SPECIAL ATTACHMENTS

Chucks, Accessories, Tools, etc.

For use on the DRUMMOND 3½-inch Centre Lathe.

THE Attachments herein listed are designed to be used on any arrangement of the Drummond 3½-inch Centre Lathes, and can all be supplied either with the machine when ordered, or at any time afterwards as necessity arises.

It is fully appreciated that the lathe attachments do not always provide ideal machining methods. A carefully designed attachment, however, can usually be made, at the expense of a little extra time and trouble, to perform work that would otherwise necessitate a full size machine costing many pounds. For instance, a crown wheel can be cut by means of the milling and gear-cutting attachments at much less cost than if the work were contracted out, and with no delay due to transport difficulties, even when full allowance is made for the extra time necessary for taking two or possibly three cuts round the wheel when using the attachment.

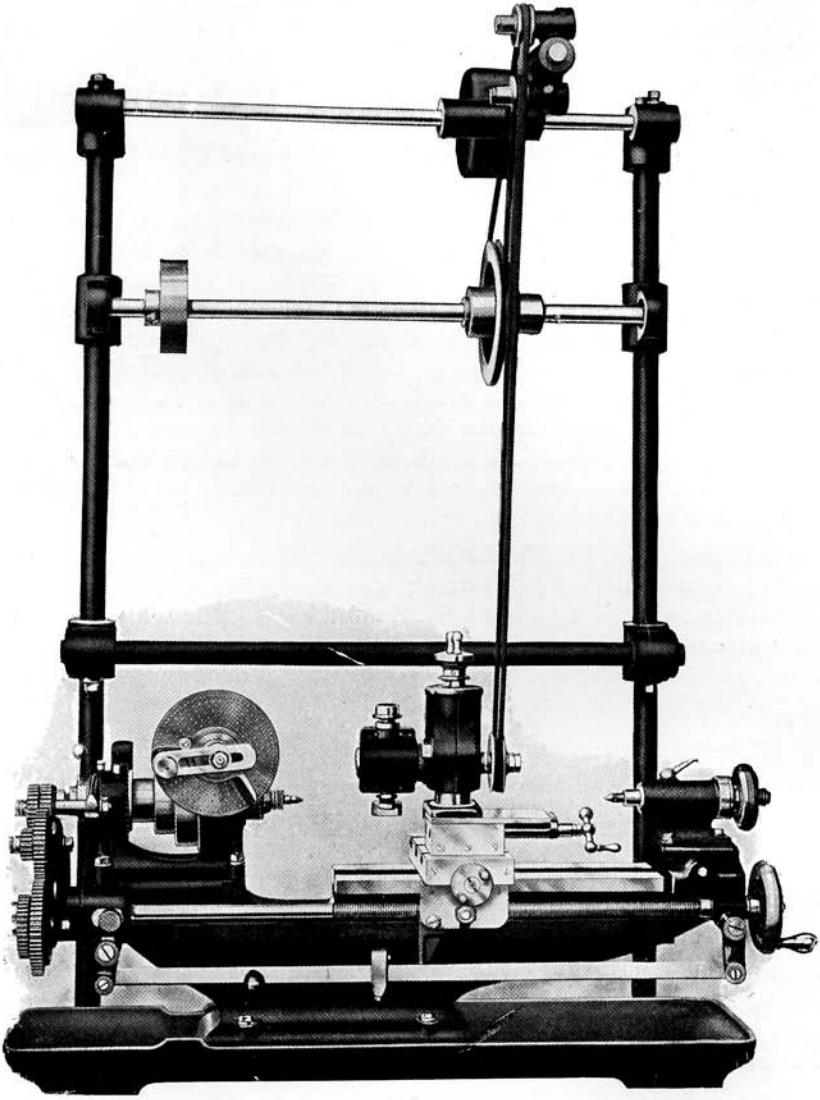
All Drummond Lathe Attachments and special arrangements are the result of careful study; the design in each case was decided upon as being most suitable and having the widest utility, only after exhaustive trials of various forms, and these special fittings are confidently introduced as being of the best type in every way for their particular purpose.

This catalogue illustrates the policy of Drummond Brothers, Ltd., with regard to attachments. It would be almost impossible to catalogue completely all the special fitments and arrangements that have been made from time to time for Drummond Lathes. An enquiry for any special arrangement can usually be met by a definite quotation for a suitable fitting.

A Drummond Lathe, with its complete attachment equipment, forms an adequate substitute for a small machine shop plant, and can be made to execute all the usual machining work of a small garage or repair shop, effecting a great economy in initial outlay and in upkeep expenses.

Quotations for any special arrangement not listed, for use on any Drummond Lathe, on receipt of details as to requirements.

Indexing, Milling & Gearcutting Attachment.



