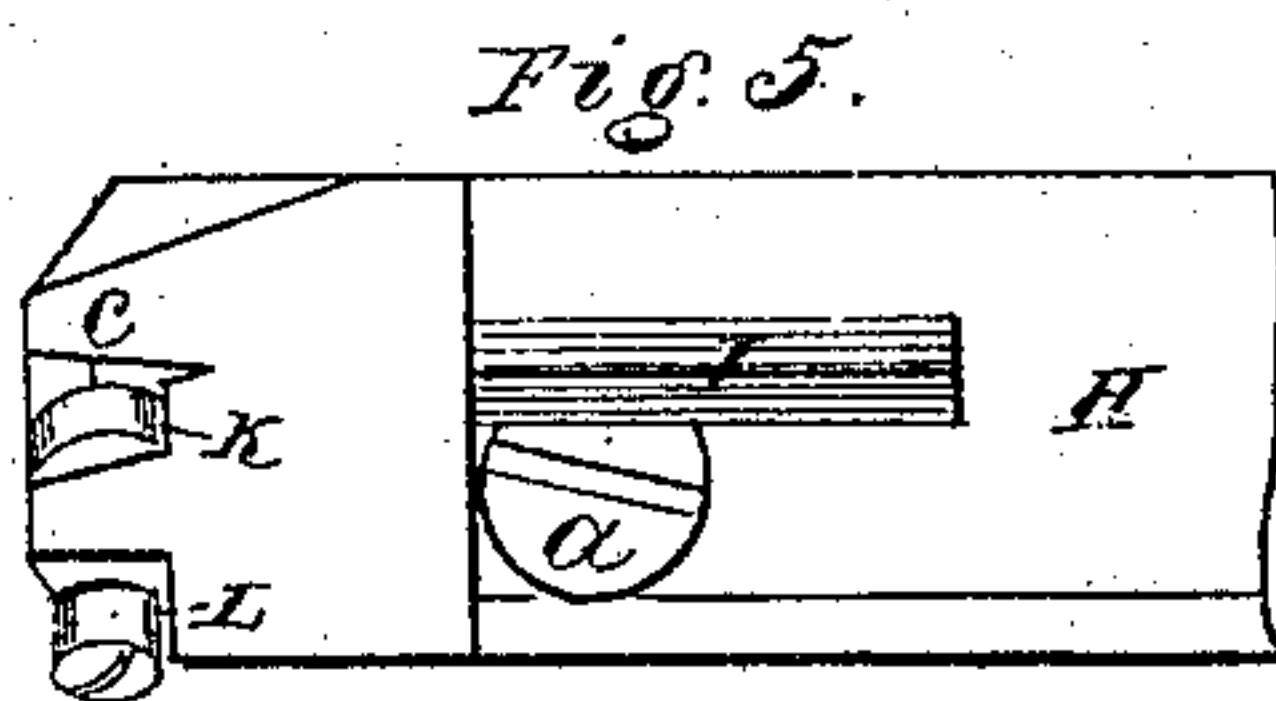
