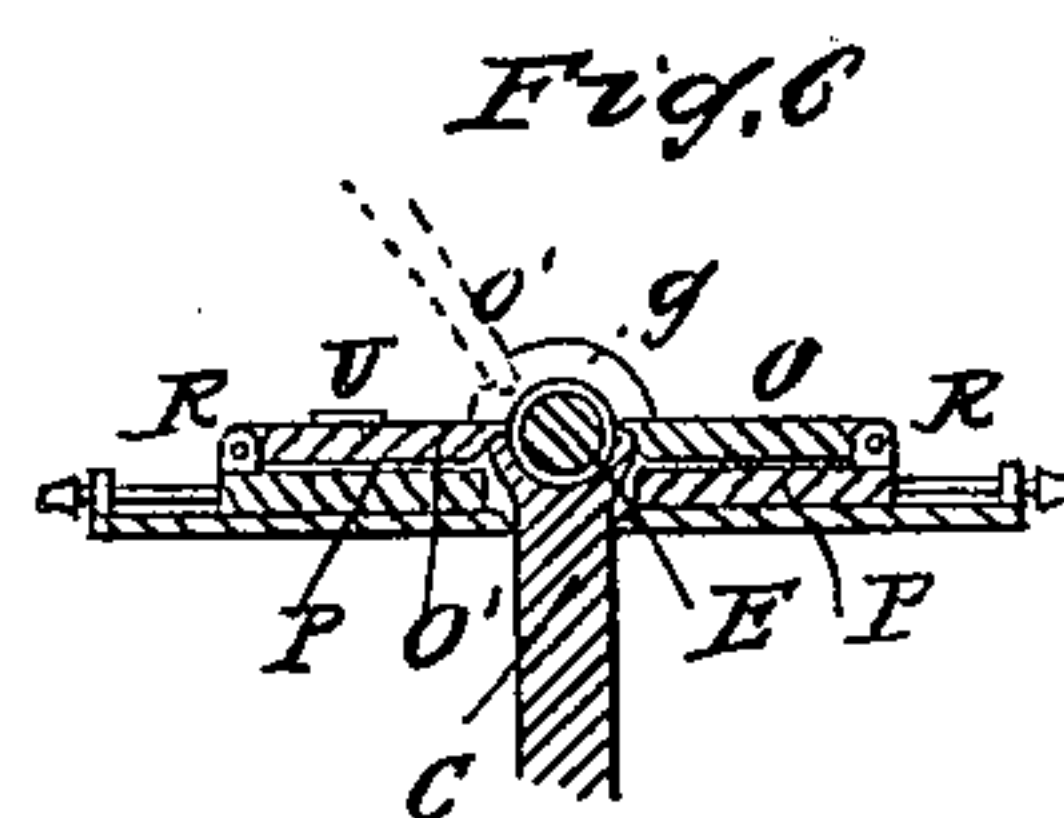