The Complete Milling and Gearcutting Attachment shown in position on Bench Lathe.

SPECIFICATION.

Dividing Head. Stiff headstock bracket carries steel worm in long bearing with eccentric sleeve to allow for taking in and out of mesh with the mandrel plate gear, and for adjusting for backlash; changeable dividing plate, dividing sectors, crank and spring plunger.

Milling Head. Mounted on lathe topslide, has universal movement. Vertical slide has steel screw, handwheel and micrometer index. Hollow cutter spindle has taper bore and nose for standard bore cutters both ends, and is reversible end to end to allow for working close up to faceplate or tailstock. Spindle housing can be rotated through complete circle, and is graduated in degrees. Spindle is driven by steel and phosphor bronze spirals, fitted with ball thrusts, from vee-grooved pulley for round belt.

Cutter Drive. Treadle or self-contained motor driven lathe:—flat belt from flywheel to pulley on attachment overhead countershaft. From three-step vee-grooved sliding pulley on this splined shaft to cutter head, by round belt over traversing counterweighted jockey pulleys. Power driven lathe:—by flat belt from extra pulley on lathe countershaft to flat pulley on attachment countershaft, thence as above.

Attachment Overhead Bracket. Of very heavy section steel tubing, with massive cast iron sockets and elbows. Perfectly rigid under the heaviest cut.

Range of Work. Spur and bevel gears, worms and worm wheels, spline and flute cutting, squaring ends of shafts, etc., plain end-milling with work on faceplate or angle bracket, etc.

Dimensions.

Maximum diameter spur, worm or bevel gear blank admitted for "between centres" work	7in.
Cutter head cross traverses past full diameter of faceplate for machining work held in chuck or on faceplate; largest diameter	9in.
Length admitted between lathe centres and longitudinal traverse of cutter head	1ft. 4in.
Hollow spindle nose bore	No. 1 Morse.
Diameter of spindle nose for cutters	⅝in.
Greatest pitch gears that can be smoothly cut at one cut	12 DP. 2 *Module.*
Greatest pitch gears that can be smoothly cut at several cuts	8 DP. 3 *Module.*
Number of Index plates supplied as standard	3

These plates give every division from one to fifty, every necessary division from fifty to one hundred, and a very large range of higher figures.

Price.

Complete Milling and Gearcutting Attachment, fitted or ready to fit to lathe - - - - - **£30 : 0 0**

All necessary belting is supplied with the attachment, together with instructions and tables for dividing.

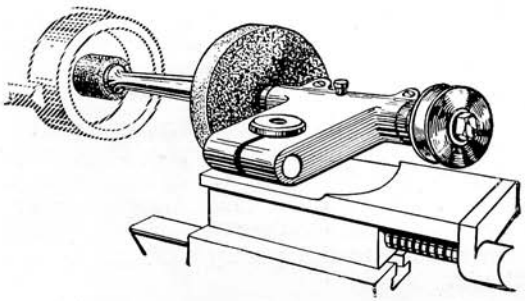
CODE WORD.—Add MA to machine code word, or if ordered separately, EMA.

Tool and cutter equipment for this attachment will be quoted or on receipt of requirements.

GRINDING ATTACHMENT.

For Internal and External Work.

Although the use of a Grinding Attachment on a high-class Lathe is not usually recommended, as the grit has a bad effect on the bearing surfaces of the machine, it is sometimes essential to have available some means of grinding parts to size after hardening, or for finishing internal and external cylindrical work with a very high polish. If due care is taken to wipe off all slides of the Lathe, both during and after its use, this new attachment will have little detrimental effect on the Lathe, and will prove invaluable on small car repair work, or for use wherever a full-sized grinding machine is not available.



Specification.

Accurately machined steel spindle, carrying deep vee-grooved driving pulley for round belt, runs in extra long bearing, adjustable for wear. Ample lubricating arrangements are provided. Cast iron bracket is fitted to lathe tool-holder pillar, and is clamped in any desired position by means of bolt through split bearing portion, as in the lathe tool-holder.

For external grinding the wheel is clamped on spindle by means of the threaded shoulder on spindle nose. For internal work a spindle extension is fitted to the spindle, which is hollow and provided with a short internal taper. The extension is held in this taper by means of a draw bolt extending right through the spindle. One external and one internal grinding wheel are supplied with the attachment.

Drive. Power-driven Lathe—by heavy round belt from extra vee-grooved sliding pulley or plain drum on overhead motion. Treadle drive Lathe—from extra large vee-grooved pulley attached to 3-step grooved sliding pulley on milling attachment overhead gear.

Price.