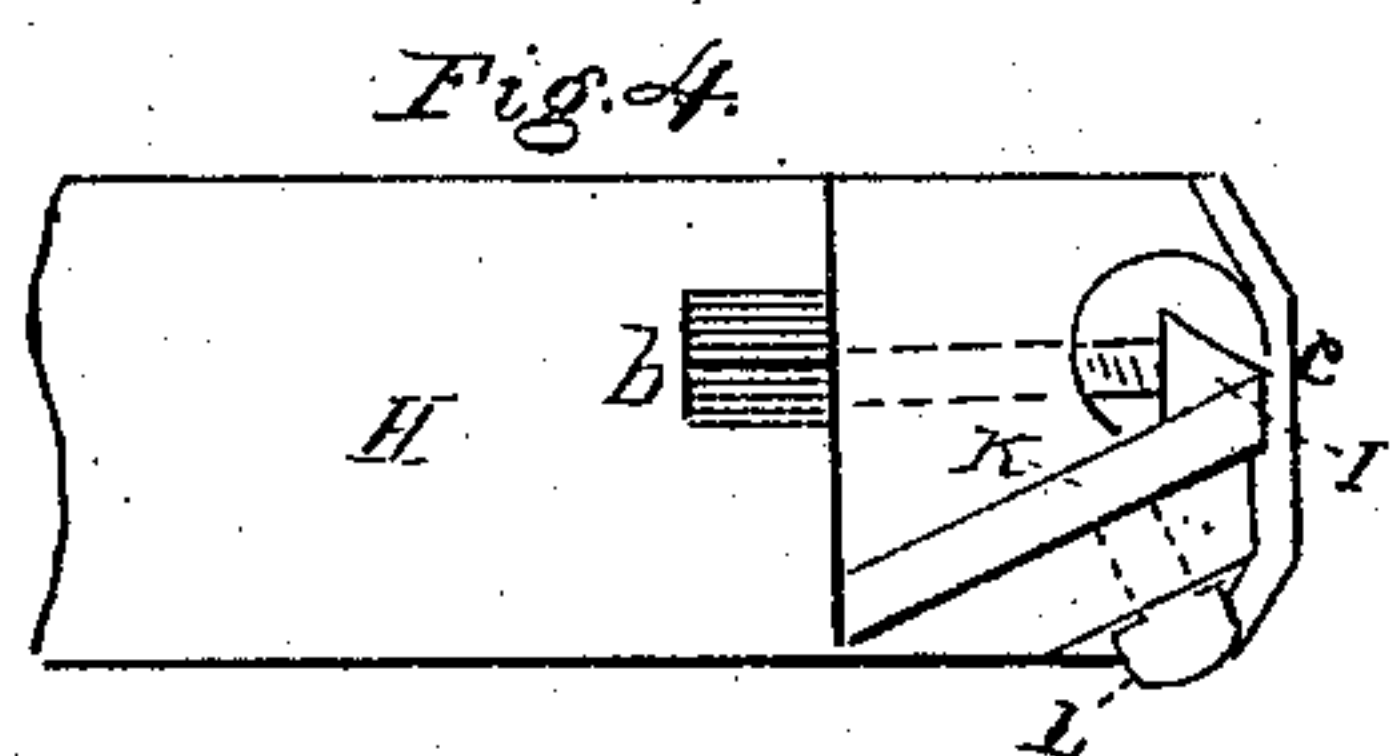
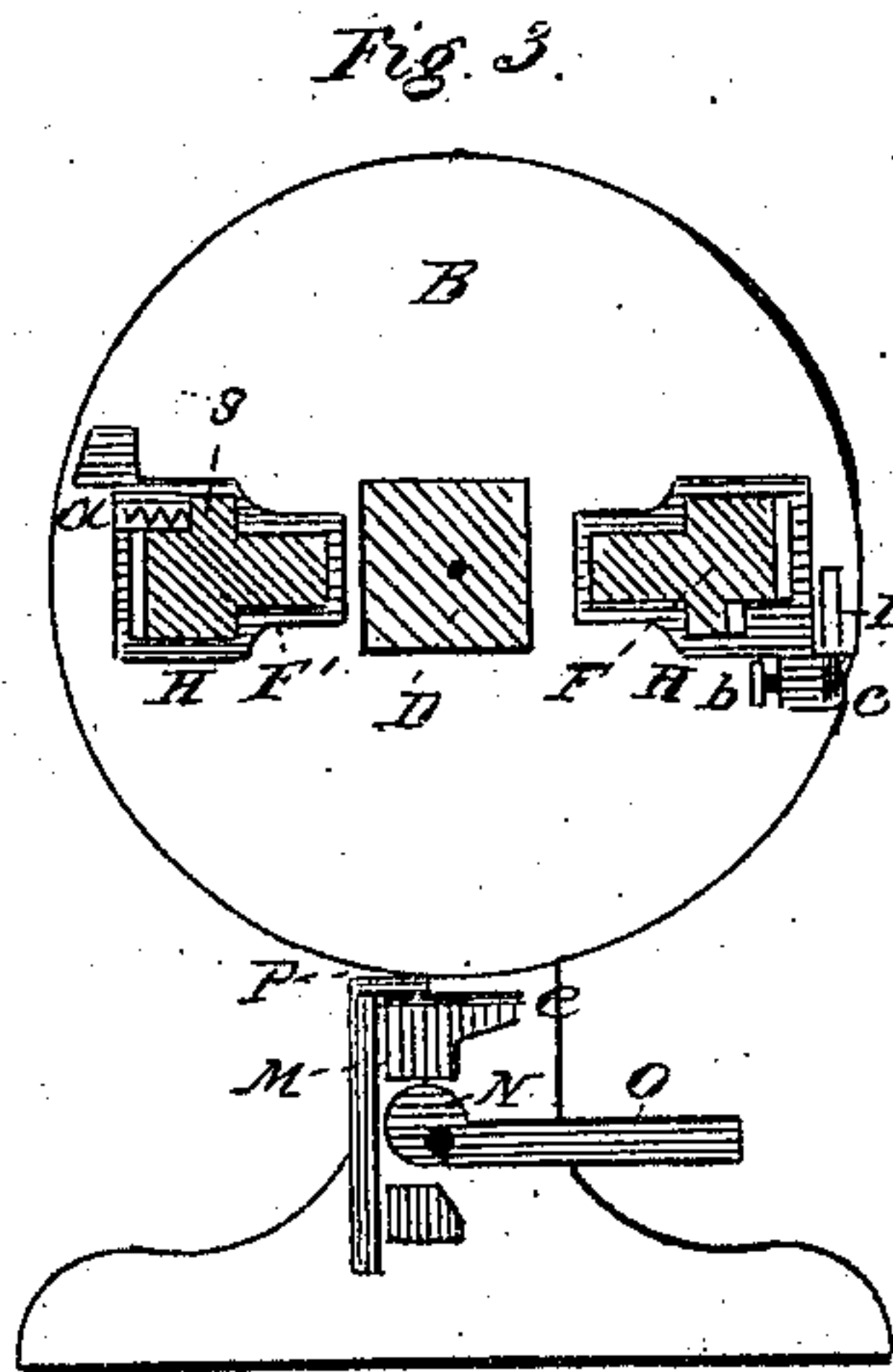
