455</td>
<td>30 x 30&quot;</td>
<td>30&quot;</td>
<td>275 lbs.</td>
<td>Facturabus</td>
</tr>
</tbody>
</table>

With full hood, extra

With water tank, extra

CHAMPION ELECTRIC ROUND HEARTH STEEL FORGES

The Champion Electric Round Hearth Steel Forges are built of heavy steel plate with structural iron, attached to which is the No. 50 One Fire Variable Speed Electric Blacksmith Blower, shown on page 15, and recommended for Railway Shops or any place where extra heavy work is desired. These Forges are all equipped with the "Whirlwind" Blast Anti-Clinker Heavy Dust Turner Iron.

In ordering give voltage only.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>446</td>
<td>36&quot;</td>
<td>30&quot;</td>
<td>300 lbs.</td>
<td>Gamo</td>
</tr>
<tr>
<td>447</td>
<td>48&quot;</td>
<td>30&quot;</td>
<td>400 lbs.</td>
<td>Gad</td>
</tr>
</tbody>
</table>

With water tank, extra

CHAMPION ELECTRIC STEEL RIVET FORGE NO. 459

No. 459 Champion Electric Steel Rivet Forge is built for Rivet and Shipbuilding Trade. The Motor is protected from the weather, enabling this Forge to remain in the open without the motor or starting mechanism sustaining any damage. The Blower is equipped with a Glass Speed Variable Speed Regulator, manipulated by handle attachment, as shown. The Hearth is exceptionally deep, permitting heating a large quantity of rivets at one time.

In ordering give voltage only.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>459</td>
<td>18&quot;</td>
<td>30&quot;</td>
<td>126 lbs.</td>
<td>Frost</td>
</tr>
</tbody>
</table>
CHAMPION ELECTRIC
EXTRA HEAVY CAST IRON FORGE
NO. 442

No. 442 Champion Electric-Driven Extra Heavy Cast Iron Forge is the largest Electric Blacksmith Forge built. The size of the hearth is 38 x 42 x 7 inches deep, making it a Forge equal in size to any stationary brick forge that can be built. This Forge is supplied with the "Whirlwind" Blast Anti-Clunk Heavy Nest tuyere Iron and Coal Box, with the No. 51 Champion Variable Speed Electric Blower attached, shown and described on page 15, and in every respect built for extra heavy work. We recommend it for any place where extra heavy work is expected. In ordering give voltage only.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Blower</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>442</td>
<td>38 x 42 x 7&quot;</td>
<td>51</td>
<td>26&quot;</td>
<td>510 lbs.</td>
<td>Fustollma</td>
</tr>
<tr>
<td>442B</td>
<td>39 x 52 x 7&quot;</td>
<td>51</td>
<td>26&quot;</td>
<td>605 lbs.</td>
<td>Fustonar</td>
</tr>
<tr>
<td>442C</td>
<td>45 x 42 x 7&quot;</td>
<td>51</td>
<td>26&quot;</td>
<td>925 lbs.</td>
<td>Fustonast</td>
</tr>
<tr>
<td>442D</td>
<td>38 x 42 x 31&quot;</td>
<td>50</td>
<td>26&quot;</td>
<td>490 lbs.</td>
<td>Fustomatt</td>
</tr>
</tbody>
</table>

No. 442

CHAMPION ELECTRIC
CAST IRON BLACKSMITH FORGE
NO. 441

No. 441 Champion Electric Driven Cast Iron Forge represents a large hearth Forge with "Whirlwind" Blast Anti-Clunk Heavy Nest Tuyere Iron and Champion Patented Coal Box, with the No. 50 Champion One-Pipe Variable Speed Electric Blower, as shown and described on page 15, attached, making a very complete and practical Electric Blacksmith Outhouse for those desiring a heavy duty cast iron forge. In ordering give voltage only.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>441</td>
<td>32 x 45&quot;</td>
<td>30&quot;</td>
<td>400 lbs.</td>
<td>Factavim</td>
</tr>
<tr>
<td>441j</td>
<td>28 x 40&quot;</td>
<td>26&quot;</td>
<td>300 lbs.</td>
<td>Facturan</td>
</tr>
</tbody>
</table>

No. 441

CHAMPION ELECTRIC
CAST IRON MACHINISTS’ FORGE
NO. 443

No. 443 Champion Electric Driven Cast Iron Machinists’ Forge represents a medium size hearth Forge, with the No. 50 Champion One-Pipe Variable Speed Electric Blower, shown and described on page 15, which makes a particularly good forge for garage use in heating and tempering. In ordering give voltage only.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>443</td>
<td>31 x 35&quot;</td>
<td>30&quot;</td>
<td>150 lbs.</td>
<td>Fusamos</td>
</tr>
</tbody>
</table>
CHAMPION STATIONARY BLAST FORGES

Nos. 12, 12½, 18½ and 11½ Champion Stationary Blast Forges are made Extra Heavy for all kinds of blacksmith fires—far superior to building a forge of brick or stone. These Forges are made for power but can be used for hand, or electric blower as well. They are supplied with the Champion Blast Gate, Water Tank and the No. 400 Champion “Whirlwind” Blast Anti-Clinker Heavy Nest Tuyere Iron without extra cost.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Depth</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>38 x 42&quot;</td>
<td>26&quot;</td>
<td>7&quot;</td>
<td>400 lbs.</td>
<td>Falter</td>
</tr>
<tr>
<td>12½</td>
<td>39 x 52&quot;</td>
<td>26&quot;</td>
<td>7&quot;</td>
<td>500 lbs.</td>
<td>Faltered</td>
</tr>
<tr>
<td>18½</td>
<td>48 x 62&quot;</td>
<td>26&quot;</td>
<td>7&quot;</td>
<td>720 lbs.</td>
<td>Falchion</td>
</tr>
<tr>
<td>11½</td>
<td>38 x 42&quot;</td>
<td>26&quot;</td>
<td>7½&quot;</td>
<td>450 lbs.</td>
<td>Frager</td>
</tr>
</tbody>
</table>

With Half Hood, extra
Downdraft Hood, extra

The Champion Nos. 35, 36 and 36½ Round Steel Stationary Blast Forges are built from Heavy Steel Plate and Structural Steel. Where room is an object it often meets a demand no other Stationary Blast Forge can meet. They are supplied with the Champion Blast Gate, also No. 400 Champion “Whirlwind” Blast Anti-Clinker Heavy Nest Tuyere Iron. The Telescopic Canopy Hood is the most satisfactory and complete Forge Hood that ever has been placed on a Forge. The fact that the Hood is counter-balanced by a cast iron ring around the pipe makes it easy to raise or lower, and will remain without fastening at any height desired by the mechanic.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>36&quot;</td>
<td>38&quot;</td>
<td>250 lbs.</td>
<td>Falldown</td>
</tr>
<tr>
<td>36</td>
<td>48&quot;</td>
<td>50&quot;</td>
<td>375 lbs.</td>
<td>Fallunt</td>
</tr>
<tr>
<td>36½</td>
<td>60&quot;</td>
<td>58&quot;</td>
<td>600 lbs.</td>
<td>Falzone</td>
</tr>
</tbody>
</table>

Water Tank, extra

Telescopic Hood, extra

No. 35 Champion Telescopic Canopy Hood, 36 in. in Diam.; Pipe, 9 in. In Diam.; Maximum Length, 9 Ft. 2 In.; Minimum Length, 6 Ft. 10 In.; Weight, 400 lbs. Code—Falltub.

No. 36 Champion Telescopic Canopy Hood, 42 in. in Diam.; Pipe, 9 in. In Diam.; Maximum Length, 9 Ft. 2 In.; Minimum Length, 6 Ft. 10 In.; Weight, 110 lbs. Code—Fallur.

No. 36½ Champion Telescopic Canopy Hood, 54 in. in Diam.; Pipe, 9 in. in Diam.; Maximum Length, 10 Ft.; Minimum Length, 7 Ft.; Weight, 150 lbs. Code—Fallstien.

The Champion Nos. 38, 39 and 39½ Square Steel Stationary Blast Forges are built for the Heaviest shop work possible out of Heavy Steel Plate and Structural Steel. They are well adapted for railroad shops and shipyards. They are supplied with a Champion Blast Gate and the No. 400 Champion “Whirlwind” Blast Anti-Clinker Heavy Nest Tuyere Iron.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>42 x 42&quot;</td>
<td>25&quot;</td>
<td>375 lbs.</td>
<td>Fagor</td>
</tr>
<tr>
<td>39</td>
<td>54 x 54&quot;</td>
<td>25&quot;</td>
<td>415 lbs.</td>
<td>Faror</td>
</tr>
<tr>
<td>39½</td>
<td>72 x 72&quot;</td>
<td>25&quot;</td>
<td>550 lbs.</td>
<td>Faraful</td>
</tr>
</tbody>
</table>

With Water Tank, extra.

www.OzarkToolManuals.com
CHAMPION STATIONARY DOWN DRAFT FORGES

No. 202DD Champion Stationary Down Draft Forge is one of the most popular types for Manual Training Service.

The hearth is cast iron, heavy and rigid, the base is constructed of steel. The No. 400 Champion Whirlwind Blast Anti-Clinker Heavy Noet Tuyere Iron is used. Furnished with blast gate, coal box and water tank.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Depth</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>202DD</td>
<td>27 x 36&quot;</td>
<td>29&quot;</td>
<td>33/4&quot;</td>
<td>552</td>
<td>Famiish</td>
</tr>
</tbody>
</table>

No. 202DDD is a double forge with two Tuyeres and hoods, especially adaptable where compactness is essential.

<table>
<thead>
<tr>
<th>No.</th>
<th>Hearth</th>
<th>Height</th>
<th>Depth</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>202DDD</td>
<td>59 x 36&quot;</td>
<td>29&quot;</td>
<td>33/4&quot;</td>
<td>975</td>
<td>Famiished</td>
</tr>
</tbody>
</table>

No. 202DDD
FORGE SHOP TOOLS

FORGE—Forge is used to heat metal of all kinds in order to bend, flatten or shape. Use regular smithing charcoal for fire to prevent smoking indoors.

VISE—3½" steel jawed machinist vise with generous anvil and horn. Equipped with cut-off hardie. Vise swivels 180° and is conveniently mounted next to forge.