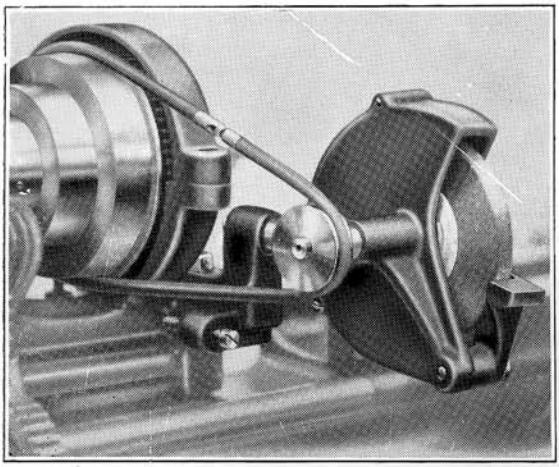
Grinding Attachment only, supplied with lathe, or ready or fitting **£3 : 15 : 0**

CODE WORD.—GA added to machine code word, or if ordered separately, EMGA.

Driving arrangements for this attachment are quoted for separately.

TOOL GRINDING ATTACHMENT.

Inseparable from the use of the lathe is the need for some means of grinding the cutting tools. The method employed must allow for proper steadiness and adept movement of the tool while being ground, and also provide proper peripheral speed of the grinding wheel. These points are not well provided for in the ordinary small grinder, especially the hand driven variety, where the speed is both varied and insufficient for proper grinding, while, with only one hand available for holding the tool, rough poorly finished work is usually the result.



This new attachment will be found to meet the requirements at a very low cost. It is of very stiff design ; in use **both hands are available** for manipulating the tool ; the wheel can be driven at ample speed without inconvenience, without altering existing driving arrangements ; no extra floor or bench space is needed, and this attachment enables tools to be ground without leaving the lathe.

Specification.

Steel spindle running on extra long bearing carries high-class abrasive wheel of suitable grade and grit, and vee-grooved pulley on its other end. Wheel is enclosed, except for the part that is actually used, in stiffened cast iron cowl-shaped guard ; adjustable tool support. The whole is movable to and from the lathe headstock for adjustment of driving belt tension, and is carried on a strong adapter bracket. This is mounted on lathe headstock by means of special bolt, with setscrew, etc.

Drive. Lathe cone pulley runs free on mandrel, and drives grinding wheel by means of round belt from largest step. Drive is taken from flywheel or countershaft to smallest step of cone, thus giving ample speed. (In flat belt drive lathes the belt runs in the corner of pulley at the flange, as in illustration.)

Dimensions.

Diameter of Abrasive Wheel	4ins.	Diameter of wheel spindle -	½in.
Thickness ,, ,,	½in.	Length of wheel spindle bearings	1⅞in.
Speed ,, ,,	3,500 r.p.m.	Diameter of belt - -	¼in.

Price.

Complete with grinding wheel, belt and fasteners, all studs necessary for fixing in position - - - **£2 : 5 : 0**

CODE WORD.—TOG added to machine code word or if ordered separately, EMTOG.

TURRET ATTACHMENT.

This attachment has been designed for use when the lathe is employed on manufacturing quantities of duplicate parts. It converts the machine into a small turret lathe and entirely obviates the necessity for continually resetting either job or tool, which would otherwise be unavoidable with this class of work.

The turret is made to take all the ordinary types of turret lathe toolholders, etc. The position of the turret head on the saddle boring table ensures absolute firmness and rigidity in operation, and enables very heavy cuts for this size lathe to be taken with perfectly satisfactory results.

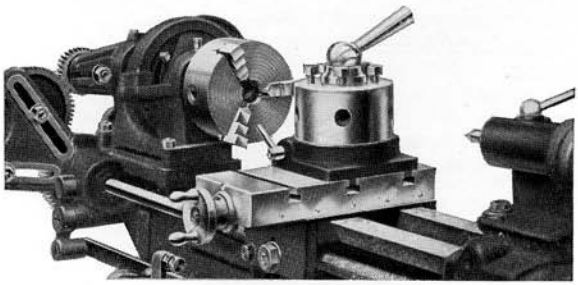
Great care is taken in manufacturing to ensure accuracy, and this attachment can be relied on to work accurately and efficiently. Its use for any repetition work will effect a great time saving.

Specification.

The indexing head is a solid casting turning on a long bearing to ensure truth, is provided with positive spring-plunger location at every station, and is locked when located by polished handle having a fast pitch thread. A "Tommy" handle to withdraw spring-plunger for bringing next tool into cutting position is placed conveniently for the operator. Hardened clamping set screws are fitted to each toolholder.

The base is a heavy truly surfaced plate tongued and held to the boring table on lathe saddle by concealed bolts; this clean design facilitates quick working. For lineability the turret is positively positioned by a removable taper pin, which is fitted to the table and saddle after the turret has been correctly lined up with the headstock.

Tool equipment for this attachment is quoted for on receipt of details of requirements.



Dimensions.