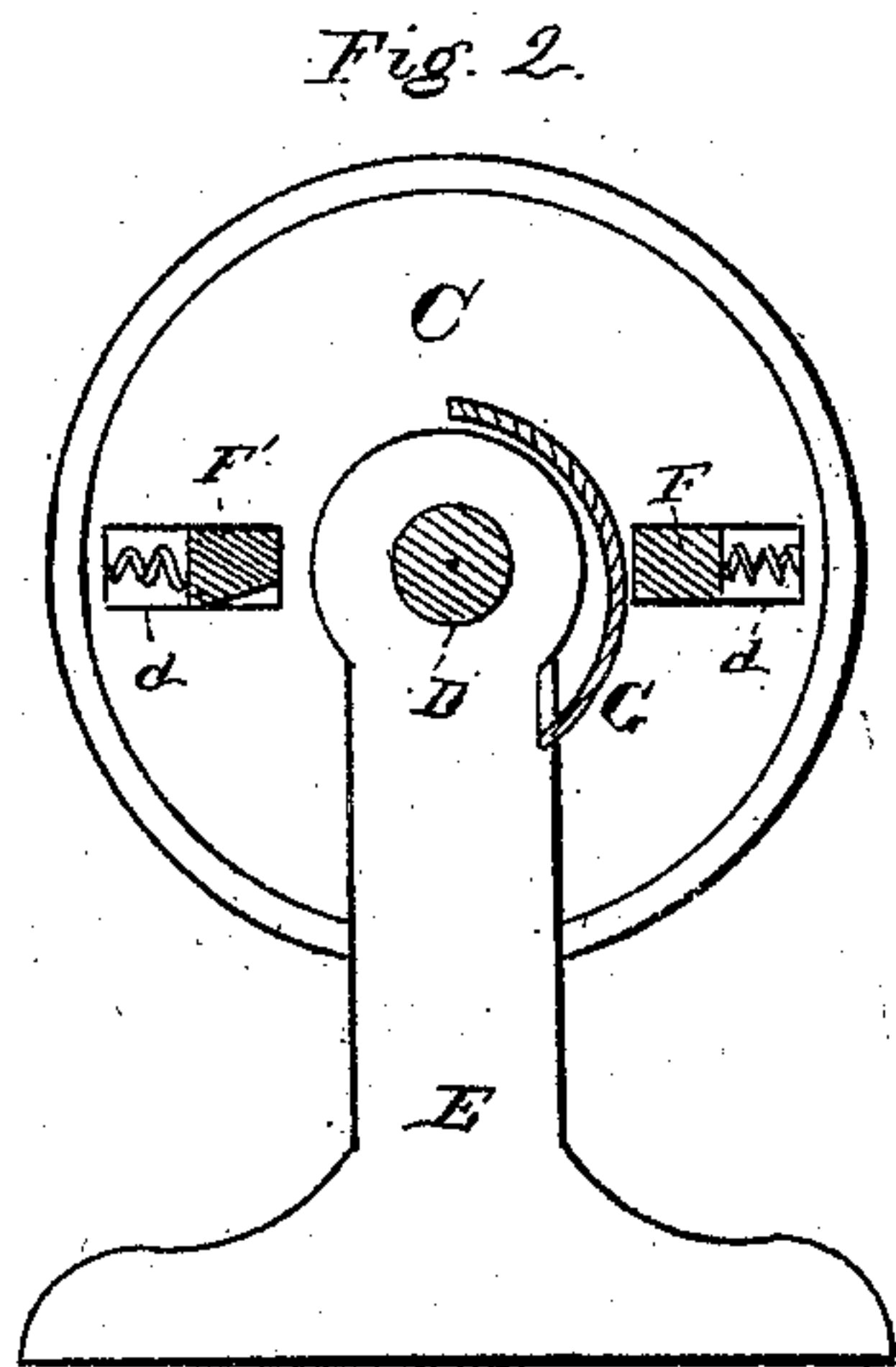