DRILL PRESS—A 1½" 2 speed 1½" capacity drill press v-belt driven from electric motor. Drill can be swung radially around over vise in order to drill work clamped in vise or swung over floor to drill big work.

GRINDER—Double bronze bearing v-belt driven by electric motor. Guarded at one end for grinding open at other end for polishing. Comes with 6 x ½ grinding wheel, wire wheel, polishing wheel and cut-off wheel.

SHEAR—3" lever type shears. Capacity 3½" x ½" flat iron ½" round or suitable for notching or slitting sheet metal up to 14 gauge in steel aluminum or brass.

HAND TOOLS—consisting of fire tongs, Ball pein hammer, cut-off wheel, wire wheel, set of ½", ⅜", ⅜" steel taps and drill bits to match, one routing high speed steel burr, tap wrench and round anvil for use in vise Instruction manual with unit.

SPECIFICATIONS: 58½" high, 38" wide, 28" deep. Equipped with heavy duty ½ hp 110 volt single phase motor, cord, and plug to drive forge blower, grinder and drill press. Smoke pipe and exhaust blower extra if required. Shipping Wt. 240 lbs.

A COMPACT WORKSHOP IN ONE UNIT FOR WORKING IRON, SHEET METAL, ALUMINUM OR BRASS. COMPLETE AND READY TO USE. FOR HOME WORKSHOP, HOBBYIST FARM AND FACTORY.

CONSTRUCT—Metal Chairs, Tables, Benches, Magazine Racks, Trellises, Railings, Weather Vanes, Signs, Firetools, and many other interesting household articles. All tools and equipment necessary come with unit ready to run.

COMPLETE AT ONE PRICE.
Champion PORTABLE BARBECUE BROILER GRILL

There's only One Champion for better Barbecue

No unnecessary preparations to start the fire, simply roll up a piece of newspaper and light it. Pour on the charcoal and turn the crank on the blower. Within two minutes you will have a broiling fire, thus eliminating the necessity of using kindling wood, kerosene, or other items to start a charcoal fire. If you desire to sear the food in order to seal in the juices, simply turn the crank on the blower several times and the resulting hot fire will do the work. Otherwise, when the blower is not in operation, a steady uniform fire will burn in the hearth and cook the food to perfection.

Champion Barbecue Grills are equipped with a solid skirt or shield around the fire, so that no draft or breezes will blow the heat from under the cooking grill, thus saving charcoal and allowing the heat to be concentrated evenly all over the food on the grill.

Champion Barbecue Grills are equipped with a 18" x 9" hardwood carving table on which to prepare the meats. This hardwood table will not dull a knife as a metal table will and will not become scuffed, scarred, or rusty from knife marks.

The Champion Barbecue Grill is equipped with wheels so that it can be moved around the yard and taken indoors as desired. It is put together with wing nuts so that it can be easily disassembled and stowed away in small quarters. The entire unit is finished with heat-resisting aluminum paint. The blower produces a hot fire on a moment's notice and the crank is easily turned in either direction to produce the draft.

FISH AND BEEF—Fish, steaks, and roasts we recommend cooking directly on the grill with a moderately hot fire.

FOWL—Chickens and other fowl should be split in half and cooked with the inside or rib side towards the fire for approximately one-half hour after which turn the fowl over with the meat side down for 10 to 15 minutes. There is no need to go through the long laborious task of using a spit.

Doggies AND HAMBURGERS—Children like to cook their own doggie on a fork directly in the fire. Hamburgers must be started in a pan in order to prevent them from breaking up and can be put on the open grill to obtain the charcoal taste after cooking.

CORN—We recommend cooking corn in the husks directly on the grill covering it with a wet burlap and from time to time rewetting the burlap.

POTATOES—Potatoes should be laid around the edge of the hearth in the coal bed before starting the fire. They will then be gradually roasted directly in the fire.

No. 3145-SW Champion Portable Barbecue Broiler Grill with rubber tired wheels and 22" diameter cooking grill weighs crated 68 pounds.
CHAMPION ADJUSTABLE THREE JAW GEARED CHUCK

No. 100

Takes straight shank bits from 0 to 1 inch. Jaws are hardened and each jaw works in unison with each other, thereby holding bits centrally. Diameter of Champion Chuck 21 inches, length over all 31 inches.

The taper hole in Champion Chuck can be fitted with any size arbor: 4 inch, 5 inch, or No. 1, No. 2, No. 3, or No. 4 Morse Taper, as ordered.

No. 100 Champion Three-Jaw Chuck, Weight, 1 lb. Arbores 1-inch or 1-inch shank, as ordered. Arbores for No. 1, No. 2, No. 3 or No. 4 Morse Taper, as ordered.

CHAMPION SELF-FEED BENCH DRILL NO. 104

Made with Ball Bearings

No. 104 Bench Drill is unusually low priced. All bearings ground out of solid metal. Has lathe-turned and slotted table. Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable. Has two speeds for hand drilling.

SPECIFICATIONS

Drills to center of 12” circle. Drills holes from 0 to 1”. Spindle, 5/8” in diameter; has up-and-down run of 3 inches. Greatest distance from table to spindle, 71”. Greatest distance from spindle to base, 11 1/8”. Height over-all, 33 inches. Spindle bored like Champion Never-Slip Chuck, for 3/4 shank drill bits, if specially ordered, to take 1-inch shank bits.

Weight, 78 lbs. Code—F 2nd.

No. 104F Bench Drill, same as No. 104 Bench Drill, except equipped with 2-Jaw Chuck, taking straight shank bits up to 1 1/4 inch. Code—F 2nd/F 4th.

CHAMPION SELF-FEED POST DRILL NO. 108

Made with Ball Bearings

No. 108 Champion Post Drill is a low-priced, light-weight Drill, with moderate capacity. Spindle has end-thrust Ball Bearings, which save 50% in power. Has adjustable one-piece, slotted Table, which may be raised or lowered by means of a hand wheel.

Flywheel 6 inches in diameter has 1 1/2 inch race, grooved to take a V-belt. Has Adjustable Chuck—one revolution of which makes three revolutions of the fly wheel.

SPECIFICATIONS

Drills to center of 8” circle. Drills from 0 to 1/2”. Spindle 1-inch in diameter, has up-and-down run of 11”. Greatest distance from Table to spindle 8”. Height of drill 26 inches. Spindle bored to take 1” straight shank drill bits if specially ordered, to take 1 1/2”. Weight, 29 lbs. Code—F 2nd.

ABOVE DRILLS FURNISHED WITH A TURNED FLY WHEEL FOR V OR FLAT BELT FOR POWER

CHAMPION SELF-FEED POST DRILL NO. 103

Made with Ball Bearings

No. 103 Champion Post Drill is the lowest priced Back-Gear Self-Feed Post Drill on the market. Spindle has end-thrust ball bearings which save 50% in power, and are made from the highest grade lathe-turned steel. It has lathe-turned and slotted table. Champion Drills are all machine-jigged, therefore all parts are standard and interchangeable.

Has two speeds for hand drilling.

No. 1000 Utility Drill is a low priced Back-Gear Self-Feed Post Drill same as No. 103 Drill described above, equipped with an Adjustable Three-Jaw Chuck.

SPECIFICATIONS

Drills to center of 12-inch circle. Drills holes from 0 to 1 inch. Spindle, 5/8 inch in diameter; has up-and-down run of 3 inches. Greatest distance from table to spindle, 8 1/4 inches. Height of drill, 31”. Spindle bored like Champion Never-Slip Chuck to take 1 inch straight shank drill bits; if specially ordered, to take 1 1/2 inch. Weight, 60 lbs. Code—Fastner.

CHAMPION SELF-FEED MOTOR DRIVEN POST DRILL

No. 110

Made with Ball Bearings

No. 110 Champion Motor-driven Post Drill is just the same as No. 103 Drill described above, with 1/2 HP Electric Motor 110 volt A.C. and V Belt in every complete unit as illustrated, Weight 83 lbs. Code—Fabinto.

CHAMPION SELF-FEED POST DRILL

No. 98 and No. 101

Made with Ball Bearings

No. 98 and 101 Champion Post Drill has two speeds for hand drilling. Spindle has End Throat Ball Bearings. It has lathe-turned and slotted table. Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

End Throat Ball Bearings save 50% in power and are made from the highest grade of lathe-turned steel.

Spindle bored like Champion Never-Slip Chuck to take 1/2-inch straight Shank Drill Bits. If especially ordered, to take 1 1/2 inch.

SPECIFICATIONS No. 98

Drills to the center of a 14-inch circle. Drills from 0 to 1 1/2 inch hole. Spindle, 1 inch in diameter, has up-and-down run of 3 inches. Greatest distance from table to spindle, 10 inches. Height of drill, 40 inches. Weight, 98 lbs. Code—Fearless.

SPECIFICATIONS No. 101

Drills in the center of a 12-inch circle. Drills from 0 to 1 inch hole. Spindle, 3/4 inch in diameter, has up-and-down run of 3 inches. Height of drill, 32 inches. Weight, 75 lbs. Code—Fosano.
CHAMPION SELF-FEED
POST DRILL NO. 93½ and No. 90

Made with Ball Bearings. Has two speeds for hand drilling.
No. 93½ and No. 90 Champion Self-Feed Post Drills are high grade back geared Drills.
They have the following features:
- Spindle has End Thrust Ball Bearings.
- All Bearings are ground out of the solid metal.
- No Ballnut used on this Drill.
- The End Thrust Ball Bearings save 30 per cent in power and are made from the highest grade of lathe-turned tool steel.
- Has Automatic Self-Feed.
- It has lathe-turned and slotted table.
- Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS NO. 93½
- Drills to the center of a 15-inch circle.
- Drills holes from 6 to 1½-inch hole.
- Spindle 1½ inches in diameter, has up-and-down run of 3 inches.
- Greatest distance from table to spindle 10 inches. Height of drill 44 inches.
- Spindle bored like Champion Never-Slip Chuck to take in ½-inch Straight Shank Drill Bits. It is especially ordered to take ½ inch.
- Weight, 110 lbs. Code—February.

SPECIFICATIONS NO. 90
- Drills to the center of a 15½-inch circle.
- Drills from 6 to 1½-inch hole.
- Spindle, 1½ inches in diameter has up-and-down run of 3 inches.
- Greatest distance from table to spindle 15 inches. Height of drill 44 inches.
- Spindle bored like Champion Never-Slip Chuck to take in ½-inch Straight Shank Drill Bits. It is especially ordered to take ½ inch.
- Weight, 110 lbs. Code—February.