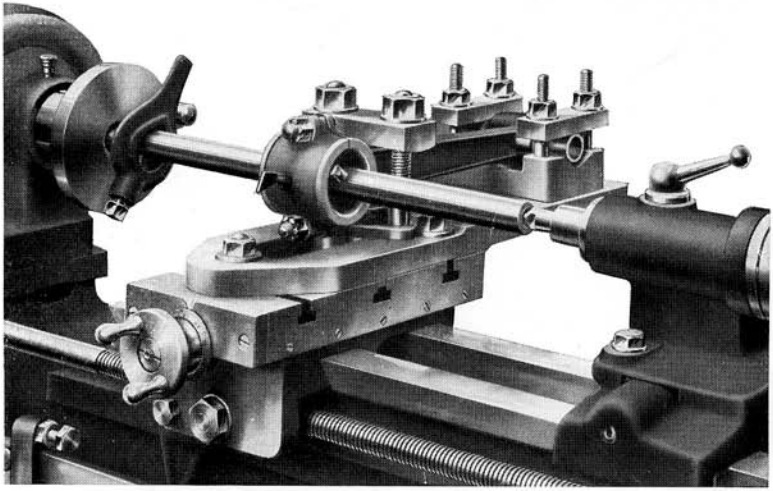
Number of stations	Five.
Diameter of holes	⅜in.
Length of hole	1⅜in.
Maximum distance between turret front face and faceplate, and working longitudinal traverse	11t. 2in.

Price.

Turret fitted to lathe at our works - - - **£7 : 0 : 0**

CODE WORD.—RUT added to machine code word, or if ordered separately, EMRUT.

CONNECTING ROD BORING FIXTURE.



This attachment will very quickly pay for itself in the garage where the rebushing and boring of connecting rod big ends is carried out. The gudgeon pin is used to align the rod in the fixture. It rests in the vee blocks at the rear, and is held down by the clamps shown. The big end rests on a screw jack provided with a locking screw, and this enables the rod to be brought to the correct centre height. A clamp plate straps the rod down in such a manner as to prevent springing. The vee-block for the gudgeon pin is adjustable along the body of the fixture to accommodate rods of varying length, and is held by two bolts, a spigot in the centre slot preserving the alignment.

The ordinary method of bolting the rod down on the boring table of the lathe, while effective, is very inconvenient, and means that every rod has to be lined up before machining. The fixture gives a correct setting every time, and a whole set of rods may be re-bored in the time previously taken to do two.

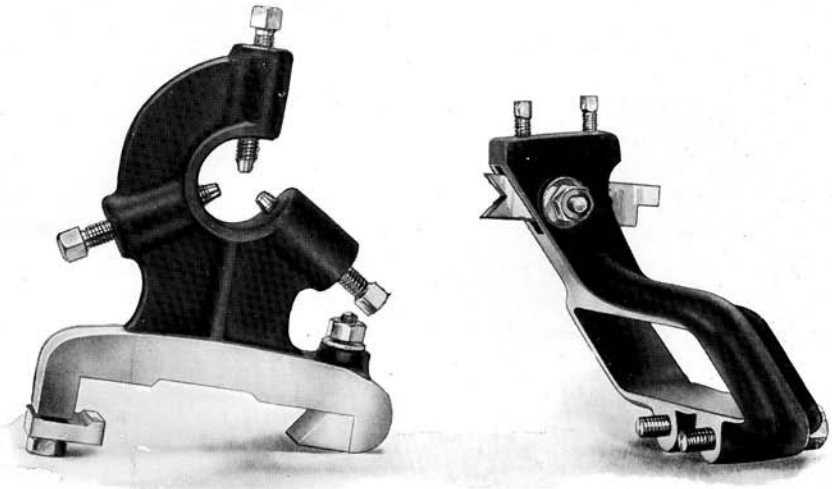
Capacity. Rods up to 10 inch centres can be machined. It will be seen that this represents a much better method than by swinging the rod in a lathe, as this latter calls for a very large machine.

Price.

Connecting Rod or Boring Fixture for 3½in. Lathe - **£2 : 10 : 0**

CODE WORD.—Add CON to machine code word, or if ordered separately, EMCON.

FIXED AND TRAVELLING STEADIES.



Where work of a long and slender nature has to be turned the need for steadies becomes apparent, and the two illustrated above have been designed specially to meet the requirements of the user of the Drummond 3½-in. Centre Lathe.

The fixed steady (on the left) is of the normal three point support type, and clamps to the bed by means of the plate at rear and the angle strip at the front. Three hardened set screws support the work, the maximum size which can be admitted being $1\frac{7}{16}$ ins.

The travelling steady (right) is attached to the rear of the saddle by means of the two bolts shown, and its open form allows the cross-slide to operate without interference, in the usual way, besides giving additional stiffness to the design. The hardened supporting piece is furnished with two vees as shown, and is readily adjusted by means of the setscrews.