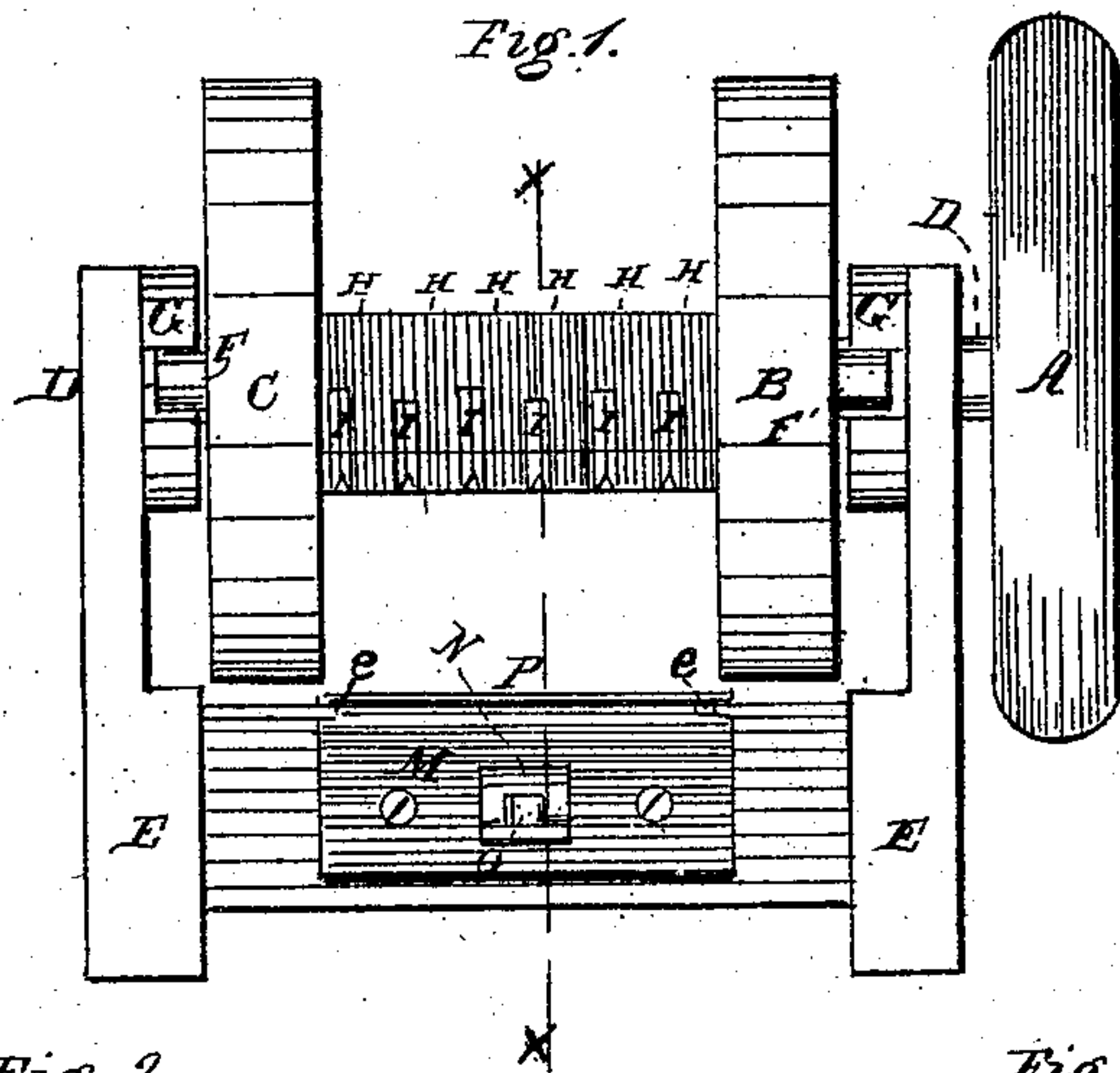