CHAMPION THREE-GEARED SELF-FEED
POST DRILL NO. 95, No. 96 and No. 4

Made with Ball Bearings

No. 95, No. 96 and No. 4 Champion Self-Feed Three-Geared Ball Bearing Post Drills are stocky in design. Have three gears to give second speed same turning direction of the crank as the first speed.
All Bearings are ground out of the solid metal.
No Ballnut used on the Drills.
The End Thrust Ball Bearings save 30% in power and are made from the highest grade of lathe-turned tool steel.
Have Automatic Self-Feed.
Lathed-turned and slotted table.
Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

No. 96 Champion Automatic Quick-Return Self-Feed Post Drill stands without a rival in its class in the markets of today.
The Quick-Return Lever is thrown into place while the Drill continues in motion, where it remains until the bit is raised out of the work and automatically stops.

SPECIFICATIONS NO. 95
- Drills to the center of a 16-inch circle.
- Drills from 6 to 1½-inch hole.
- Spindle 1½ inches in diameter has up-and-down run of 3 inches.
- Greatest distance from table to spindle 10 inches. Height of drill 44 inches.
- Spindle bored like Champion Never-Slip Chuck to take in ½-inch Straight Shank Drill Bits. It is especially ordered to take ½ inch.
- Weight, 110 lbs. Code—February.

SPECIFICATIONS NO. 96
- Drills to the center of a 15½-inch circle.
- Drills holes from 9 to 1½-inch holes.
- Spindle 1½ inches in diameter has up-and-down run of 3 inches.
- Greatest distance from table to spindle 9½ inches. Height of drill 44 inches.
- Spindle bored like Champion Never-Slip Chuck to take in ½-inch Straight Shank Drill Bits. It is especially ordered to take ½ inch.
- Weight, 135 lbs. Code—February.

SPECIFICATIONS NO. 4
- Drills to the center of an 18-inch circle.
- Drills from 6 to 1½-inch hole.
- Spindle 1½ inches in diameter has up-and-down run of 3 inches.
- Greatest distance from table to spindle 15 inches. Height of drill 54 inches.
- Spindle bored like Champion Never-Slip Chuck to take in ½-inch Straight Shank Drill Bits. It is especially ordered to take ½ inch.

ABOVE DRILLS FURNISHED WITH A TURNED FLY WHEEL FOR V OR FLAT BELT FOR POWER.
CHAMPION HAND-FEED AND QUICK-RETURN SELF-FEED POST DRILLS
MADE WITH BALL BEARINGS

No. 97
Champion Self-Feed and Hand-Feed Quick-Return Drill on both speeds has the Propeller Wheel Hand-Feed and Self-Feed independent of each other and for quick work the hand-feed acts as the quick return for the Drill Bit.

A capital drill for garages and hobby service stations.
The End Thrust Ball Bearings save 50 per cent in power.
It has three gears, giving second speed same turning direction as first.
It has lathe turned and slotted table.
It is furnished with a turned fly wheel for V or Flat Belt for Power.

SPECIFICATIONS

Drills to the center of 15-inch circle.
Drills holes from 0 to 1½ inches.
Spindle, 1¼ inches in diameter; has up and down run of 3⅛ inches.
Greatest distance from table to spindle, 12½ inches. Height of drill, 56 inches.
Spindle bored like Champion Never-Slip Chuck to take 7/8-inch Straight Shank Drill Bits. If especially ordered, to take 1¾-inch.
Weight, 165 lbs. Code—Fease.

No. 297
Made with Cut Gears

No. 297 and 397 Champion Self-Feed and Hand-Feed Quick-Return Drills represent a large and powerful Drill, equipped with both self-feed and hand-feed. The Propeller Wheel Hand-Feed and Self-Feed are independent of each other. The hand-feed acts as a quick return for the drill bit. The Upright Fly-Wheel Shaft runs on frictionless End Thrust Ball Bearings on its lower end, and is supplied with a heavy fly-wheel for keeping up momentum. It has double Back Cut Gears with two speeds, and to change from fast to slow is accomplished by shifting the cut gears. The Table is raised and lowered by a Rack and pinion can be turned back out of the way. It has End Thrust Ball Bearings which save 50 per cent in power. It has lathe turned and slotted table.

SPECIFICATIONS No. 297

Spindle, 1¾ inches in diameter; has up and down run of 9 inches. Drills holes up to 1⅛ inches.
Greatest distance from table to spindle, 19 inches. Height of drill, 72 inches.
Spindle bored like Champion Never-Slip Chuck to take 1⅜-inch Straight Shank Drill Bits. If especially ordered, to take 1¾ inch.
Drills to the center of a 24-inch circle.
Weight, 425 lbs. Code—Fiba.
No. 297P Drill, with Tight and Loose Pulleys, 11 Inch Diameter and 2½ Inch Face, for Hand and Power Combined. Speed, 80 R.P.M. Weight, 435 lbs. Code—Fibat.

SPECIFICATIONS No. 397

Spindle, 1½ inches in diameter; has up and down run of 9 inches. Drills holes up to 1⅝ inches.
Greatest distance from table to spindle, 19 inches. Height of drill, 72 inches.
Spindle bored like Champion Never-Slip Chuck to take 1⅜-inch Straight Shank Drill Bits. If especially ordered, to take 1¾ inch.
Drills to the center of a 24-inch circle.
Weight, 760 lbs. Code—Fibat.
No. 397P Drill, with Tight and Loose Pulleys, 11 Inch Diameter and 2½ Inch Face, for Hand and Power Combined. Speed, 80 R.P.M. Weight, 785 lbs. Code—Fibat.
The above line of Combination Automatic Self Feed and Double Compound Lever Feed Drills produces 80% more pressure at the point of drill bit than any other Drills. The Self Feed and Lever Feed are both independent of each other and are changed from one to the other in a fraction of a second. With either feed the Drill Spindle has instantaneous return of the Drill bit out of the hole drilled and again returned to the material for the next hole. They have two speeds, lever specially convenient for wood boring.

201, 203, 203 Elec., 203½, 203½ Elec. Drills all have Rack and Pinion to raise and lower the tables.

<table>
<thead>
<tr>
<th></th>
<th>Capacity</th>
<th>Circle Center</th>
<th>Up &amp; Down Run</th>
<th>Table to Spindle</th>
<th>Dia. Spindle</th>
<th>Height Drill</th>
<th>Spindle hole</th>
<th>H.P.</th>
<th>Weight</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>1½</td>
<td>16</td>
<td>4</td>
<td>11</td>
<td>1½</td>
<td>51”</td>
<td>½</td>
<td>195</td>
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<td>Faldfee</td>
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<td>200½</td>
<td>1½</td>
<td>18</td>
<td>4</td>
<td>12</td>
<td>1½</td>
<td>53”</td>
<td>½</td>
<td>260</td>
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<td>Falucha</td>
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<td>201</td>
<td>1½</td>
<td>21</td>
<td>4½</td>
<td>17</td>
<td>1½</td>
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<td>405</td>
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<td>203</td>
<td>1½</td>
<td>21</td>
<td>5½</td>
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<td>72”</td>
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<td>435</td>
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<td>203 Elec.</td>
<td>1½</td>
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<td>5½</td>
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<td>203½</td>
<td>1½</td>
<td>21</td>
<td>5½</td>
<td>20</td>
<td>1½</td>
<td>80”</td>
<td>½</td>
<td>625</td>
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<td>203½ Elec.</td>
<td>1½</td>
<td>21</td>
<td>5½</td>
<td>20</td>
<td>1½</td>
<td>80”</td>
<td>½</td>
<td>740</td>
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Extra for tight & loose pulleys.
CHAMPION No. 2400 24-INCH BALL-BEARING BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

Champion new No. 2400 Ball-Bearing Back-Geared Floor Drill is accurate ball bearing throughout for all around light, medium and heavy work up to $1\frac{1}{2}$" capacity. V Belt Drive for any make 1750 RPM Motor. Gear and Pinions are cut scientifically accurate running quiet at all speeds—25 to 680 RPM with 3 speeds on Power Feed. V Belt Driven fully guarded but easily accessible to change speeds.

Automatic stop can be set to feed spindle fast, medium or slow to any determined depth. Lever Feed, Wheel or Power Feed changed instantly for general all around drilling from small to largest hole. Table and base are accurately machined with T Slots in both table and base. We recommend this drill as an accurate all around general purpose ball bearing drill for smallest to $1\frac{1}{2}$" capacity.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Height of Drill, 70°</td>
<td></td>
</tr>
<tr>
<td>Distance between table and spindle, 28\frac{1}{2}&quot;</td>
<td></td>
</tr>
<tr>
<td>Distance between spindle and base, 44&quot;</td>
<td></td>
</tr>
<tr>
<td>Distance from column to center of spindle, 12\frac{1}{4}&quot;</td>
<td></td>
</tr>
<tr>
<td>Diameter of Column, 5\frac{1}{4}&quot;</td>
<td></td>
</tr>
<tr>
<td>Travel of Table on Column, 21&quot;</td>
<td></td>
</tr>
<tr>
<td>Diameter of Table, 18\frac{3}{4}&quot;</td>
<td></td>
</tr>
<tr>
<td>Eight Spindle Speeds</td>
<td></td>
</tr>
<tr>
<td>direct 130 240 360 480</td>
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</tr>
<tr>
<td>Back gears 45-45-72-120</td>
<td></td>
</tr>
<tr>
<td>Diameter of Spindle, 1\frac{1}{4}&quot;</td>
<td></td>
</tr>
<tr>
<td>Traverse of Spindle, 18°</td>
<td></td>
</tr>
<tr>
<td>The Power Feed per revolution of spindle for various steps on Power Feed, .002, .003, .006</td>
<td></td>
</tr>
<tr>
<td>Hole in Spindle to fit standard No. 4 Morse Taper</td>
<td></td>
</tr>
<tr>
<td>Floor Space required, 18\frac{1}{2}&quot; x 30&quot;</td>
<td></td>
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<tr>
<td>Horsepower required, 1\frac{1}{2} H.P.</td>
<td></td>
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<tr>
<td>Weight, 1250 lbs.</td>
<td></td>
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<tr>
<td>No. 2400 with V Double Belt Drive with 1\frac{1}{4} H.P. Motor current and voltage as ordered.</td>
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<tr>
<td>Can be furnished less Motor with 2 V Belts and Motor Pulleys—any bore to fit your Motor.</td>
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<tr>
<td>Champion No. 2400 Drill can be furnished with Positive Gear Feed if so ordered.</td>
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</table>
CHAMPION 2200 BACK-GEARED UPRIGHT V-BELT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

THE NEW IMPROVED CHAMPION 2200 BACK-GEARED POWER DRILL COMPLETELY V-BELT DRIVEN THROUGHOUT combines all modern features in many ways exceeds the higher-priced drills. Constructed to withstand heavy work, as well as light, rapid drilling. Built to take in wide range of work, making it the best all-round machine shop, manufacturing or garage drill on the market for general work.