The judicious use of a steady will be found to greatly increase the speed at which slender work may be machined, and will ensure a better finish and freedom from chatter. The fixed steady also provides a method of drilling, boring, and facing long pieces which may be held in the chuck, with their entire length overhanging therefrom, and carried in the steady at their outer ends.

Prices.

Fixed Steady for 3½in. Lathe - - - - **£1 : 5 : 0**

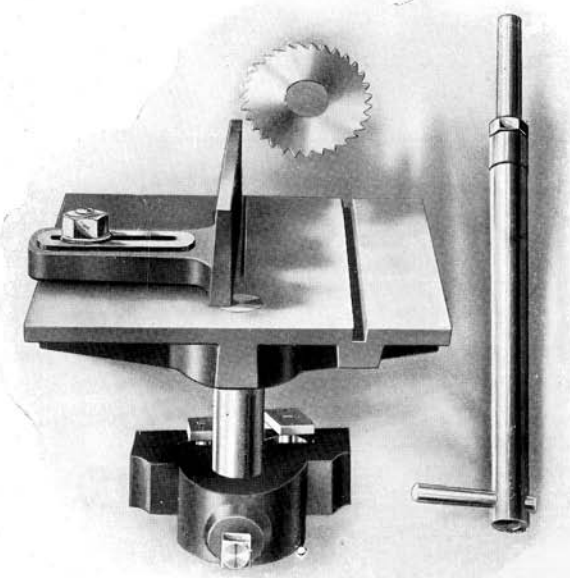
CODE WORD.—FAS added to machine code word. If ordered separately, EMFAS.

Travelling Steady for 3½in. Lathe - - - - **17 : 6**

CODE WORD.—TAS added to machine code word. If ordered separately, EMTAS.

CIRCULAR SAW TABLE.

This Saw Table is easily and quickly mounted on the lathe, and performs a great variety of work very economically. It is quite stiff in use, and for frames, panels, etc., will be found to be a great time and trouble saver.



The table is truly surfaced, and may be adjusted for height. The base bracket bolts on the boring table of the lathe, the saw table being carried on a stout pillar.

An adjustable fence is fitted, and this can be removed completely if required. A slot is also provided for the guidance of jigs or any special arrangement for guiding odd shapes, angles, etc., accurately across the saw. The saw spindle is accurately turned and carries the saw between dead square faces.

Diameter of saw, 3½ins. Diameter of bore, ½in.

Prices.

Saw Table complete with best quality circular saw (suitable for metal or hardwood) and saw spindle - - - **£2 : 15 : 0**

Extra Saws, with accurately ground bores - - **6 : 6**

Note.—Saws bought from tool stores will often be found to have inaccurate centre holes of odd sizes. The above saws are ground in the bore ready for use.

CODE WORD.—Saw Table complete, add SAC to machine code; if ordered separately, EMSAC.

CHUCKS.

Special Note.

The prices quoted in the following are for Chucks fitted to our lathes, or to any lathe mandrel of suitable size sent to us for fitting, or threaded exact Whitworth sizes. If the lathe to be fitted is **not** of our make, the lathe mandrel should be sent for fitting wherever practicable.

The prices quoted are for Chucks **fitted to the lathe mandrel ready for use.**

A great deal of misapprehension, we find, exists in regard to the price of Chucks as usually quoted. It is not everyone who is acquainted with the amount of work required to a Chuck as purchased in the usual way at a tool-dealer's before it is fitted up ready to use.

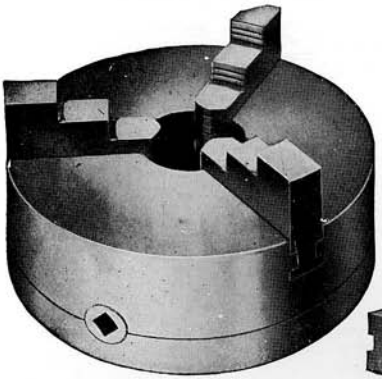
The same or very similar Chucks to those quoted here can be found listed in some Catalogues at a little below these prices but a separate charge is always made for fitting to the lathe, which will be found to bring them to a price considerably higher than is quoted by us; and also in the case of the purchaser fitting the Chuck himself the necessary Back Plate Casting will bring up the price to, in most cases, more than is here quoted.

Your attention is also respectfully called to the advantage of having Chucks fitted by a firm of actual lathe manufacturers. We have frequently found that the fitting of Chucks, when done by a jobbing firm of engineers for the tool-dealers, who seldom or never do the work themselves, is anything but correctly done, causing the Chuck to quickly become inaccurate.

