E. J. Chapin.

Watchmaker's Lathe.

No. 36,942. Patented Nov. 18, 1862.

Fig. 1

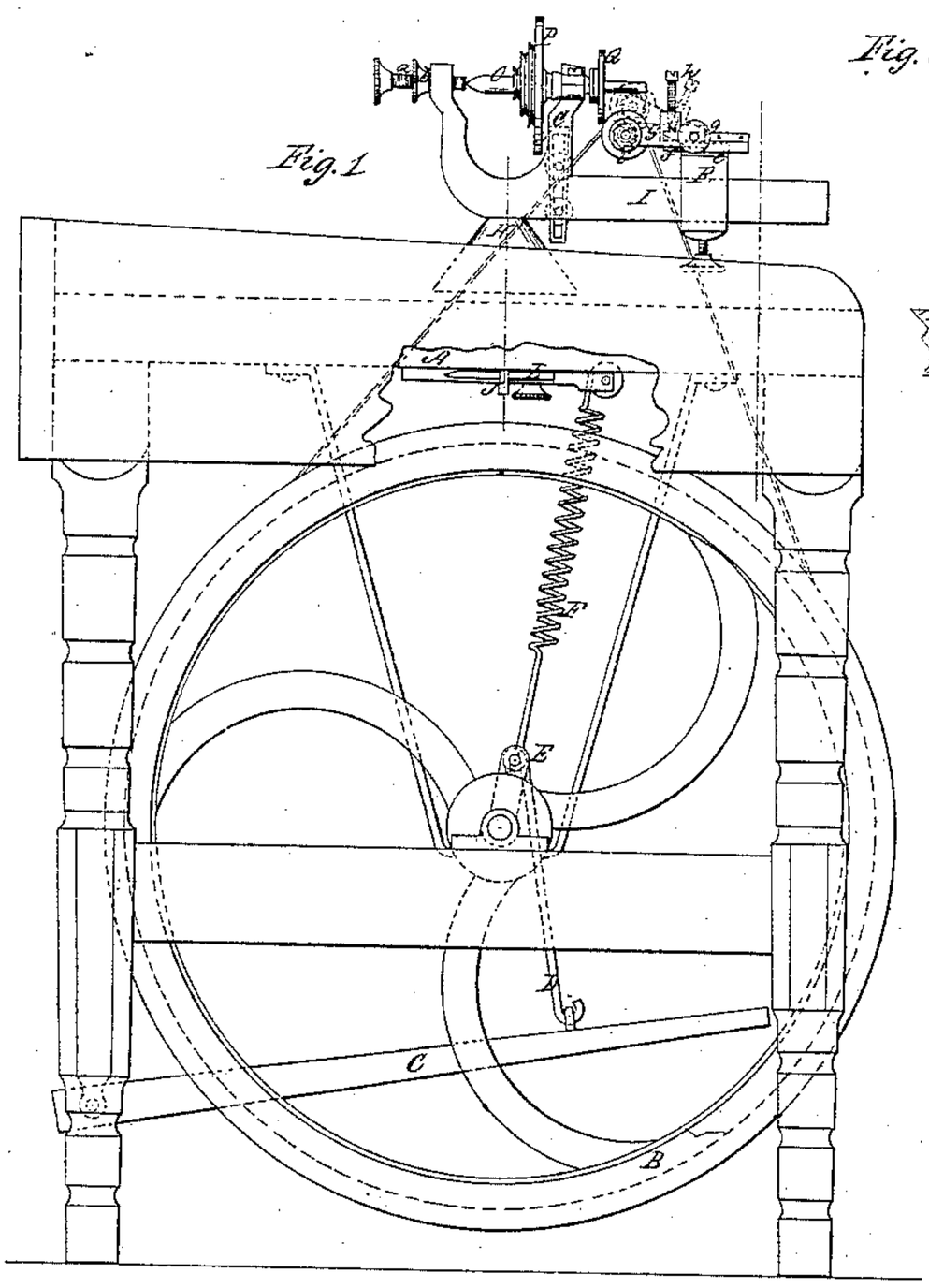


Fig. 5

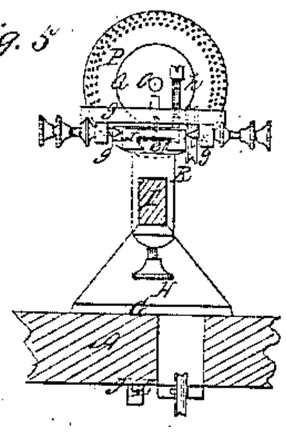


Fig. 2

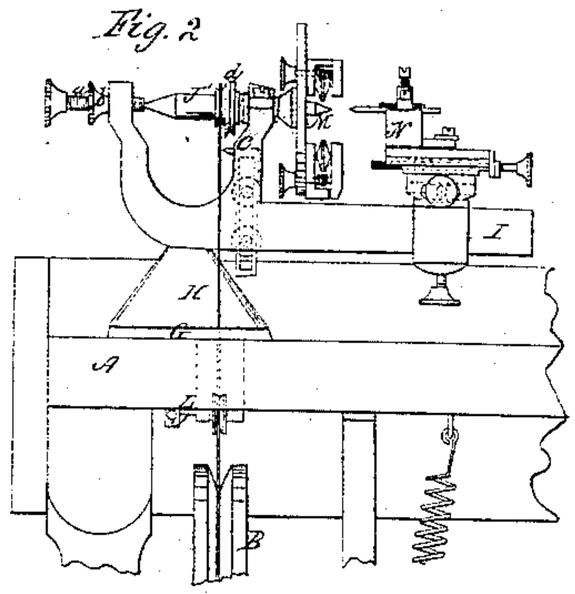


Fig. 3

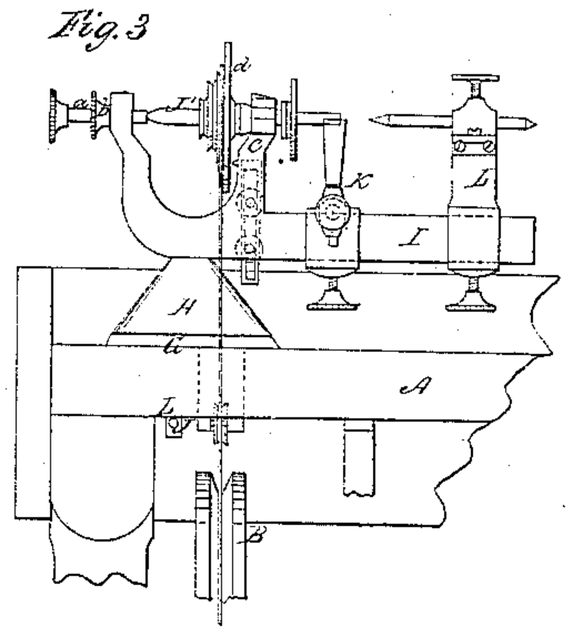


Fig. 7

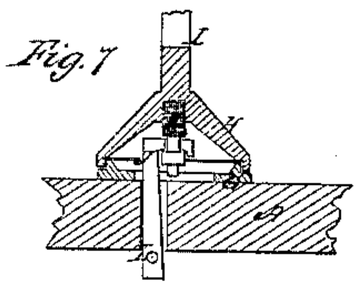


Fig. 9

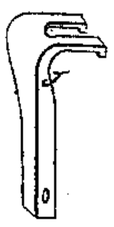


Fig. 8

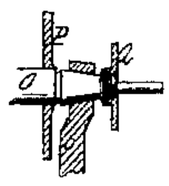


Fig. 6

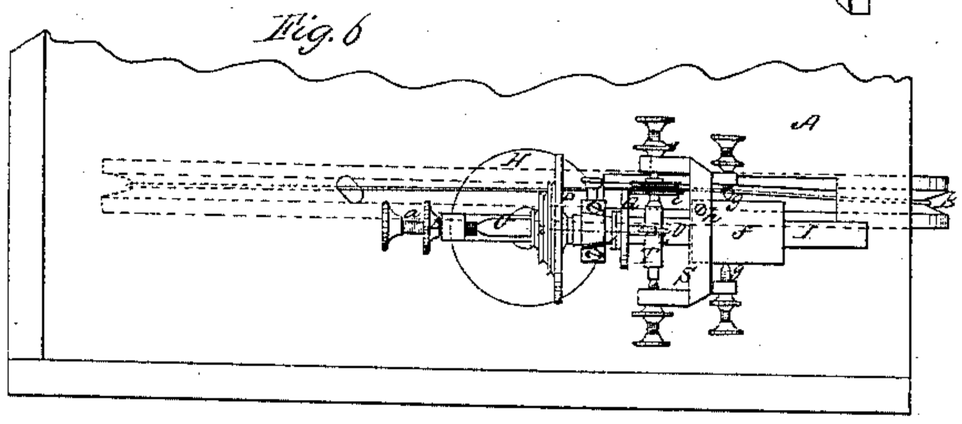
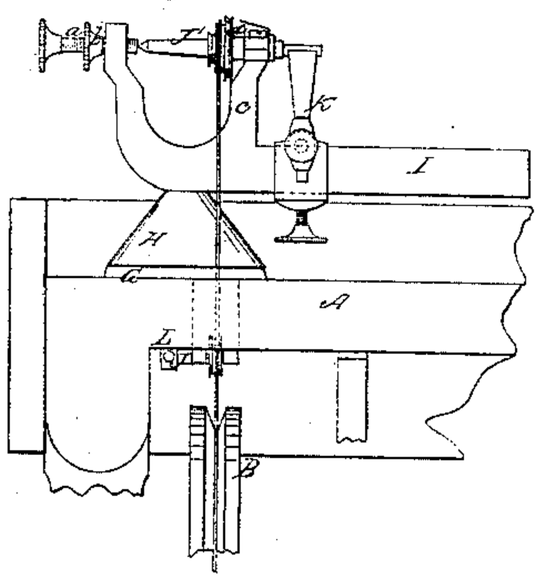


Fig. 4



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UNITED STATES PATENT OFFICE.

EDWARD J. CHAPIN, OF OTTAWA, ILLINOIS.

IMPROVEMENT IN WATCH-MAKERS' LATHES.

Specification forming part of Letters Patent No. 36,942, dated November 18, 1862.

To all whom it may concern:

Be it known that I, EDWARD J. CHAPIN, of Ottawa, in the county of La Salle and State of Illinois, have invented a new and Improved Lathe for Watch-Makers' Use; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figures 