The crown gear is 6 1/2 inches in diameter and 1-inch diameter pinion are larger and heavier than usually found on drills of this size, and all gears are generated scientifically accurate, insuring silent running and long life.

The spindle is carbon steel, ground to a micrometer fit, graduated and equipped with frictionless ball bearings. In addition to ball bearings in the spindle thrust, this drill has ball bearing under the crown gear. These thrust ball bearings are equipped with retainers packed with grease, that keep the walls automatically oiled three months, and with the bronze bushing in the head will outwear any other drill on the market.

The drill base is bored out and the column pressed in, accurately aligning the base with the spindle. The table is aligned perfectly with the spindle and the table arm is clamped with two clamps, insuring a rigid table, so accurate work can be done.

The drill is completely v-belt driven—from motor to countershaft are dual v-belts. Between countershaft and top drive shaft are a pair of 4 step heavy duty v-belt pulleys. Power feed is v-belt driven with quick change attachment.

The top bearing is 7 inches long and constructed so that wear can be taken up when necessary. The lower v-belt pulley bearings are bronze—another exclusive Champion feature.

Has three feeds—lever feed, wheel feed and power feed, with three speeds on the power feed, eight spindle speeds—changed from plain drill to back-geared drill by merely sliding the back gears in with lever attached.

The automatic stop will knock off the power feed at any desired depth, the spindle being graduated so that any hole 12 inches deep is to any fraction of an inch can be drilled without measuring the depth of the hole.

Quick-return handle gives rapid movement to the spindle. The spindle is counterbalanced with weight in hollow column, counterbalanced by elastic chain all enclosed. Has quick-setting screw to raise and lower the table. The gears are covered with guards and worm gear on power feed runs in a continuous bath of oil.

This drill is adapted for automobile repair shops as it will column or automobile or tractor cylinder with one setting of the motor.

**Specifications**

- **Base has 1 slot.**
- Three distinct complete feeds—power feed, wheel feed and lever feed.

2200 Electric V-Belt Drive Drill with 1 H.P., Motor current and voltage as ordered. Weight 1150 lbs. Code; Fig. 935.

Can be furnished less Motor with 2 V-Belts and double Y Motor Pulley, any bore to suit your Motor.

Spindle speeds—8 with use of back gears.

Capacity—drill 0 to 1 1/2 inches.

Diameter of crown gear, 6 1/2 inches.

Diameter of bevel pinion, 4 inches.


Bearings split on upper shaft are 7 inches long.

Phosphor bronze bearings in head.

Floor space, 5 x 50 inches.

H.P. required—1 H.P.

Without guards

Complete with guards

Champion 2200 Back-Geared Upright Power Drill can be furnished with Positive Gear Feed if so ordered.
CHAMPION 24-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

The 24-Inch Back-Geared Power Drill is constructed to withstand heavy work, as well as light and rapid drilling, making the best all-round drill on the market for general repair or manufacturing purposes.

This Drill has been especially designed for re boring cylinders on Ford Motor Cars, as well as Fordson Tractor cylinders, as the spindle has a 12-inch up-and-down movement, and with this exceptionally long traverse of the spindle enables the user to bore cylinders from top to bottom of practically all makes of Motor Car Cylinders on one setting, thus enabling the operator to do a class of work which heretofore required a 25-inch Drill, meaning an expenditure of almost double the cost of this Drill.

The brace being placed between the center of cone pulleys makes a rigid connection from top of drill to base, eliminating vibration.

The Crown Gear runs in a Phosphor Bronze Bushing of the highest grade, and the Crown Gear is also equipped with an End Thrust Ball Bearing, which reduces the friction and eliminates the wearing of upper end of Crown Gear Bearing, thus insuring easier running and durability.

The Spindle is graduated and is ground to a micrometer fit and equipped with frictionless ball bearings. All Gears are machine cut scientifically accurate, which insures silent running and long life. The long split bearings on top of horizontal shaft allow for taking up wear when necessary. The Drill is made with Planei Square Base, having T slots to enable heavy work to be held firmly to base. The base is constructed with a pocket on each side and front to retain oil or droppings from tool lubrication. The lower cone pulley bearings are equipped with ring oilers—another exclusive Champion feature.

The change from plain to back-geared Drill is done in an instant by a movement of the eccentric shaft.

Has eight speeds with three distinct and complete feeds: Power Feed, Hand Wheel Feed and Lever Feed. Has Automatic Stop with quick-return lever giving rapid movement to Spindle. Spindle is counterbalanced by special cable chain attached to weight in column. Has quick-acting screw for raising and lowering table. Drills with perfect accuracy from smallest holes up to 1½-inch.

SPECIFICATIONS

- Height of drill, 76 inches.
- Distance between table and spindle, 27½ inches.
- Distance between spindle and base, 43 inches.
- Distance from column to center of spindle, 12½ inches.
- Diameter of column, 5½ inches.
- Traverse of table on column, 21 inches.
- Diameter of table, 18 inches.
- Can be furnished 1600 lbs. with Motor Code: Finjan.

24" Back-Geared Belt Driven Drill with tight and loose pulleys 8" x 1½" to run at 300 R.P.M. as illustrated. Weight: 1025 lbs.

Eight Spindle Speeds—405, 215, 138, 88, 73, 42, 25, 15 R.P.M.

Diameter of spindle, 1½ inches.
Traverse of spindle, 12 inches.
The Power Feeds per revolution of spindle for the various speeds on power feed: .002, .003, .008.

Hole in spindle bored to fit Morse Tap Size No. 1.
Size of cone pulleys (4-step): 4, 5½, 7½, 9½.
Floor space required, 19½ x 47 inches.
Horse Power required, 1.

Champion 24-inch Back-Geared Upright Power Drill can be furnished with Positive Gear feed if so ordered.

www.OzarkToolManuals.com
CHAMPION 21-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

THE NEW IMPROVED CHAMPION 21-INCH BACK-GEARED POWER DRILL combines all modern features, in many ways excels the higher-priced drills. Constructed to withstand heavy work, as well as light, rapid drilling. Built to take in wide range of work, making it the best all-round machine shop, manufacturing or garage drill on the market for general work.

The crown gear 6 1/2 inches in diameter and 4-inch diameter pinion are larger and heavier than usually found on drills of this size, and all gears are generated scientifically accurate, insuring silent running and long life.

The spindle is carbon steel, ground to a micrometer fit, graduated and equipped with frictionless ball bearings. In addition to ball bearings in the spindle thrust, this drill has ball bearing under the crown gear. These thrust ball bearings are equipped with retainers, packed with grease, that keep the walls automatically oiled three months, and with the bronze bushing in the head will outwear any other drill on the market.

The drill base is bored out and the column pressed in, accurately aligning the base with the spindle. The table is aligned perfectly with the spindle and the table arm is clamped with two clamps, insuring a rigid table, so accurate work can be done.

The brace between the top and bottom countershaft stiffens the drill, so that when the heaviest work is done, both the upper and lower cone pulleys are held rigidly in position.

The top bearing is 7 inches long and constructed so that wear can be taken up when necessary. The lower cone pulley bearings are equipped with ring oilers—another exclusive Champion feature.

Has three feeds—lever feed, wheel feed and power feed, with three speeds on the power feed, eight spindle speeds—changed from plain drill to back-gearied drill by merely sliding the back gears in lever attached.

The automatic stop will knock off the power feed at any desired depth; the spindle being graduated so that any hole 12 inches deep down to any fraction of an inch can be drilled without measuring the depth of the hole.

Quick-return handle gives rapid movement to the spindle.

The table is counterbalanced with weight in hollow column, connected by cable chain all enclosed. Has quick-acting screw to raise and lower the table. The gears are covered with guards and worm gear on power feed runs in a continuous bath of oil.

This drill is adapted for automobile repair shops as it will rebore automobile or tractor cylinders with one setting of the motor.

SPECIFICATIONS

- Back Gear, Power Feed and Automatic Stop.
- Swings to center of 21 1/2-inch circle.
- Height of drill, 77 inches.
- Column diameter, 9 3/4 inches.
- Table diameter, 18 inches.
- Vertical travel on column, 21 inches.
- Spindle diameter in sleeve, 1 1/2 inches.
- Spindle travel, 12 inches.
- Eight Spindle speeds—400, 250, 150, 75, 32, 25, 15 R.P.M.
- Distance between table and spindle, 27 3/4 inches.
- Distance between spindle and base, 43 inches.
- Distance from column to center of spindle, 18 3/4 inches.
- Power feeds per revolution of spindle for various cone steps on power feed .002, .005, .009.
- Size of cone pulleys (4 step) 4, 5 3/4, 7 1/2, 9 x 2-inch face.
- Hole in spindle bored to fit No. 4 Morse Taper Base has T slots.
- Three distinct complete feeds—power feed, wheel feed and lever feed.

21" Electric V Belt Drive Drill with 1 H.P. Motor current and voltage as ordered. Weight 1150 lbs. Code Fig. 569.

Can be furnished less Motor with 2 V-belts and double V Motor Pulley, any bore to suit your Motor.

Can be furnished Electric Gear Driven if preferred to V Belt Drive. Weight 1150 lbs. Code Fig. 570.

21" Back-Gearied Belt Driven Drill with tight and loose pulleys 8 x 2 1/2" to run at 100 R.P.M., as illustrated. Weight 950 lbs. Code Fig. 571.

Spindle speeds—8 with use of back gears.