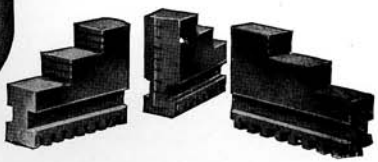
We fix the Back Plate usually required to the part of the Chuck intended to be fitted to it by the makers, and all threads are lathe-cut in a proper manner.

Selecting Suitable Equipment.

If lathe users will state what class of work they desire to accommodate, we will impartially advise them as to what in our opinion constitutes the most satisfactory equipment. Thus, on receipt of particulars of requirements, a complete minimum outfit of chucks, tools, drills, and any special accessories would be quoted for in detail.

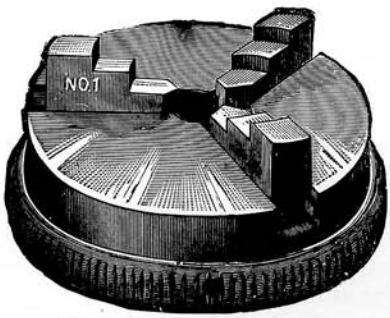


GEARED SCROLL SELF-CENTRING CHUCKS.



These chucks are very strong and suitable for heavy work. The body of the chuck is in one piece, and is very deep under the jaw, so that there is no danger of breakage from the corner of the slot. The wear on the gearing is distributed by the pinions, and these ensure perfect balance and convenience in use. Two sets of jaws, lathe and drill, are supplied.

Size.	Will Hold	3 Jaws.		4 Jaws.	
		1 Set Jaws.	2 Sets.	1 Set Jaws.	2 Sets.
3in.	3⅜in.	£4 6 0	£4 18 6	£4 14 0	£5 7 0
4in.	4¼in.	£4 14 6	£5 7 0	£5 2 6	£5 15 0



The "Champion" Lever Scroll Chuck.

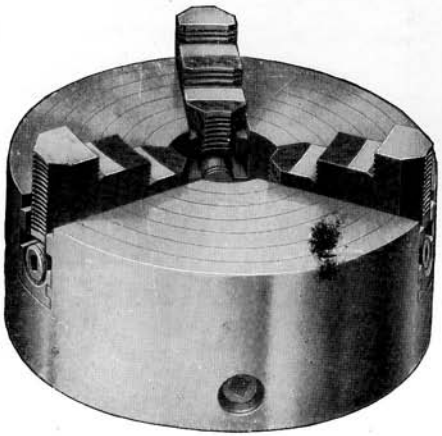
For use on foot and light power lathes, and for high speeds, as in wood-turning. Although very light they are strong and durable, as the shells and scrolls are made of malleable iron, and the jaws of steel. These Chucks do not have as much gripping power as Chucks which operate with a key, but are lower in price, and for many uses are unexcelled.

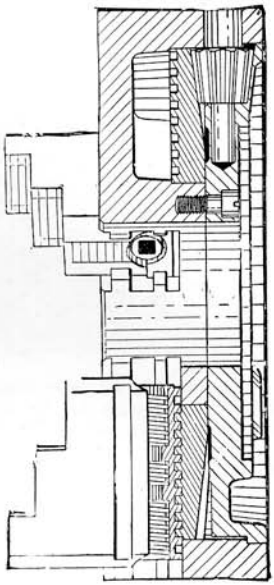
Size.	Will Hold	PRICE.	
		1 Set Jaws, Lathe.	2 Sets Jaws, Lathe and Drill.
3in.	3⅜in.	£2 12 6	£3 1 0
4in.	5in.	£2 17 0	£3 7 0
5in.	6in.	£3 7 0	£3 17 6

NOTE.—When ordering Chucks with one set of jaws only, state whether "lathe" or "drill" type jaws are required.

COMBINATION CHUCKS.

Self-Centring and Independent Eccentric and Reversible.





We strongly recommend this Chuck. It is cheaper than two separate Chucks, one self-centring and the other independent, and is more useful than both, as the one Chuck is always ready for either function without any changing whatever.

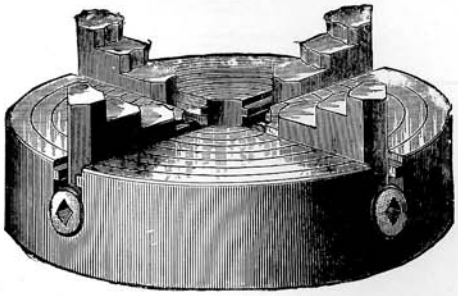
These Chucks are fitted with two keys, one for use in moving all the jaws together concentrically as in a Self-centring Chuck, the other for moving each jaw separately as in the Independent Chuck. Thus for holding irregular shaped work, the jaws can be separately adjusted to suit, and then operated in unison by means of the other key so as to automatically open and close to the same irregular setting for repetition. The jaws can be rapidly set true again for round work by means of the concentric lines on the face of the Chuck. Any shape of work can be held, as one or more jaws can be reversed, leaving the others as before. This method enables many awkward pieces to be held with facility. We use these Chucks ourselves throughout our works, and find them of the utmost value.

