

has a bed 9½ in. long, and swings 3½ in., and costs \$10. By a peculiar arrangement of the slots and jaws of the universal face plate (fig. 2) a 20-size movement may be chucked so as to be operated upon at any part.

In the hard lathes the head and tailstock, spindles and their bushings, are of the finest-tempered steel, ground to size and shape by special machinery.

The outside surface of entire lathe is highly polished and nickel-plated, cone pulleys of hard rubber with four speed changes, and indexed with 60 holes, that a circle may be divided in 60, 30, 20, 15, 12, 10, 6, 5, 4, 3, or 2 equal divisions.

The bearings on all lathes have *oil holes* and *oil chambers* in the bushings, covered by shields which exclude chips and dust and protect the operator from flying oil. An opening in the shield allows the bearing to be lubricated, and by a partial revolution closes the opening, confining the oil where it is needed, without the usual cup and its cover which is continually being misplaced.

The headstock is fastened to the bed by a bolt at each end in combination with wedges and screw, which makes it very secure and easily attached or detached. The tailstock is fitted with hardened sliding spindle and bushings; rear end mounted with hard rubber knob, and taper hole in front for centres, drill chucks, etc.

The screw for binding T in rest is tapped in a steel ring, which can be set in any position, thus accommodating all workmen and all work.

The sliding shoe has an arrangement by which it is held down on the bed to prevent chips and dust from collecting under, at the same time allowing it to move perfectly free.

The lathes are fastened to bench by a heavy wood screw, leaving all clear below, or by bolt and thumb nut beneath the bench.

The many calls for something at less cost has induced us to make a lathe without hardened bearings—same perfection in all working parts. They are in style nearly the same as just described, the live or head spindle running in anti-friction metal bearings, steel work soft, except mouth of live spindle and the tailstock spindle. The pulley indexed; 24 holes.

By the use of a new and expensive machine all head and tailstocks and all other fixtures are made interchangeable, every centre of exactly same height from bed, and perfectly central. No matter which way they may be placed upon the bed, they will always line correctly, thus obviating the necessity of purchasing a complete outfit at once, and permit of making additions at convenience.

Fig. 2 shows the universal face plate, which may be screwed into the mandrel the same as any other chuck.

Fig. 3 shows a pivot polisher. It will do all kinds of pivots, besides spotting, snailing, and drilling. It is fastened to the bed as a slide-rest, and has graduated angular and vertical adjustments. The illustration shows the attachment half-size, and the following directions for its use will be read with interest. After the pivot is turned to a proper shape, put on the polisher; the spindle being parallel with the lathe-bed, and the lap to the rear. Use a cast-iron lap first, one having square corners for square shoulders, or one with round corners for conical shoulders. The lap itself must be perfectly true and uniformly smooth. Fine oilstone powder and oil, or No. 1 crocus, should be used with the iron laps. When the pivot is ground to shape, carefully clean it and remove the iron lap. Polish with a boxwood lap and No. 4 crocus.

Fig. 4 shows a wheel and pinion cutter, with three spindles. Each spindle, with its cutter, has separate adjustments, and is held in position by a pawl.

Fig. 5 shows a half open tailstock. The upper half is cut away so that spindles may be laid in place, instead of being passed through. This is very convenient when a number of spindles are to be used for drilling, tapping, counterboring, chamfering, etc.

Fig. 6 is a traverse spindle tailstock useful for straight drilling.

Fig. 7 is a swing rest, similar to the jewellery rest, but it has no calliper. It is very useful in cutting a recess, and the cutter swings away from the work to allow examination or the use of a hand-tool.

Fig. 8 shows a section of the bed of the form adopted in the Moseley lathe. It has central guiding surfaces, which are more correct in principle than to spread the guides to the outside.

Fig. 9 shows a filing attachment to be held in the hand-rest in place of the T. It is adjusted vertically by means of a finely-threaded screw, fitted with a milled nut, as shown. The guides are hardened steel and fixed in their places; being round they may be turned over if worn by use. This attachment is useful in filing squares on arbors held between the lathe centres.

Fig. 10 shows a wheel cutter similar to fig. 4, but fitted with one spindle only.

Fig. 11 shows a screw tailstock, useful for heavy work.

Fig. 12 shows a jewellery-rest, having a lateral screw and swing calliper. As it registers and cuts recesses to correspond with various jewels, etc., that may be callipered, this rest is in constant use in watch factories.

The foregoing brief particulars of the various lathes and lathe appliances used in watch work will interest many readers. There are many most ingenious contrivances employed in the watch trade which might be adapted by other trades to advantage. Amateur mechanics who use lathes for light work will not fail to see, in the illustrations we publish herewith, many valuable and suggestive contrivances.

SPECIMENS OF PRIZE TURNERY.

(For Illustrations see Supplement.)



THE worshipful company of Turners held their thirteenth annual exhibition at the Mansion House on the 23rd, 24th, and 25th of October, and the prizes were distributed on Friday, the 26th.