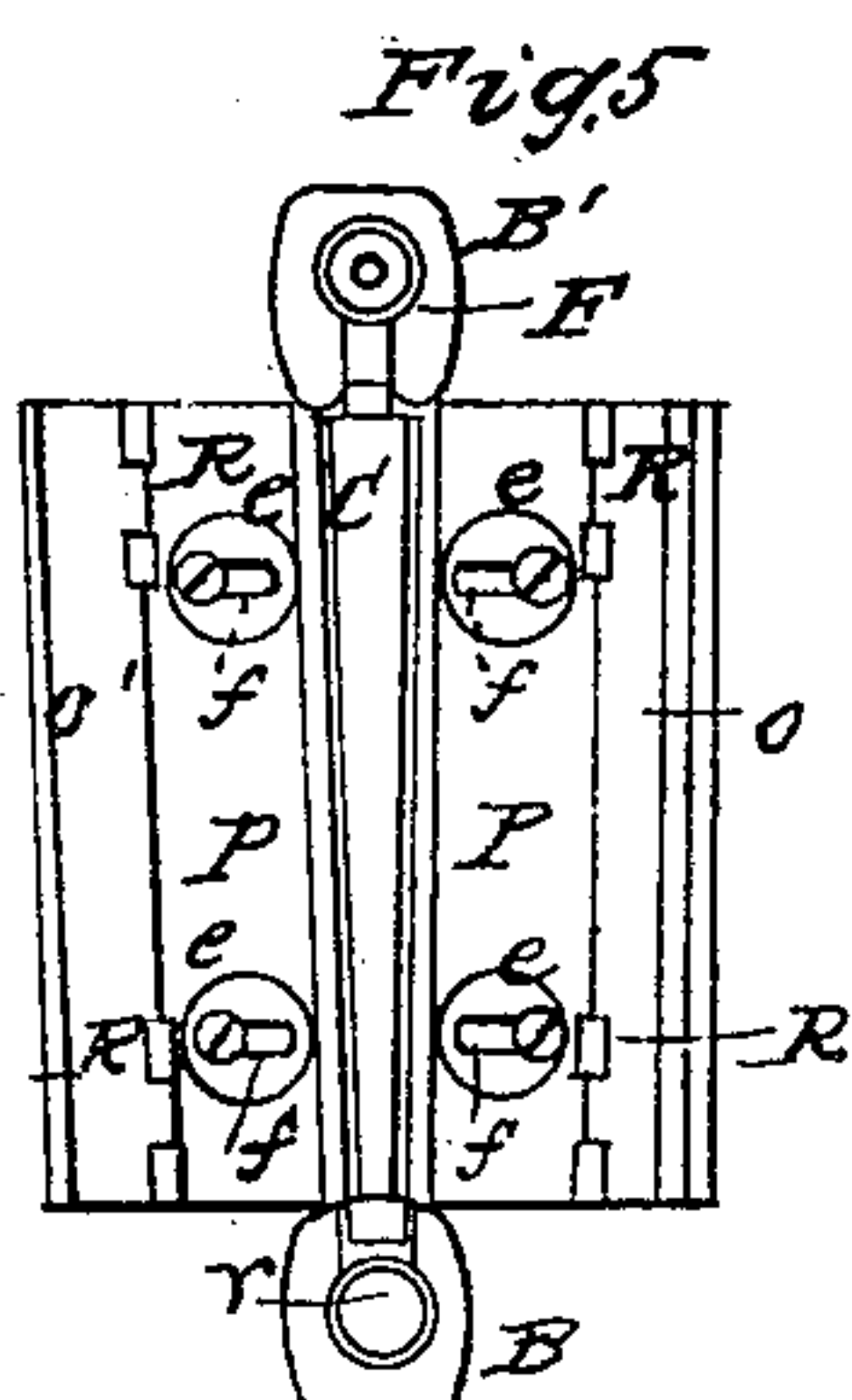