- Capacity—drills 8 to 1 1/2 inches.
- Diameter of crown gear, 6 1/2 inches.
- Diameter of boss pinion, 4 inches.
- Bearings split on upper shaft are 7 inches long.
- Phosphor bronze bearings in head.
- Floor space, 16 x 18 feet.
- H.P. required—1 1/2 H.P.
CHAMPION No. 2100 BACK-GEARED UPRIGHT ELECTRIC DRILL WITH LEVER, WHEEL POWER FEED AND AUTOMATIC STOP

THE MODERN CHAMPION 21-INCH BACK-GEARED ELECTRIC DRILL combines all the up-to-date features incorporated in the highest price drills and represents one of the most improved 21" drill presses on the American market. This drill is constructed to withstand the heaviest type of working as well as light and rapid drilling. Therefore, it is the best all round drill press for machine shop, tool room, general manufacturing use on the market.

The Crown Gear and pinion are larger and heavier than usually used on drills of this size. All gears are scientifically and accurately cut for quiet running and long life.

Spindle is carbon steel ground to micrometer fit, graduated and equipped with ball thrust bearings.

The Crown Gear runs on ball bearings and in a phosphor bronze bushing at the head of the drill. The drill throughout is equipped with high grade bearings designed for long life. The main bearings are split so adjustment can be made to take up wear.

This Drill is equipped with three distinct power feeds either through changing a V-belt or through positive gear reduction changed by manual lever.

Spindle has three distinct feeds—either power, lever or wheel feed. The power feed is automatically disengaged by a disengaging collar on the spindle which can be set to the desired drilling depth.

The drill is also equipped with a variable speed device operating by hand wheel giving an infinite number of spindle speeds from 25 R.P.M. to 555 R.P.M.

These speeds are indicated by an easily visible automatic pointer which points directly to the speed marked plainly on a large name plate in front of the operator's eyes. This complete range of speeds beside using the hand wheel is obtainable by use of the back gear lever which when engaged produces the lower half of the speed range indicated on the name plate and when disengaged, produces the upper half.

The table has T slots as well as holes for clamping the work. Table is run up and down the drill column by means of a crank geared to a steel rack through a pair of reduction gears which makes lowering and raising very easy. Table and table arm are also provided with 3 clamps which will lock it in any position.

A large well-balanced heavy floor base is provided with T slots and an oil groove.

The motor is controlled by push button station with overload protection mounted on the face of the drill back, easily accessible to the operator.

This drill represents the latest modern streamline development with all operating controls and levers easily accessible to the operator and all working parts enclosed for safety and protection against dirt and dust.
CHAMPION NO. 2000 HIGH SPEED DRILL
Swings to Center of 20-inch Circle

A high-grade full ball-bearing production drill up to 1" capacity.
A stocky direct V-belt drill, has six speeds, taking a large range of work.
Table raises and lowers with crank, all gears being enclosed.
Table tilts to any angle up to 45 degrees and can be swung out of the way.
Drill-head is clamped to ground column, can be raised or lowered or swung completely around.
Table has four slots and base two T-slots.
Depth gauge for drilling can be set to drill any depth desired up to 3".
Spindle is graduated in 1/32", and is bored for No. 9 Morse Taper Shank Bits.
Belt Guard is hinged, light and strong. Opens from side.
Drill can be equipped with either 1-H.P. ball-bearing motor for capacity up to 1", or 1/2-H.P. ball-bearing motor for capacity up to 3/4" and Switch; or can be furnished less motor.

<table>
<thead>
<tr>
<th>Height</th>
<th>68 in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance spindle to table</td>
<td>27 in.</td>
</tr>
<tr>
<td>Distance spindle to base</td>
<td>143/4 in.</td>
</tr>
<tr>
<td>Distance from column to center spindle</td>
<td>101/4 in.</td>
</tr>
<tr>
<td>Size of table</td>
<td>121/2 in. x 121/2 in.</td>
</tr>
<tr>
<td>Table raises and lowers</td>
<td>18 in.</td>
</tr>
</tbody>
</table>

Diameter of spindle | 3/4 in. |
Traverse of spindle | 5 in. |
Diameter of column | 3 3/4 in. |
Machined base | 12 3/4 in. x 12 3/4 in. |
Base overall | 20 in. x 12 1/2 in. |
Weight with 1-H.P. motor, 600 lbs. | 620 lbs. |
Weight with 1/2-H.P. motor, 600 lbs. | 620 lbs. |
Weight less motor, 520 lbs. | 520 lbs. |
No. 16F and 16B CHAMPION DELUXE DRILL.

The Latest Design 16" Production Utility and Tool Room Drill of 1/2" Capacity

This drill contains all modern features. Electric light mounted in head, illuminating completely all working surfaces yet shielded from the operator's eyes. Switch for light and to start and stop electric motor mounted conveniently to the operator at the head of the guard. Machine is precision built with floating spindle ball bearing throughout. Main frame adjustable for spindle quill wear. Spindle is accurately ground, quill graduated in 1/64" and is adjustable for wear. Depth gauge can be set to drill any desired depth which also is graduated and has lock nut to set the drill up to 4 inches the full travel of Spindle. Spindle can be locked in any position for use with rotary files or grinders in die making work. Drill furnished with oil groove table and base with T-slots in base. Motor is mounted on an adjustable base so belt can be tightened. Drill comes complete with three jaw key geared 1/2" capacity adjustable chuck, also motor and light completely wired to 10-foot cord with plug ready to run. Standard machine includes a 1/4 horse power 110 volt 60 cycle single phase motor. Motor is mounted on an adjustable slide base to give desired tension on belt. Larger motors and other current characteristics can be furnished on special order. Also a slotted table for woodworking attachments can be furnished.

SPECIFICATIONS

No. 16F Drill
Capacity 1/2" Steel or Iron.
Spindle Speeds — 450, 950, 1600, 2500, 5100, with 1725 R.P.M. motor.
12" x 12" oil grooved tilting table with 10" x 10" machined surface.
Base 15 1/4" x 19" with T-slots machined surface 10" x 10".
Depth gauge graduated in 1/64" stop collar can be set for any depth drill up to 4".
Spindle floating type 5/8" full ball bearing 4" up and down travel
Chuck jawed 5/8" with wrench.
Distance between chuck and base, 46 inches.
Column 2 3/4" precision ground heavy tubing.
Height, 68 inches.
Motor required 1/5 H.P. 1725 R.P.M. vertical mounted.
Shipping weight, 250 pounds.

No. 16B Drill
Same as 16F Drill except the following.
Height, 48 inches.
Distance between Chuck and Table, 16 inches.
Distance between Chuck and Base, 16 inches.
Traverse Table on Column, 9 inches.
Weight with Motor, 225 lbs.

www.OzarkToolManuals.com
Champion No. 1600 and 1600-B 16-Inch Swing 5-Speed Full Ball-Bearing Production Drill with T-Slot Oil Groove Base with Geared Adjustable Chuck ½" Capacity

A high grade 5-speed ball-bearing drill, 450 R.P.M. to 5100 R.P.M., ½" capacity in steel and ¾" capacity in wood. Pulleys are balanced making a smooth running high and low speed drill with oil grooved 12" x 12" table and oil grooved T-slot base so that an oil pump can be used for wet drilling.

Table tilts to any angle up to 45°. Pin under table lines up table parallel to spindle. The drill head rests on a collar, clamped to column and permits head to be swung around like a radial drill and can be clamped anywhere without falling when head clamp is released.

The spindle is graduated in ½" and automatic stop can be set for any depth drilling up to 4", the up and down travel of spindle. Head clamp to lock spindle also permits take up for wear. Drill comes regularly with 0° to ½" No. 33 Jacobs chuck which will take all makes of woodworking attachments.

Standard equipment is ½ H.P., AC, 110 volt, 60 cycle, single phase motor and 10-foot cord, plug and motor switch. The motor is mounted on an adjustable motor base so any make motor can be mounted and belt tension can be adjusted and locked for belt tension desired.

The spindle overhangs 8" beyond column. The base is 15" x 18" overall surrounded by 1½" oil groove 10" x 10" machined surface and T-slots.

**SPECIFICATIONS**

**1600 FLOOR DRILL**
- Oil groove table 12" x 12" with 10" x 10" machined surface.
- Spindle speeds—450, 950, 1600, 2500, 5100 R.P.M.
- Base 15" x 18" with 10" x 10" machined surface with T-slots.
- Floor space, 16 x 20 inches.
- Capacity ½" in steel, 2" in wood. No. 33 Jacobs chuck with geared wrench.
- Weight less motor, 310 lbs.

**1600-B DRILL**
- Specifications same as 1600 drill except for the following:
  - Height, 40 inches.
  - Distance between chuck and table, 12 inches.

**1600-B FLOOR DRILL**
- Same as No. 1600 with 18 inch Round Base.

**1600-B BENCH DRILL**
- Same as No. 1600B with Base 17" x 12" and 10" x 10" machined surface.
- Weight with motor, 375 lbs.
CHAMPION MOTOR DRIVEN BENCH DRILL
No. 1400

A good 14" Swing 3-speed Bench Drill with 3 1/2" Spindle with Ball Bearing thrusts for work up to 1/4" in cast iron or 3/8" hole in wood. Complete with 3 Jacobs Chuck taking straight Shank bits or can be had with 3 1/2" 3 Jaw Screw Chuck.

Comes complete with 1/4 H.P. 1750 R.P.M. Motor AC 110 volt 60 cycle single phase ready to run or can be ordered with a Motor with Belt Pulley with 1/2" hole in Motor Pulley.

Drill head can be swiveled completely around so larger work can be drilled if desired. Table is clamped to column with lock screw not marring column.

SPECIFICATIONS

Height 27"
Spindle Speed 750-1750-3400 R.P.M.
with 1750 R.P.M. Motor.
Table is 1 1/2" x 1 1/2" machined slotted surface to hold work.
Base is 1 1/2" x 8" machined slotted surface.
Spindle is 5/8" dia. accurately ground.
Spindle Travel 21/2" up and down has adjustable spring to return spindle when drilling.
Column is 1/2" solid cold rolled steel.
Distance between Chuck and Table 8".

Distance between Chuck and Base 19".
1750 R.P.M. 1/4 H.P. AC 110V 60C 1 PH Motor furnished regularly.
No 1480J with Jacobs Chuck.
No 1400 Drill with 4-Jaw Screw Chuck.
Weight 75 lbs.