Price.

4in. Chuck, to hold up to 5⅜in., 3 jaws - - -	£6 : 3 : 6
,, ,, ,, 4 jaws - - -	£7 : 4 : 6

INDEPENDENT CHUCKS.

Reversible Jaws.



These Chucks are a great improvement on the old style of independent Chuck, in which the great friction thrown on the screws and shoulders is a frequent cause of failure to hold tightly.

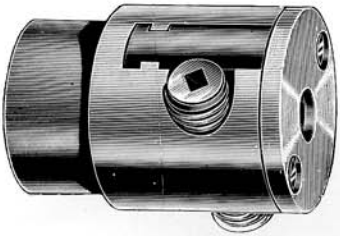
The jaws are of the solid reversible pattern, and on account of their long traverse the safe capacity of the Chuck is much larger than that of common pattern independent Chucks of equal diameter.

Each Chuck is provided with four solid reversible steel jaws, operated by separate screws. Every variety of round, square, irregular or eccentric work may be held in them to be operated upon. These Chucks will hold with great firmness, and will receive work considerably larger than their diameter. All sizes are provided with circular lines on the face by which to set the jaws true for holding round work. There are no projecting screw heads, the ends of the screws having square recesses to receive the key. The ease with which the jaws can be reversed is a feature of great convenience.

Prices.

Size.	Will Hold	PRICE.
4in.	5in.	£3 17 6
5in.	6in.	£4 6 0
6in.	7¼in.	£4 18 6
7½in.	9in.	£5 7 0

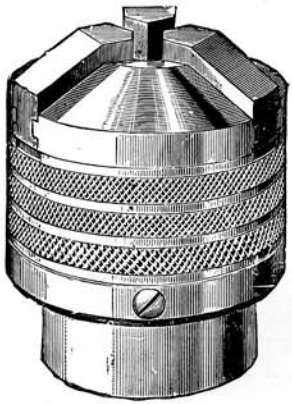
IMPROVED KEY DRILL CHUCK.



This Chuck will hold with great firmness, and is suitable for heavy workshop duties. It is provided with the necessary Morse taper shank to suit the lathe, and is recommended by us for all purposes.

Size.	Holding	PRICE.
2½in.	0 to ½in.	£2 18 6
2¾in.	0 to ¾in.	£3 2 6

"1883" DRILL CHUCK.



This Chuck is a convenient, well-made, substantial tool at a low price. It is operated by hand, and works on the self-tightening principle, the resistance of the cut tending to close the jaws still more firmly upon shank of the drill. Will hold small drills firmly and true.

Size.	Capacity.	Weight.	PRICE.
2in.	0 to 9/16	1¼lb.	£2 0 0
2½in.	1/64 to ¾	2½lb.	£2 4 6

SPECIAL FITTINGS.

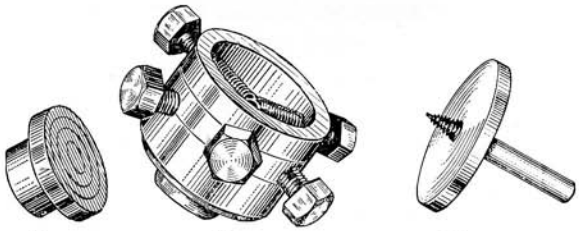


Fig. 1. Fig. 2. Fig. 3.

Fig. 1. Drill pad (fits on tailstock) - - Price 6/6
Fig. 2. Bell Chuck, with 8 screws :
3ins. diameter, holding 2¼ins. - - ,, 26/6
4ins. ,, ,, 3ins. - - ,, 33/-
Fig. 3. Taper Screw Flange Chuck for wood - ,, 10/6

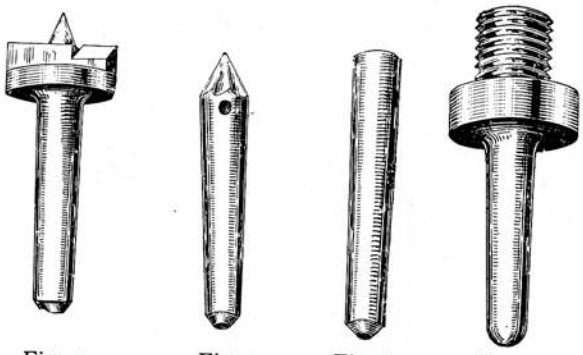
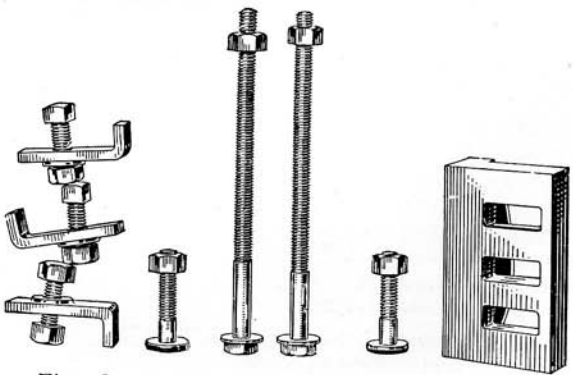


Fig. 4. Fig. 5. Fig. 6. Fig. 7.