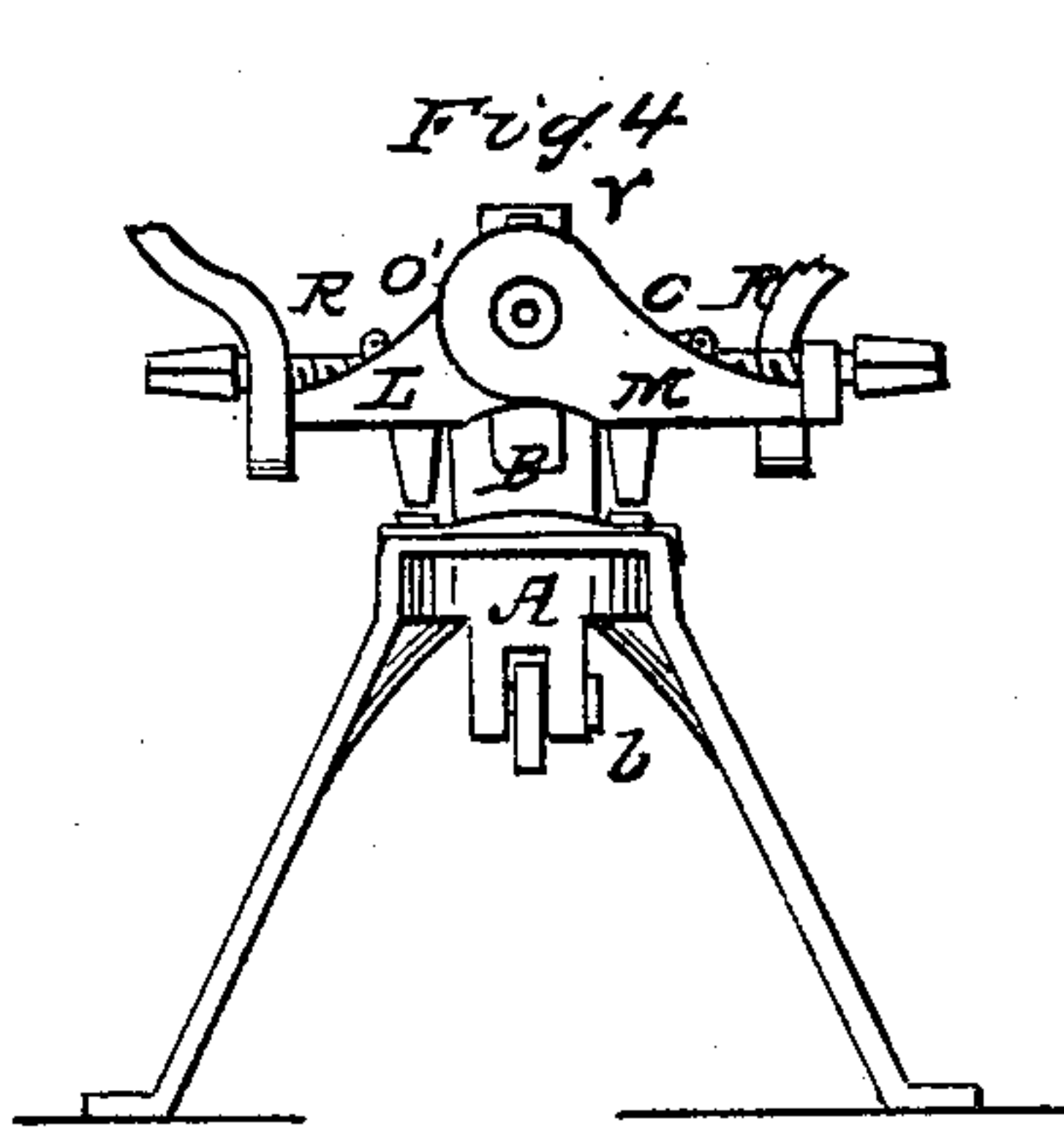
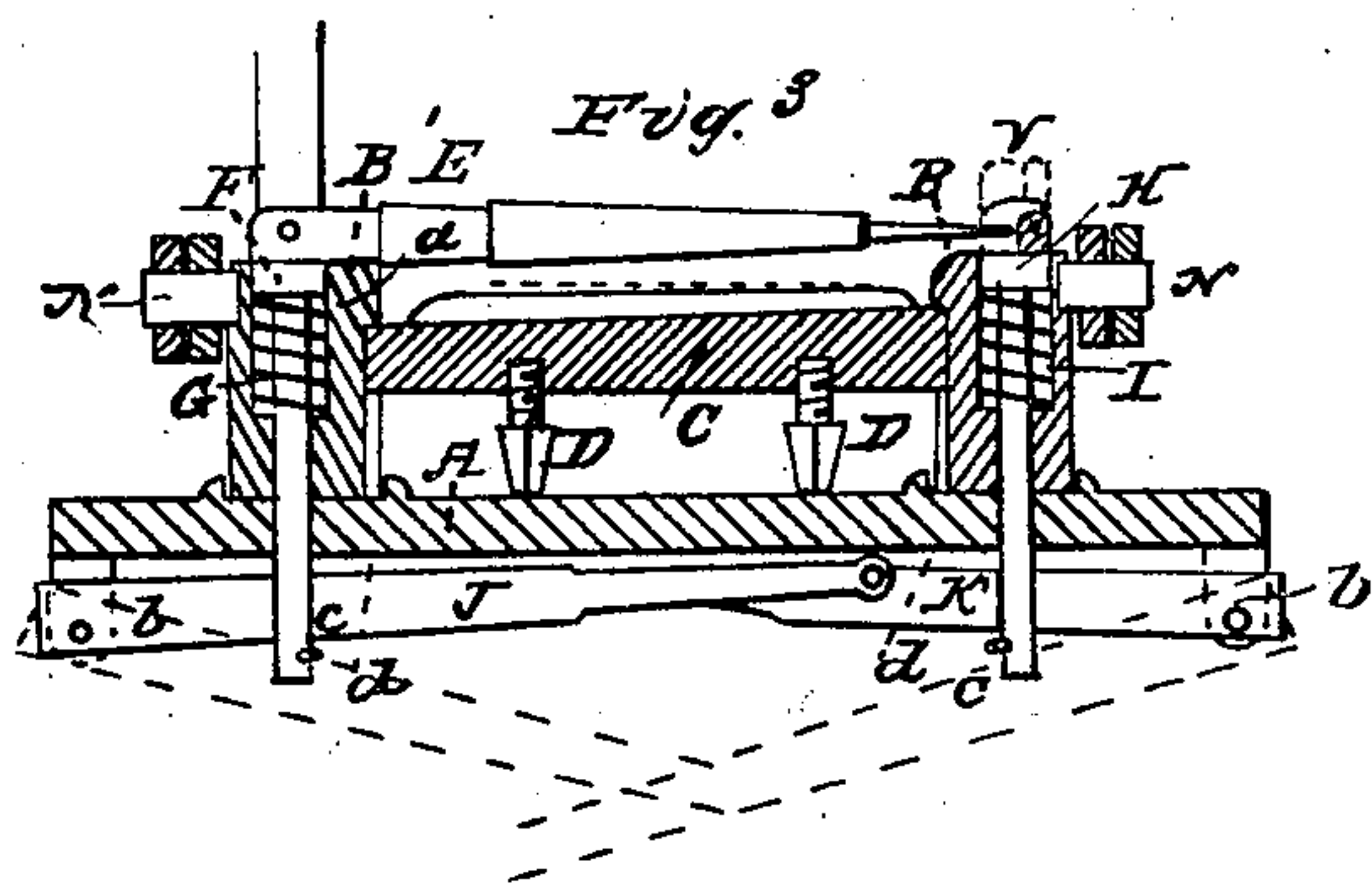