1, 2, 3, 4, and 5 are elevations of my invention, the latter being a sectional elevation taken in the line *x x*. Fig. 6 is a plan or top view of the same. Figs. 7 and 8 are detached sectional views of parts pertaining to the same, Fig. 7 being taken in the line *y y*, Fig. 1, and Fig. 8 in the line *z z*, Fig. 6; Fig. 9, a detached perspective view of a part pertaining to the same.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to combine a number of parts in such a manner that all the different lathes used by watch-makers may be obtained and used with a single bed-piece and with but one driving mechanism, the device, as a whole, being at the same time extremely simple, and capable of being adjusted and operated with equally as great facility as the ordinary lathes in use.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a bench or table on which the lathe is placed, B the wheel by which the mandrel of the lathe is driven or rotated, and C the treadle, which is connected by a rod, D, with a crank, E, at one end of the shaft of wheel B.

F is a spring, one end of which is connected to the crank E and the opposite end to the underside of the bench A. This spring serves to equalize the rotation of wheel B and assist the crank E in passing its centers.

In the top of the bench or table A there is made a hole or opening for the band of wheel B to pass through, and on the top of the bench or table there is permanently secured an annular way, G, which is of metal and has fitted upon it a bell-shaped metal base, H, as shown clearly in Fig. 7. This base H serves as a support for the bed-piece I of the lathe, the latter being attached permanently to the former. The base is secured on its way G by means of a hook, J, which is fitted on a screw, K, within the base H, and extends down through the top of the bench or table, and has a pin, L, passing horizontally through it. This mode of securing the base H to its way G admits of the former being turned on the latter.