CHAMPION MOTOR DRIVEN BENCH DRILL
No. 1100

A Drill sold at a very low price, yet does a wide range of work within the capacity found on so many higher priced drills. Has a positive gap adjustable 1/8" chase, three speeds 3400, 1750, 800. Graduated quill, with its drilling head adjustable to any height desired.

Motor and base adjustable to properly tighten the V-belt and attachment cord and plug.

SPECIFICATIONS

Height overall, 27".
Drills to center of 12" circle.
Diameter of spindle, 1 1/2".
Greatest distance base to chuck, 1 1/16".
Spindle travel, 2 1/2".
Capacity, 1".
Base size, 7 x 6 1/2".
Weight, 75 lbs.
Color—Ferrum.
Extra for 1 1/2" Jacobs Chuck.

CHAMPION MOTOR DRIVEN BENCH DRILL
No. 48E

Champion Motor Driven Bench Radial Drill with four speeds of spindle, represents features never found heretofore on a drill of this price.

The Motor is attached to the main frame of the Drill, in a vertical position, thereby eliminating cross-belts, and gives a direct drive to spindle with minimum friction; saving more power or securing more efficiency with same power.

The Lever Feed Handle actuates the up and down movement of the spindle by rack and pinion, giving a sensitiveness in drilling, which saves the breaking of drill bits. The Lever Feed Handle is arranged with spring to give automatic raising of the drill bit out of the hole being drilled, giving it sensitive feeling.

The Drill has screw and handle for quick raising and lowering of drilling head. The Drill Head can be securely clamped at any point, making it perfectly rigid and solid. Can be swung around on either side of column, enabling user to drill on either side of work bench, which is very convenient for drilling holes in frames or long pieces, usually requiring an expensive radial drill.

The spindle and graduated sleeve are ground to a micrometer fit and equipped with Ball Bearings.

Has Four Step Sheave Pulley with V-belt, giving great pulling power at all speeds, without any slipping. Four spindle speeds are secured. Is equipped with 1/4 H. P. motor, attachment cord, plug and switch ready to use.

Has self adjusting Belt Tightener to give belt the proper tension at all times.

SPECIFICATIONS

Drills to center of 14-inch circle
Spindle has Adjustable Three-Jaw Chuck to take straight Shank drill bits.
Drills holes up to 1/4 inch.
Up and down travel of spindle 2 1/2".
Travel of Drill Head on column 77".
Distance between spindle and base 12".
Spindle speeds 875-
1340-2885-3500 R.P.M.
Diameter of column 1 1/2".
Size of Plated Base 8 x 11".
Height 28 1/2".
Weight 120 lbs.
Color—Ferrum.

CHAMPION BLOWER & FORGE CO.
LANCASTER, PA., U.S.A.

www.OzarkToolManuals.com
CHAMPION ARBOR PRESS
NO. 4

No. 4 Champion Arbor Press is a large and heavy floor Arbor Press needed in factories, machine shops and garages. Frame is heavy cast iron. Ram and Pinion are steel—heat-treated. Hand lever is adjustable for large and small work; and is counter-balanced. The table is adjusted by means of a screw—permitting it to remain where placed.

The babbitted cushion on the base protects the mandrel when falling. The ring prevents the mandrel from falling lengthwise.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Capacity in tons</th>
<th>5</th>
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<tbody>
<tr>
<td>Diameter of work</td>
<td>18 inches</td>
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<tr>
<td>Largest Mandrel</td>
<td>3 inches</td>
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<tr>
<td>Size of Table</td>
<td>10 inches</td>
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<tr>
<td>Greatest Distance from Table to Ram</td>
<td>29 inches</td>
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</table>

<table>
<thead>
<tr>
<th>Size of Ram</th>
<th>22 inches x 2 1/2 inches</th>
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<tbody>
<tr>
<td>Floor Space</td>
<td>25 inches x 13 inches</td>
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<tr>
<td>Height</td>
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<tr>
<td>Leverage</td>
<td>60 to 1</td>
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<tr>
<td>Weight</td>
<td>1278 lbs. Code—Prince.</td>
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</table>

CHAMPION ARBOR PRESS
NO. 3

The No. 3 Champion Arbor Press is the popular size, for use in factories, machine shops and garages, and is designed to mount on the bench or lathe bed. The frame is cast iron; the ram and pinion of steel, heat-treated; the hand lever is adjustable for large and small work.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Capacity in tons</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>Diameter of work</td>
<td>12 inches</td>
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<tr>
<td>Largest Mandrel</td>
<td>1 inch</td>
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<tr>
<td>Size of Table</td>
<td>7 inches</td>
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<tr>
<td>Greatest Distance from Table to Ram</td>
<td>11 inches</td>
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<tr>
<td>Size of Ram</td>
<td>11 inches x 17 inches</td>
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<tr>
<td>Floor Space</td>
<td>8 inches x 19 inches</td>
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<tr>
<td>Height</td>
<td>23 inches</td>
</tr>
<tr>
<td>Leverage</td>
<td>45 to 1</td>
</tr>
<tr>
<td>Weight</td>
<td>160 lbs. Code—Prant.</td>
</tr>
</tbody>
</table>

CHAMPION BENCH SHEAR
NO. 10

Champion Shear is made of Steel, there being not a piece of cast iron used in its entire construction. It will stand up without breakage under the work that we claim and fully guarantee for it.

No. 1 Champion Shear: Weight, 255 lbs.; has 6-inch knives, 1 inch thick; will cut 4-inch by 1-inch flat iron, and 1-inch round or square iron. Weight 250 lbs. Code—Fikar.

No. 2 Champion Shear: Weight, 260 lbs.; has 12-inch knives, 1-inch thick; will cut 4-inch by 1-inch flat iron, and 1-inch round or square iron. Weight 252 lbs. Code—Fikene.

Champion Bench Shears is a sturdily built Hand Shear. The blades are of the best chilled steel. The handle of convenient length is compounded with a rack and pinion. It is a good light Shear for the workshop, farm, farm and general repairman.

Will Shear No. 10
Length of Shears, 11 inches.
Height of Shears, 8 1/2 inches.
Cuts round 1/8 inch.
Cuts flats 1/4 inch.
Weight, 10 lbs. Code—Cegara

CHAMPION STEEL PUNCHES

Champion Steel Punches are built entirely of steel. On account of the breakage-proof, and rigid construction this all-steel punch is far superior to the cast iron and cast steel machines. T he punches are hardened by a dead and the machine furnished with removable die holders.

No. 1 Champion Steel Punch: Capacity, 3/4-inch hole in 1-inch material; Thrust, 1 1/2 inches. Weight, 38 lbs. Code—Fingard.

No. 2 Champion Steel Punch: Capacity, 1-inch hole in 1-inch material; Thrust, 6 1/2 inches. Weight, 190 lbs. Code—Fikken.
CHAMPION POWER HACK SAW MACHINE
NO. 2
Capacity, 6 Inches x 6 Inches

No. 2 Motor-Driven

Champion No. 2 Power Hack Saw Machine combines many improved features, enabling it to saw fast and straight with maximum life to the saw blade.

It has the following important features:

A swivel vise cutting to an angle of 45 degrees with 14 inch saw blade.

Adjustable gravity feed by means of weight—reducing the breaking or buckling of saw blades to a minimum.

An automatic shut-off which instantly stops the machine when the sawing of material is completed.

A positive clutch—simply constructed—preventing complicated parts getting out of order.

Driven by accurately cut gears, requiring a V-belt and positive drive with less power.

An attachment to automatically lift the saw blade on return stroke and gradually replace the blade in contact with the work on cutting stroke, thereby increasing the cutting life of the blade, and reducing to a minimum the breakage.

CHAMPION POWER HACK SAW MACHINE
NO. 1
Capacity, 4 Inches x 4 Inches

No. 1

CHAMPION BENCH POWER HACK
SAW MACHINE
NO. 0
Capacity 2 1/2 inches x 2 1/2 inches

A well-made, back-gared Bench Hack Saw, which will cut fast and accurately up to its capacity.

Length of Blade 18"
Stroke of Blade 3"
Cutting capacity 2 1/2" x 2 1/2"
Drive pulley 6" diam. for V-Belt.
Size of base 10" x 5".
Speed of pulley 400 to 440 R.P.M.
Gear ratio 2:1 to 1.
Weight 40 lbs.

Details:

Length of Blades, 8, 12 or 14 inches.
Stroke of Blade, 6 inches.
Cutting Capacity, 6 inches x 6 inches.
Driving Pulley, 8 inches diam. x 1/2 inch V-Belt.
Floor Space required, 30 inches x 18 inches.


Code—Benzoe.
CHAMPION POWER HACK SAW MACHINE
WET CUT V BELT DRIVE

NO. 3
Capacity 8 inches x 8 inches

Champion No. 3 Wet Cut V Belt Motor Driven Power Hack Saw Machine has many improved features which saws fast and straight and pump for cooling system.

**Special features are:**

- Lifts on forward stroke.
- All Gears are machine cut.
- Motor adjusted to tighten belt giving 3 speeds 90—110—130 R.P.M.
- Automatic shut off stops machine when sawing is completed on forward stroke.
- Gravity feed adjusts various cutting conditions.
- Swivel vise cuts to an angle of 45° up to 6 inches.
- A Position Clutch prevents parts getting out of order.
- An eccentric to automatically lift the saw blades on return stroke and gradually replacing the blade in contact with the work in cutting slot.
- Cooling pump, gear operated, applies cutting compound on the blade.

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Blade</td>
<td>14, 17 or 18&quot;</td>
</tr>
<tr>
<td>Stroke of blade</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Cutting capacity</td>
<td>8 x 8&quot;</td>
</tr>
<tr>
<td>Driving Pulley</td>
<td>8 1/2 x 3/8 V Belt</td>
</tr>
<tr>
<td>Vise Jaws</td>
<td>6 3/4 long</td>
</tr>
<tr>
<td>Gear Ratio</td>
<td>52 to 1</td>
</tr>
<tr>
<td>Speed of Pulley, Adjustable</td>
<td>140 to 220 RPM</td>
</tr>
<tr>
<td>Floor Space</td>
<td>18&quot; x 36&quot;</td>
</tr>
<tr>
<td>Size of Motor</td>
<td>1/2 H.P.</td>
</tr>
<tr>
<td>Weight</td>
<td>425 lbs.</td>
</tr>
</tbody>
</table>

Champion Blower Forge Co.
Lancaster, Pa., U.S.A.
HERCULES POWER HAMMER

With Flexibility in Stroke of a Hammer in a Mechanic’s Hand

Made in Three Sizes

Hercules "Patented" Power Hammer is made in three sizes: No. 0 with ram weighing 30 pounds, No. 1 with ram weighing 50 pounds, and No. 2 with ram weighing 125 pounds. They contain all the good features of the best Hammer ever built, and sell at a moderate figure.