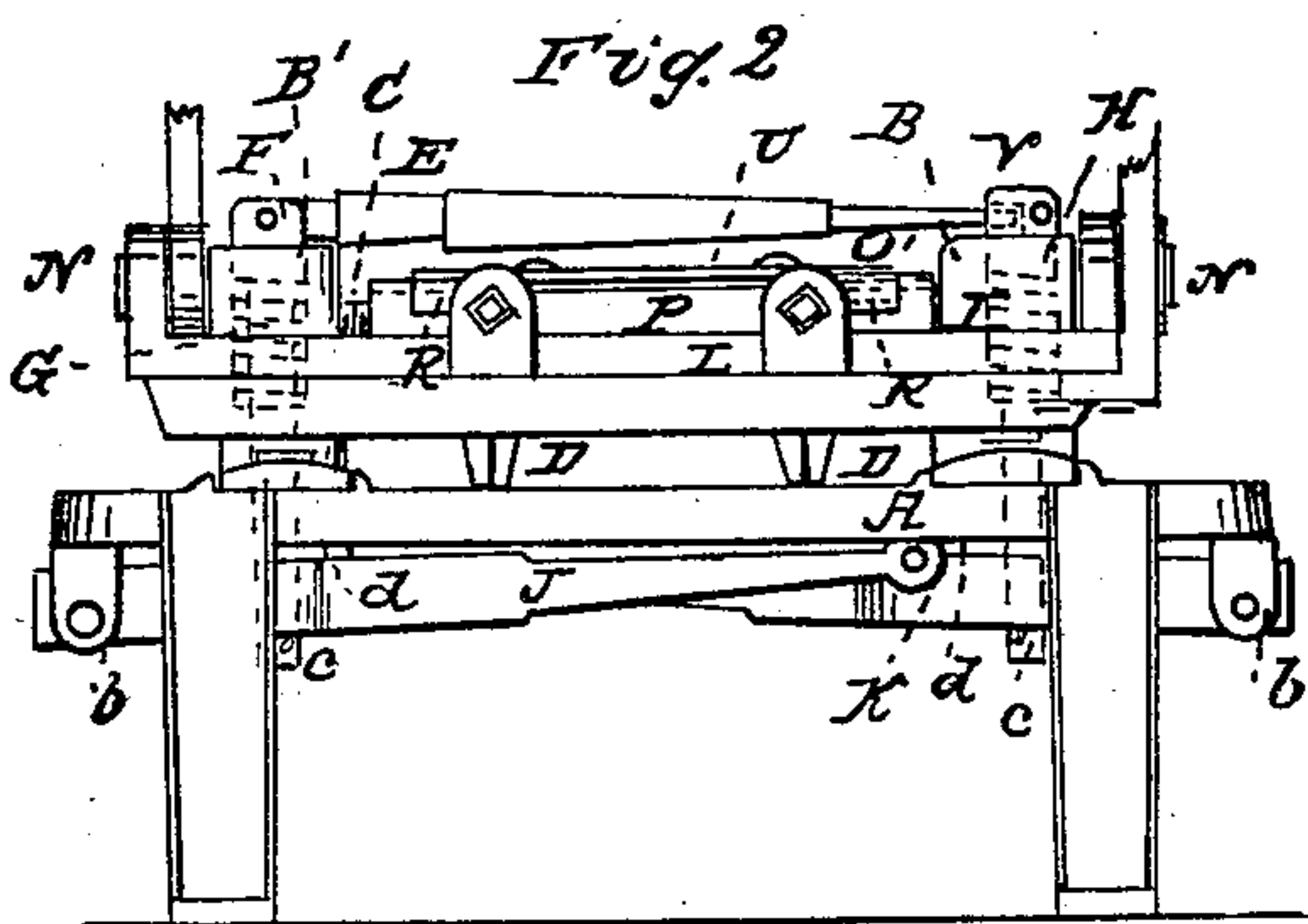