Centres.

Fig. 4. Prong Centre for wood turning - - Price 7/6
Fig. 5. Fluted Centre for centring - - ,, 7/-
Fig. 6. Hollow, or Female Centre - - ,, 7/-
Fig. 7. Adaptor for converting back centre to mandrel nose - - - ,, 10/6
Ordinary Centres, 60° unless otherwise stated Price 7/- (13/6 pr.)
Half Centres - - - - Price 7/-
Extra Large Centres for tube work, or other types of centre can be supplied. Prices on receipt of requirements.

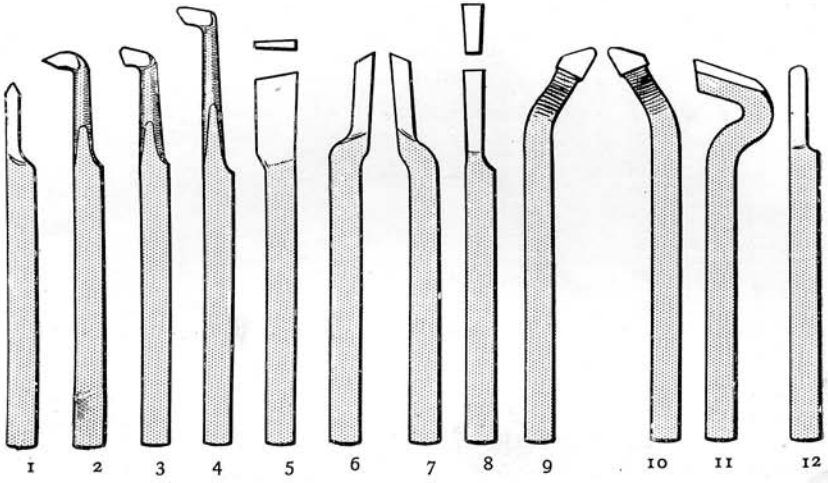


Figs. 8. 9. 10. 9. 11.

Bolts, Clamp Plates, Carriers, etc.

Fig. 8. Set of Dogs for holding work to faceplate, complete with bolts, etc. - - Price 6/6 set
Fig. 9. Bolts and Nuts for faceplate and angle plate work, each up to 2½ins. long - ,, 1/- each
Fig. 10. Long Bolts for fastening work to boring table, etc., each to 12ins. long - ,, 4/6 ,,
Fig. 11. Angle Plate for faceplate - - ,, 7/-
Set of Three Lathe Carriers holding from 0 to 1in. ,, 11/6

SLIDE REST TOOLS.



These Tools are our own make, and are of the finest quality carbon steel, hardened, tempered and ground ready for use. The set comprises the following:—

1. Outside Whitworth Thread Tool.
2. Inside Whitworth Thread Tool.
3. Short Boring Tool.
4. Long Boring Tool.
5. Narrow Parting Tool.
6. Left Hand Knife Tool.
7. Right Hand Knife Tool.
8. Square Edge Tool, or Broad Parting Tool.
9. Left Hand Roughing Tool.
10. Right Hand Roughing Tool.
11. Front Roughing Tool.
12. Round Nose Tool.

Nos. 9 & 10 are Hook Tools, as shown in No. 11.

PRICE. Complete Set of Tools, ⅝in. square steel - - **18/6**

Set of Handle Tools for wood turning; 3 gouges, 2 chisels and 1 parting tool - - - - - Price **18/-**

Set of 6 Handle Tools for metal - - - - ,, **18/-**

Boring Bar with 3 cutters, length 13ins. - - - ,, **15/-**

Arbor for Milling Cutters to run between centres, 10ins. long, having collars fitting three sizes of cutter holes - ,, **23/-**

Toolholders and any Special Tools, Extra Change Wheels, etc., quoted for on receipt of particulars.

DRILLS. Sets of best quality Twist Drills in English, metric or wire gauge sizes will be quoted for on receipt of requirements.

Special "Slocomb" Centre Drills for making accurate 60° centre holes with proper clearance. - - - - **10**d. each

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For Conditions of Sale see our Lathe Catalogue.

DRUMMOND BROS., LTD., GUILDFORD.