The frame and anvil are cast in one solid piece, therefore insures perfect alignment of the die and a solid anvil, giving rigidity and solidity for the reception of severe and rapid blows.

The position of the dies is such that there is no limit to the length of the bar which can be worked.

They are double-sided Hammers, and can be used as well from one side as the other. They can be placed between two fires, and operated equally as well from either fire by a double tongs.

The control of these Hammers is such that the blow can be made at the will of the operator, from a gentle stroke to a rapid succession of mighty blows, and material to its full capacity can be forged down to the size of a horseshoe nail without any change of adjustment.

The friction for stopping the Hammers is such that the operator can strike one blow and stop with the Hammer on the upstroke.

The Hammer Head and Ram stand out from the main part of the frame, are not covered up to obscure the work of the operator, also in forging iron with an angle in it, you can get in very close to the corner.

The length of this hammer is such that a bar should be in diameter can be welded, and it will weld a tire 4 inches wide and 1 inch thick very easily.

No. 0 Hercules Power Hammer, has upper die 3 x 1 ins., lower die 3 x 2 ins. Size of base of Hammer, 18 x 25 ins. Height over all, 5 ft. 4 ins. Weight of ram, 30 lbs. Pulley, 9 x 2 ins. Speed, 400 R.P.M. Capacity, 2 ins.; square or round. Weight, 1170 lbs. Code—Forridge.

No. 1 Hercules Power Hammer, has dies with plain surface, 2 x 3 ins.; and two plain and one tapering groove for forging round iron, straight and tapering. Size of base of Hammer, 20 x 27 ins. Height over all, 5 ft. 8 ins. Weight of ram, 65 lbs. Pulley, 10 x 2 ins. Speed, 600 R.P.M. Capacity, 24 ins.; round or square. Weight, 1855 lbs. Code—Female.

Extra dies for special work will be charged extra.

No. 2 Hercules Power Hammer, upper die, size of face, 6 x 3 ins.; lower die, size of face, 6 x 4 ins.; size of base of Hammer, 27 x 46 ins. Height over all, 7 ft. 8 ins. Weight of ram, 125 lbs. Pulley diameter, 14 ins.; face 6 ins. Speed, 600 R.P.M. Capacity, 3 ins.; round or square. Weight, 4500 lbs. Code—Flexible.

HERCULES ELECTRICALLY DRIVEN POWER HAMMER

Hercules "Patented" Electrically Driven Power Hammer is identical with the Hercules Patented Power Hammer shown above; the only difference being that this Hammer is operated by an electric motor. The Motor is placed to give a long belt between the motor and the driving pulleys of the Hammer, giving an advantage in power not usually found.

This Hammer is furnished with a switch for starting and stopping the motor.

Before ordering a Hercules "Patented" Electrically Driven Power Hammer, ask your electric current manufacturer whether the current is direct or alternating and the voltage.

No. OE Hercules Electrically-Driven Power Hammer, any Current and Voltage. Has upper Die, 3 x 1 Ins.; Lower Die, 3 x 2 Ins. Size of Base of Hammer, 18 x 25 Ins. Height over all, 5 Ft. 4 Ins. Weight of Ram, 36 lbs. Pulley, 10 x 2 Ins. Speed, 400 R.P.M. Capacity, 2 Ins.; Square or Round. Size of Motor 1 H.P. Weight, 1600 lbs. Code—Firstree.


No. 2E Hercules Electric Driven Power Hammer, any Current or Voltage. Upper Die, size of face, 6 Ins. x 3 Ins.; Lower Die, size of face, 6 Ins. x 3 Ins. Size of base of Hammer, 27 Ins. x 46 Ins. Height over all, 7 Ft. 3 Ins. Weight of Ram, 125 lbs. Pulley diameter 32 Ins., face 6 Ins. Speed, 150 R.P.M. Capacity, 3 Ins.; Round or Square. Size of Motor 3 H.P. Weight, 4500 lbs. Code—Fifthree.
NO. 1 CHAMPION COLUMN GRINDER

With Ring Oil Bearings
Made with V in Flat Pulley or Tight and Loose Pulleys

No. 1 Champion Upright Column Grinder has been built heavy and substantial to meet all conditions of grinding and polishing in the machine shop, foundry, blacksmith shop, garage, etc.

The Champion Grinder has special long spindles and bearings. The bearings have unusually large space for the operator and for grinding large and irregular shaped castings. It is designed to grind both large and small work, as well as bicycles and automobile work, also polishing.

The bearings are adjustable and lubricated with genuine lubricant. Each adjustable bearing has four bolts, holding them in a true line.

The Champion Grinder is supplied with rests to stand heavy work and can be easily arranged for the side or front of the wheel.

No. 1 Champion Upright Column Grinder: Capacity, 16 Inches x 3 Inches; Wheel with 1 1/2-Inch Hole; Arbor to Floor, 34 Inches; Diameter of Base, 18 Inches; Length of Arbor, 40 Inches; Diameter of Arbor, 1 1/2 Inches; Size of Pulleys, 4 1/2 Inches x 4 1/2 Inches. Weight Complete, 285 lbs. Code—Fiest.

Extra for Tight and Loose Pulleys. Guards for above Grinder for 16-Inch Wheel. Weight 120 lbs.

NO. 2, NO. 0 CHAMPION BENCH GRINDERS

With Ring Oil Bearings Made with V in Flat Pulley

No. 2 Champion Bench Grinder. Capacity, 16 Inches x 2 Inches; Wheels with 1 1/2-Inch Hole; Arbor to Bench, 9 1/2 Inches; Size of Base, 13 Inches x 9 Inches; Length of Arbor, 28 Inches; Diameter of Arbor, 1 1/2 Inches; Size of Pulley, 4 1/2 Inches x 4 Inches. Weight, 100 lbs. Code—Femaler.


Guards for above Grinders for 14-Inch Wheels. Weight, 80 lbs.

No. 8 Champion Bench Grinder, Capacity, 12 Inches x 2 Inches; Wheel with 1-Inch Hole; Arbor to Bench, 8 Inches; Size of Base, 9 Inches x 6 Inches; Length of Arbor, 18 Inches; Diameter of Arbor, 1 1/2 Inches; Size of Pulleys, 4 Inches x 3 Inches. Weight, 50 lbs. Code—Fleuss.

No. 10A Champion Bench Grinder with Tight and Loose Pulleys. Size of Base, 13 Inches x 6 Inches; Length of Arbor, 21 Inches; Weight, 65 lbs. Code—Fleussxte.

Guards for either Grinder for 12-Inch Wheels. Weight, 40 lbs.

NO. 3 CHAMPION BENCH GRINDER

With Ring Oil Bearings Made with V in Flat Pulley

No. 3 Champion Bench Grinder. Capacity, 10 Inches x 1 1/2 Inches; Wheel with 3/4-Inch Hole; Arbor to Bench, 6 1/2 Inches; Size of Base, 10 1/2 Inches x 6 Inches; Length of Arbor, 15 Inches; Diameter of Arbor, 3/4 Inch. Weight 50 lbs. Code—Felsnon.

No. 4A Champion Bench Grinder with Tight and Loose Pulleys. Length of Arbor 16 inches; Weight 45 lbs. Code—Felsinamte.

Guards for either Grinder for Wheels. Weight, 30 lbs.

www.OzarkToolManuals.com
CHAMPION SWIVEL BASE VISES

Champion Vises are well made, having a cold rolled steel draw bar; removable hardened steel jaws, knurled and ground to fit. Handle and screw are forged steel. The thread on the screw is square or acme thread machine cut.

Top of Jaws and Anvil Face, as well as all steel parts, are highly polished.

The Body and Base are painted red—attractively finished, and are real values for light work in Machine Shops, Pattern and Model Shops, Electrical and Radio Shops, Garages, and for the Home Workshop.

Swivel base holds fast in any position the same as all higher priced Vises costing three times as much. They can be used as stationary vises, if so desired.

Have removable malleable pipe jaws holding 1\(\frac{1}{4}\)" pipe.

Packed in strong individual fibre cartons.

No. 3-3\(\frac{1}{2}\)-4 Vises furnished with Hardie.

### SPECIFICATIONS

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</thead>
<tbody>
<tr>
<td>3</td>
<td>Radio and Home</td>
<td>3&quot;</td>
<td>1(\frac{1}{2})&quot;</td>
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<td>1(\frac{1}{16})&quot;</td>
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<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{8})&quot;</td>
<td>16</td>
<td>7 lbs.</td>
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<td>3(\frac{1}{2})</td>
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<td>3(\frac{1}{2})&quot;</td>
<td>1(\frac{1}{2})&quot;</td>
<td>1(\frac{1}{2})&quot;</td>
<td>1(\frac{1}{16})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{8})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{8})&quot;</td>
<td>21</td>
<td>12 lbs.</td>
</tr>
<tr>
<td>4</td>
<td>Home and Garage</td>
<td>4&quot;</td>
<td>1(\frac{1}{2})&quot;</td>
<td>2(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{16})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{8})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{8})&quot;</td>
<td>30</td>
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<td>1(\frac{1}{16})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{8})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{8})&quot;</td>
<td>45</td>
<td>1 lbs.</td>
</tr>
<tr>
<td>6</td>
<td>Garage and Shop</td>
<td>6&quot;</td>
<td>1(\frac{1}{2})&quot;</td>
<td>2(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{16})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{8})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
<td>1(\frac{1}{8})&quot;</td>
<td>120</td>
<td>1 lbs.</td>
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</tbody>
</table>

### CHAMPION BALL BEARING OR RING OILING SAW MANDRELS

- **Standard Saw Mandrel**
  - Champion Saw Mandrels are extra heavy, and are fitted with rigid Ring Oiling Pillow Blocks which construction assures adequate oiling.
  - The Arbors are built of high grade machinery steel, fitted with heavy flanges. Pulleys are crowned and are always shipped on left-hand side when saw is running towards you, with left-hand thread unless otherwise ordered. Pulley can be furnished on right-hand side or on center if specially ordered.
  - Saw Mandrels can be furnished with Ball Bearings at extra cost.
  - Saw Mandrels can be furnished both ends threaded at extra cost.
  - Saw Mandrels furnished at no extra cost with pulley for V-belt.