H. K. Jones,

Dividing Engine.

No. 93,449.

Patented Aug 10, 1869.



Witnesses:

Thos. G. Ellis
Thomas C. Harrocks

Inventor.

Horace K. Jones

No drawing in this patent is not in print.

United States Patent Office.

HORACE K. JONES, OF HARTFORD, ASSIGNOR TO THE HART MANUFACTURING COMPANY, OF KENSINGTON, CONNECTICUT.

Letters Patent No. 93,449, dated August 10, 1869.

IMPROVEMENT IN MACHINE FOR GRADUATING CARPENTERS' SQUARES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HORACE K. JONES, of Hartford, in the county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Machinery for Graduating Carpenters' Squares; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

Figure 1 is a front view of my improved machine.

Figure 2 is an end view of the same, from the left of fig. 1.

Figure 3 shows a vertical section through the line *x x*, fig. 1.

Figure 4 is a bottom view of the tool and holder, when in the position shown in fig. 1.

Figure 5 is a view of the cutting-face of the tool-holder, or a front view, as shown in fig. 1.

My invention has for its object the more rapid and uniform graduation of carpenters' squares and other graduated implements, than has heretofore been practised, by the use of automatic machinery, by means of which a great number of lines are cut or engraved at the same time.

My invention consists in arranging the gravers in sets, on horizontal bars, around two vertical disks, in such a manner that the several sets are brought, successively, in contact with the square as the disks revolve, and mark the series of lines for which they are intended.

It also consists in the peculiar mechanism by which this is accomplished, as is hereinafter described.

A is the pulley, by which the machine is operated.

B and C are circular disks, fixed to the shaft D, and turning with it.

E E are the supports of the machine, in which the axis D rests and turns.

F F' are bars reaching through the two disks, B and C, on which the tool-holders H H, &c., are placed.

The ends of these bars project beyond the disks, and work against the cams G G, when the disks revolve.

The tool-holders H surround the bars F F', as shown in fig. 3, the bar passing through a properly-shaped aperture, in which it fits, so that the holders can have a sliding motion, in and out, from the centre on which they revolve.

The tool-holders are held outward, in the position shown in fig. 3, by means of the springs *s*, whose force is regulated by the screw-plug *a*, figs. 3 and 5.

The tool I is held in the tool-holder, by being inserted in a properly-formed receptacle, and clamped by the screw *b*, figs. 3 and 4.