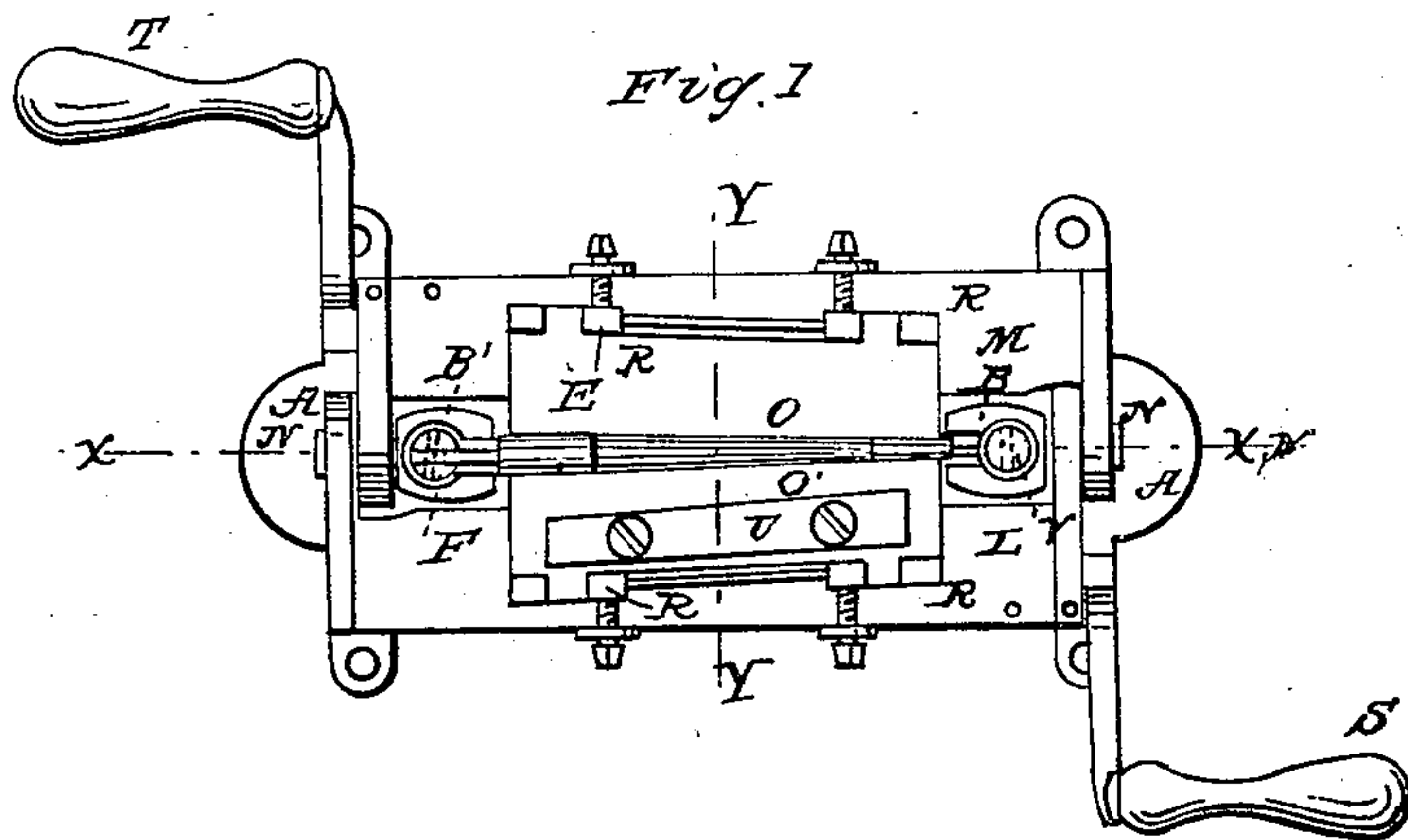