- **Mandrel threaded both ends**

- **Saw Mandrel with V-belt pulley**

### CHAMPION DRILLING VISE

- Champion No. 5 Drilling Vise can be bolted to the Drill Press Table; and is as rigid and solid as any Vise attached to a bench, thereby enabling the operator to drill holes in intricate pieces and pieces that cannot be held except in a Vise. With the use of a Drilling Vise more work can be done with ease and less breakage of drill-bits. This Vise is used just as efficiently where holes are to be tapped.

- Vise Jaws are 5 inches wide, 2 inches high faced with hardened steel. The stationary Jaw has V-slots. The loose Jaw swivels to take Morse Taper and opens 6 inches.

- Body of Vise made of gray iron, accurately machined. The Screw is special steel, with lathe-turned threads.

CHAMPION ANGLE BENDER FOR BENDING ANGLES, TEES, AND FLATS

No. 3

An inexpensive machine to do a variety of bending operations on angles, tees, flats, and channels. This machine is sturdily built with a supporting frame on both sides of the rolls to give greater strength. The center roll is easily removed by releasing two caps in order to remove complete circles from the machine. The machine is provided with adjustable anti-curling devices to prevent curling of angles when run through the bender singly. However, the machine is powerful enough to bend two angles at a time inserted back to back. The bender will do a great variety of bending at a fraction of the initial investment required to purchase any other power driven benders. Rolls are all adjustable, will bend angles leg out to 180° circles, leg in, to 30° circles.

CAPACITY

<table>
<thead>
<tr>
<th>Material</th>
<th>Capacity</th>
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</thead>
<tbody>
<tr>
<td>Angle Iron</td>
<td>1 1/2</td>
</tr>
<tr>
<td>Tee Iron</td>
<td>1 1/2</td>
</tr>
<tr>
<td>Channel Iron</td>
<td>4 x 1/4</td>
</tr>
<tr>
<td>Flats</td>
<td>4 x 1/4</td>
</tr>
<tr>
<td>Rounds</td>
<td>1</td>
</tr>
</tbody>
</table>

Pulley Speed - 38 R.P.M.
H.P. Required - 1/4
No. 3 Champion Angle Bender furnished less pulley - 750 lbs.

NO. 4 CHAMPION AMERICAN TIRE AND AXLE SHRINKER

No. 4 Champion American Tire and Axle Shrinker represents a stout, bulky and powerful machine guaranteed to shrink 4 x 1-inch round edge tire down to the smallest buggy tire and axles up to 1 1/4 inches square. It will shrink with one stroke of the lever 1 1/4 inches. The Shrinker will stand all the pounding necessary to keep down the kinks in the tire.

The jaws are made of tool steel with machine-cut teeth hardened. The jaws are worked by a mechanical lever and are thrown in and out by a simple movement of the hand. It will be seen that the tire is gripped on its flat sides, both top and bottom, and the tire is held with a perfect grip until it is shrinked.

No. 4 Champion American Tire and Axle Shrinker will shrink up to 4 x 1-inch round edge tire and axles up to 1 1/4 inches, with two steel jaws 4 x 2 inches wide. Weight, 375 lbs. Code - Ferlet.

CHAMPION EUREKA TIRE BENDERS

Champion New Patent Eureka Tire Bender is a strong and powerful tool, built with all the latest improvements; adjusting screws at each end of the adjusting roll with a graduated indicator on each side of Bender, showing the exact size of the tire being bent. No more trouble to bend imperfect iron into perfect tires; the principle for getting the tire out after being bent is quick and entirely practical. The two end rolls are provided with collars to prevent the tire from twisting so both ends meet when bent. It is double back geared, and worked with two cranks which are furnished with each Bender; has two speeds, one for light and fast work and the second for heavy work.

No. 1 New Style Eureka Bender, Bends 4 x 1-Inch Tire, Weight, 195 lbs. Code - Felt.
No. 2 New Style Eureka Bender, Bends 6 x 1-Inch Tire, Weight, 278 lbs. Code - Felt.

www.OzarkTollManuals.com
CHAMPION EASY SCREW PLATE DIE

For simplicity in construction, compactness and neatness in design, with every improvement in a Screw Plate which makes a perfect Screw at a Single Cut, the "Easy" ranks among the highest; the Die being adjustable by the use of a Taper-Head Screw with a Taper Nut.

CHAMPION EASY SCREW PLATES—With U.S. Std. Dies and Taps

Nos. 2D, 5D, 5½D, 7D and 9D Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. Taper Taps Furnished.

No. 1B. 5 sizes. 1/8, 1/16, 5/32, 1/6, 5/32. Code—Fendler. $34.20

No. 1D. 5 sizes. 1/8, 1/16, 5/32, 1/6, 5/32. Code—Fendler. $27.60

No. 2B. 8 sizes. 1/8, 1/16, 5/32, 1/6, 5/32, 1/16, 1/32, 5/64. Code—Feverer. $50.80
Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 14 lbs.

No. 5B. 7 sizes. 1/8, 1/16, 5/32, 1/6, 5/32, 1/16, 1/32. Code—Frisis. $37.40
Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 14 lbs.

No. 5B. 8 sizes. 1/8, 1/16, 5/32, 1/6, 5/32, 1/16, 1/32, 5/64. Code—Frisis. $41.80
Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 15 lbs.

CHAMPION EASY SCREW PLATES Can Be Furnished With S.A.E. Dies and Taps

CHAMPION EASY COMBINATION SCREW PLATES

With Both U.S. Standard and S. A. E. Taps and Dies

Nos. 11, 15, 15½, 17 and 19 Easy Sets are Furnished with TWO STOCKS. Every set is Packed in a Hardwood Case.

No. 11. 16 sizes. U. S. Standard, 1/8, 1/16, 5/32, 1/6, 5/32, 1/16, 1/32, 5/64, and S.A.E. Standard, 1/8, 1/16, 5/32, 1/6, 5/32, 1/16, 1/32. Code—Fricke. $41.70

Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 15 lbs.

Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 19 lbs.

Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 23 inches long. Tap Wrench No. 3, 15 inches long. Wt. 22 lbs.

No. 17. 18 sizes. U. S. Standard, 1/8, 1/16, 5/32, 1/6, 5/32, 1/16, 1/32, 5/64, with Taper Taps; and S.A.E. Standard, 1/8, 1/16, 5/32, 1/6, 5/32, 1/16, 1/32, 5/64, with Plug Taps. Code—Fricke. $96.80
Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 26 inches long. Tap Wrench No. 4, 20 inches long. Wt. 23 lbs.

CHAMPION SCREW PLATES

No. 7B. 9 sizes. 1/8, 1/16, 5/32, 1/6, 5/32, 1/16, 1/32, 5/64, 1/128. Code—Fricke. $57.20
Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 26 inches long. Tap Wrench No. 4, 20 inches long. Wt. 18 lbs.

No. 9B. 10 sizes. 1/8, 1/16, 5/32, 1/6, 5/32, 1/16, 1/32, 5/64, 1/128, 2/128. Code—Fricke. $61.60
Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 26 inches long. Tap Wrench No. 4, 20 inches long. Wt. 20 lbs.

Taps. Dies First four sizes. 1½ inch diameter; larger sizes, 1⅜ inch diameter. Two Stocks, 15⅛ inches and 26 inches long. Tap Wrench No. 4, 20 inches long. Wt. 24 lbs.
### Champion Adjustable Stock and Die Sets

No. 1001B Set

<table>
<thead>
<tr>
<th>Machine Screw Size</th>
<th>1/8&quot; thick</th>
<th>1/6&quot; thick</th>
<th>5/32&quot; thick</th>
<th>3/64&quot; thick</th>
<th>1/32&quot; thick</th>
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<tr>
<td>1/32&quot;</td>
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<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>

### Champion Round Adjustable Spring Dies

Champion Round Adjustable Spring Dies is split on one side and spring tempered on the other side to allow adjustment of the die which is done by a fine pitch screw of the split side, which separates the die, or allows them to spring together. Liberal chip space is provided in the clearance hole.

U.S. Standard Thread furnished unless otherwise ordered. Left Hand Dies, sizes, dimensions not listed, and special threads are subject to special prices.

<table>
<thead>
<tr>
<th>Diam. of Die</th>
<th>3/4&quot; thick</th>
<th>5/8&quot; thick</th>
<th>3/64&quot; thick</th>
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</tr>
<tr>
<td>7/16&quot;</td>
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<td>1/4&quot;</td>
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<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
</tr>
</tbody>
</table>

### Stocks for Champion Round Adjustable Spring Dies

Stocks for Champion Round Adjustable Spring Dies are constructed of malleable machined and polished with knurled handles to give a firm grip. Set Screw enters the countersink in the die, holding it solid.

### Champion Adjustable Tap Wrench

The Champion Adjustable Tap Wrenches are light, strong and durable. The jaws are made of the highest grade tool steel, which centralizes the Tap in the holder, are finished, the handles are knurled. These Tap wrenches are made in eight sizes.

| No. 1 | 1/4 in. to 1/2 in. Length, 7 inches. Code—Federa... $ 3.00
| No. 2 | 1/2 in. to 3/4 in. Length, 18 inches. Code—Fecundates... 5.70
| No. 3 | 3/4 in. to 1 in. Length, 15 inches. Code—Fecundates... 5.70
| No. 4 | 1 in. to 1 1/4 in. Length, 20 inches. Code—Fillibustus... 7.00

### Champion Pumpmakers' stocks and Dies

The Champion Triple Pumpmaker's Stock, with three dies complete. Cutting 1 1/2", 1 3/16", 1 1/4"... $11.00

| Die and Stock, complete | $6.00
| Die and Stock, complete | $6.00
| Die and Stock, complete | $6.00

All Pump Dies will be sent U.S. Standard thread unless otherwise ordered.