The screw K may be turned a greater or less distance up within the base H, to insure a snug adjustment of the base on the way.

The bed-piece I of the lathe is of rectangular form in its transverse section, and is curved upward at its back end, and has a screw, *a*, passing horizontally through it, a jam-nut, *b*, being on the screw, the latter receiving the back center of the mandrel J′. The bed-piece I also has a vertical bar, *c*, attached to or cast with it, in the upper part of which is the front bearing of the mandrel. (See Figs. 2, 3, and 4.)

When the invention is used as an ordinary turning-lathe, a rest, K, is placed on the bed-piece I, and also a head, L, as shown in Fig. 3, the band of wheel B passing through the hole or opening in the top of the bench or table and around a pulley, *d*, on the mandrel J′.

When the invention is used for facing off work, the rest K and head L are removed from the bed-piece I, a chuck, M, secured to the mandrel J′, and a slide-rest, N, fitted on the bed-piece, as shown in Fig. 2.

When the invention is used as a "Swiss lathe," as they are commonly termed, the head L is removed and the rest K placed on the bed-piece, as shown in Fig. 4.

O is a mandrel, which is provided with a dividing-plate or counter-wheel, P, (see Figs. 1, 5, and 6,) and also provided with a chuck-plate, Q, to which wheels are connected for cutting gear thereon; and R is a slide which is fitted on the bed-piece I when the mandrel O is used.

On the upper surface of the slide R there is secured a dovetail guide, *e*, which, when the slide R is adjusted on the bed-piece I, is parallel with the latter. On this guide *e* there is fitted a plate, *f*, which is allowed to slide freely back and forth, and has a frame, S, attached to it by center points, *g g*, so that it may work or swing freely up and down, the extent of the downward movement being determined or regulated by a set-screw, *h*. In this frame S there is fitted a mandrel, T, on which a burr-cutter, U, is placed, and also a pulley, *i*. These latter described parts—to wit, those connected

with the frame S—form a gear-cutting device, and in using it the bed-piece I is turned around one-quarter of a revolution, so as to be in a vertical plane which is parallel with the plane of the wheel B and at right angles to its former position. The band of the wheel B is also fitted over the pulley *i* of the mandrel O, and the latter, and consequently the cutter U, rotated thereby. The gears are cut by moving forward the frame S, the cutter acting on the lower part of the wheel and the depth of the cut regulated by the set-screw *h*. After each cut the gear-wheel is turned a proper distance to receive the succeeding cut, the extent of the movement being determined by the dividing-plate or counter-wheel P and a point or stop, *j*, attached to the bar *c* of the bed-piece. By this arrangement gears may be expediently cut.

The device, as a whole, is extremely simple and efficient, and may be adapted to all the different lathe-work required to be done by a watch-maker or repairer.

I do not claim the rest K nor the head L, nor the slide-rest N nor chuck M, for these are old and well-known devices; but

I do claim as new, and desire to secure by Letters Patent—

1. The mode of attaching the bed-piece I to the table or bench A, as shown and described—to wit, by means of the bell-shaped base H, fitted on the annular way G, and secured thereto by the screw K, hook J, and pin L, all arranged, as shown, to admit of the turning or adjusting of the bed-piece I on the table or bench.

2. The gear-cutting frame S, provided with the mandrel T, cutter U, and set-screw *h*, and connected to the sliding plate *f* by center points, *g g*, to admit of the rising and falling of said frame and its proper adjustment relatively with the wheel to be cut, as set forth.

3. The combination of the mandrels J O with the bed-piece I, rests K N, chuck M, and gear-cutting frame S, all arranged as described, to form a new and useful lathe, for the purpose herein specified.

EDWARD J. CHAPIN.

Witnesses:

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F. B. HOYT.