The tool is shown of a triangular form in the drawings. If of this form, either of the three edges may be

used for engraving the lines. The back part of the tool may, however, vary in form, so that the cutting-edge is made of a certain uniform angle.

The tool rests in the holder in a groove, of the exact inclination of its sides, into which it fits, and is pressed into its position by the set-screw *b*.

This insures the tool always being reinserted in the same position, when removed from the machine for sharpening.

The face of the tool-holder, at *c*, figs. 3, 4, and 5, is cut away, so as to expose the point or corner of the tool to act upon the square.

Alongside of the tool, but not binding upon it, there is let into the tool-holder a gauge for regulating the depth of cutting of the graver.

This gauge is set in its proper place, and secured by the screw L, which holds it firmly in its place.

The cams G G are for the purpose of pressing out the bars F F', which are otherwise held in toward the centre by the springs *d d*, so that the tools are gradually advanced outwardly to take hold of the edge of the square, at *e*.

The end of the cam is in such a position that the bars drop off just when the graver has drawn the line of sufficient length. This raises the tool from the square.

The length of the several graduations is regulated by the shape of the ends of the bars F F'.

The bar F', it will be observed, has a corner removed. This causes the bar to drop off the end of the cam G sooner than the bar F, and, therefore, the tools on the bar F' will draw shorter lines than those on F.

In the drawings, only two sets of tool-holders are shown, but there may be as many bars holding sets of tools, arranged around the circumference of the disks B and C as the space will allow.

The tools in each set are arranged a certain exact distance apart, as one inch, and those of the different sets are arranged so as not to follow each other, but be a certain distance, as one-sixteenth, one-eighth, one-fourth, one-half, &c., to one side, so that each set of tools engraves a certain set of graduations, there being a greater or less number of sets of tools, according as the graduations are finer or coarser.

In order to graduate the blade of a square twenty-four inches long to sixteenths of an inch, there would require to be twenty-four tools in each set, and sixteen sets arranged around the circle.

One set would engrave the inch marks, another the half-inch marks, another one-half of the quarters, and so on, each set making one mark in each inch.

M is the bed for holding the square to be graduated, and is pressed up against the plate P, by the eccentric cam N, operated by the treadle O.

The bed M is so arranged as to accommodate itself to the taper in the thickness of the blade of the square.

by having a play up and down at the ends, so that when pressed up in the middle, it touches the blade in all parts, and holds it firmly against the jaw P.

The part M can also be made in two or more parts, connected by a system of one or more horizontal levers, for the purpose of distributing the pressure applied at one point over the whole length of the blade of the square, and conform to its irregularities of surface.

The operation of my invention is as follows:

The square is placed on the bed M, and clamped firmly up against the jaw P, to hold it.

The disks B and C revolve, and bring the successive sets of tools against the edge of the blade.

The ends of the bars F, &c., follow the surface of the cams G, and press out the sets of tools successively against the square.

The gauges K ride upon the surface of the blade, and are held firmly in contact with it by the springs s, allowing the tools to enter the exact distance to which they are set from the faces of the gauges K.

When the ends of the bars F, &c., drop off the end of the cams G, the tools rise free from the square, and pass without touching over the plate P.

All the tools on one bar cut lines of the same length, the ends of the different bars being made of a suitable form to lift the tools at the right moment, so as to have the graduated lines of the proper length.

Claims.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the cams G and bar F with the tool-holders H and tools I, when the parts are constructed and arranged substantially as herein described.

2. The combination of the bar F, spring s, tool-holder H, and gauge K, all constructed and arranged substantially as described.

3. The construction of the tool and socket, so that the edge of the tool fits into a V-shaped recess, the angle of which is in line with the working-point of the tool, substantially as and for the purpose herein described.

4. The arrangement of the several sets of tool-holders and tools upon the successive bars F, in the manner described, so that only one line is cut by the same graver, and the several lines of graduation are cut by successive tools, at certain distance to the right or left, substantially as herein described.

5. Regulating the length of the graduated lines, by means of the ends of the bars F acting upon the cams G, substantially in the manner described.

Witnesses:

HORACE K. JONES.

THEO. G. ELLIS,

THOMAS C. HARROCKS.