O. W. STOW.
Making Metal Tubing.

No. 9,288.

Patented Sept. 28, 1852.



UNITED STATES PATENT OFFICE.

ORSON W. STOW, OF SOUTHTON, CONNECTICUT.

IMPROVED MACHINERY FOR FORMING SHEET-METAL TUBES.

Specification forming part of Letters Patent No. 9,288, dated September 23, 1852.

To all whom it may concern:

Be it known that I, ORSON W. STOW, of Southington, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Machines for Forming Sheet-Metal Tubes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a plan or top view of the machine. Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal vertical section of the same, taken at the line X X, Fig. 1. Fig. 4 is an end view of the same in elevation. Fig. 5 is a plan or top view of the concave bed, and also of the folders, which are hung or attached to the wings, the folders in this view being turned over from the concave bed. Fig. 6 is a transverse section of the concave bed, rod, folders, and wings, taken at the line Y Y, Fig. 1. This figure shows the manner in which the folders turn the sheet metal over or around the rod when the wings are raised.

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

This invention relates to certain improvements in machines for forming sheet-metal tubes for candle-molds, dipper-handles, lamp-tubes, &c.; and it consists, first, in a peculiar manner of operating a rod which forces the sheet metal into a concave bed, and thus forms one-half of the tube; and, second, in the employment or use of hinged folders, constructed and arranged as will be hereinafter described, attached to movable wings having their axes of motion coinciding with a line passing longitudinally through the center of the rod above mentioned, the above-mentioned folders, by properly operating the wings, turning or bending the sheet metal over the upper half of the rod, and thus forming the upper half of the tube, while at the same time they relieve themselves from the formed tube in their return motion.

To enable others skilled in the art to make and use my invention, I will proceed to describe fully its construction and operation.

A is a frame or table, of cast-iron or other suitable material, having on its upper surface two vertical guides, B B', in which the ends of a concave bed, C, fit. (Seen more particularly

in Figs. 3 and 5.) This concave bed C has set-screws D D, which work or screw in its under side, the heads of the set-screws resting on the upper surface of the frame or table. By operating these set-screws the concave bed may be adjusted to the required height.