Of the exhibits generally there is little to be said. They were neither particularly numerous nor exceptionally good. Considering the value of the prizes, many of which are in cash, the collection of work was by no means creditable. Evidently all the expert workmen have not yet been induced to send in specimens of their handicraft for competition at this annual exhibition. Year after year the same names appear in the list of prize winners, and the circle of turners who have been attracted to compete is a very small one. Without desiring to say one word in disparagement of the handiwork of those who did exhibit, yet for the credit of turners we wish the specimens had been more numerous and the competition keener.

We give a sheet of illustrations showing some of the objects which obtained the I., II., IV., V., VI., VIII., X., and XI. prizes for turning in wood. We shall give particulars of these and illustrations of others at the earliest opportunity.

Owing to want of space, letters signed F. A. M., G. C. Clarke, Geo. F. Jackson, and Jas. Cowan have been unavoidably held over.

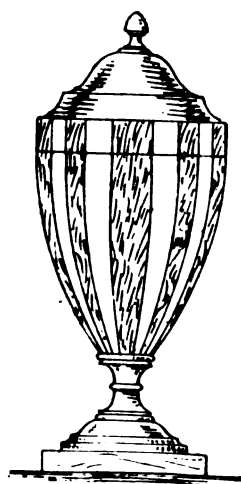
AMATEUR MECHANICS.



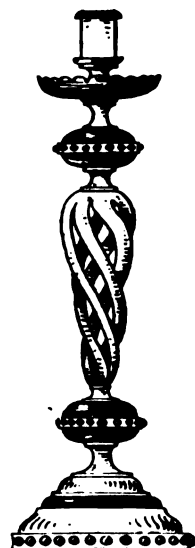
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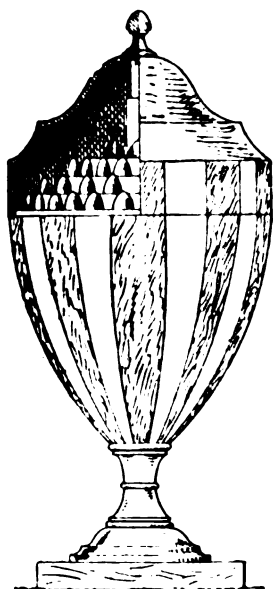
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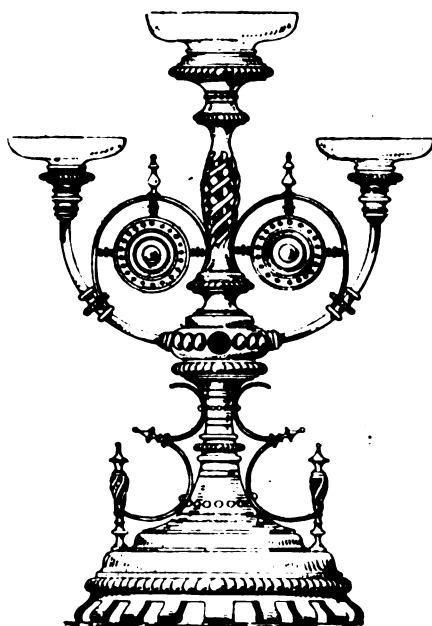
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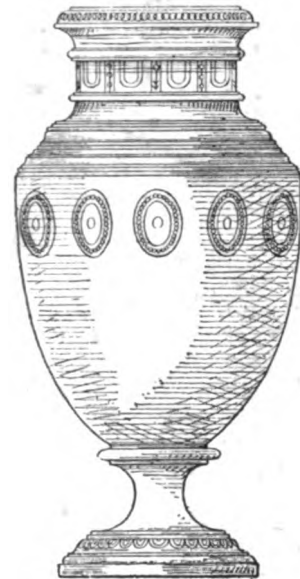
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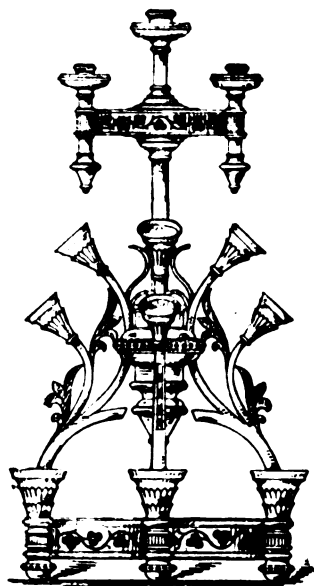
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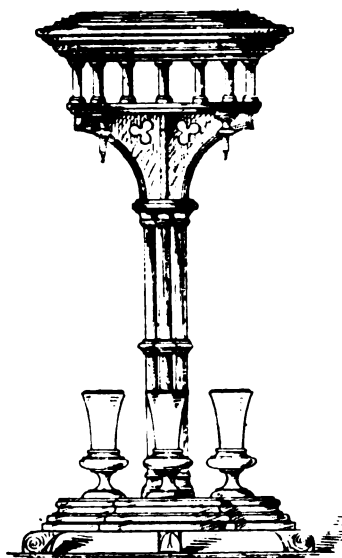
Fourth Prize.



Second Prize.



Eleventh Prize.



Sixth Prize.



Fifth Prize.

SPECIMENS OF PRIZE TURNERY FROM THE MANSION HOUSE EXHIBITION.