E is the rod, one end of which is attached by a pivot to a vertical slide-rod, F, which passes through the guide B', said slide-rod having a spiral spring, G, around it, the upper part of which bears against a shoulder, *a*, on the slide-rod. (See Fig. 3.) The opposite end of the rod rests upon a vertical slide-rod, H, and is secured there by a cap, V, attached to the upper part of the slide-rod H by a pivot. The slide-rod H passes through the guide B, and has a spiral spring, I, around it, and is arranged precisely similar to the slide-rod F. The lower ends of the slide-rods F H pass through levers J K, having their fulcrums at *b b*. Pins *c c* pass through the slide-rods directly under the levers.

The manner in which the lower half of the tube is formed will now be clearly seen. It will be understood that the rod E is directly over and in line with the concave bed C. Now, by placing a piece of sheet metal over the concave bed and then depressing the ends *d d* of the levers J K, the rod E, with a portion of the metal, will be forced down in the concave bed C and the lower half of the tube will be formed.

The upper half of the tube is formed in the following manner:

L M are wings hung on pivots N N, both wings being hung on the same pivots which are in line longitudinally with the center of the rod E. The wings are placed each side of the concave bed C. (Seen more particularly in Fig. 1.) The pivots N N are secured in the guides B B'.

O O' are folders, which are secured to the upper surfaces of the wings L M by set-screws *e*. (See Fig. 5.) These set-screws pass through slots *f* in plates P P, the folders being attached to the outer edges of the plates by hinges R R. The top surfaces of the folders O O', when lying on the plates P P, are in a line with the top of the concave bed C, the inner edges of the folders resting on the top edges of the bed C. (See Fig. 6.) Now, the manner in which the upper half of the tube is formed will be readily seen. By grasping the handle or lever S and raising the wing L the folder O' will, as

it rises, bear against the rod, or rather press the metal against the rod to the top of the rod and rather past its center. The other wing, M, and folder O are operated in a similar manner by grasping the handle or lever T, and the metal is bent entirely around the rod E, care being taken to have the sheet metal so placed upon the concave bed C that the ends of the metal, when bent around the rod E, will overlap, as seen at g, Fig. 6. This is accomplished by means of a gage, U, Figs. 1 and 2, which is attached to the upper surface of the folder O', the gage U being so adjusted to the upper surface of the folder O' that when the edge of the metal is placed against it the rod E will not be exactly over the center of the metal, but rather out of the center. Consequently, when the metal is bent around the rod E the edges will overlap.

The object of having the folders hung with hinges is to prevent the inner edges of the folders bearing against the tube as the wings and folders are depressed.

The whole operation of forming the tube is extremely simple and quickly done. The sheet metal being first placed upon the concave bed C, the ends *dd* of the levers J K are depressed, the rod E consequently forces the metal within the concave bed, the wings L M, and consequently the folders O O', are then raised, first one and then the other, the folders pressing the sheet metal around the upper half of the rod E and overlapping it at the top, thus completing the formation of the tube. The ends *dd* of the levers are then allowed to rise, the spiral springs G I raising the rod E, and the cap V on the top of the slide-rod H is turned over, and the rod E, with the tube upon it, is

raised in a vertical position and the tube withdrawn from it. (See dotted lines in Fig. 3.)

In the drawings the rod E and concave bed C are of taper or conical form; but they may be cylindrical when cylindrical tubes are required, as beds and rods of either shape may be inserted and used in one and the same machine.

I do not claim the manner of forming tubes by means of a rod and concave bed irrespective of the manner of operating the rod, for they have been previously employed, the rod being operated or driven in the bed by means of a mallet or hammer operated by hand, or by means of levers or cranks moved by gearing.

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

1. The method of mounting and operating the rod E within the concave bed C in the manner as shown and described—viz., the ends of the rod E being attached to the slide-rods E H, said slide-rods passing through the vertical guides B B', and having spiral springs G I around them, the lower ends of the slide-rods being attached to levers J K, by operating which the rod is forced within the concave bed and the lower portion of the tube formed.

2. The hinged folders O O', attached to the wings L M, which are hung on pivots N N, said pivots being in line longitudinally with the center of the rod E, and operated in the manner and for the purpose of forming the upper or remaining portion of the tube, as herein set forth.

ORSON W. STOW.

Witnesses:

JOHN GRIDLEY,
MANSFIELD MERRIMAN.