

W. Hall,
Making Sheet-Metal Tubing.
N^o 63,793. Patented Apr. 16, 1867.

Fig. 1.

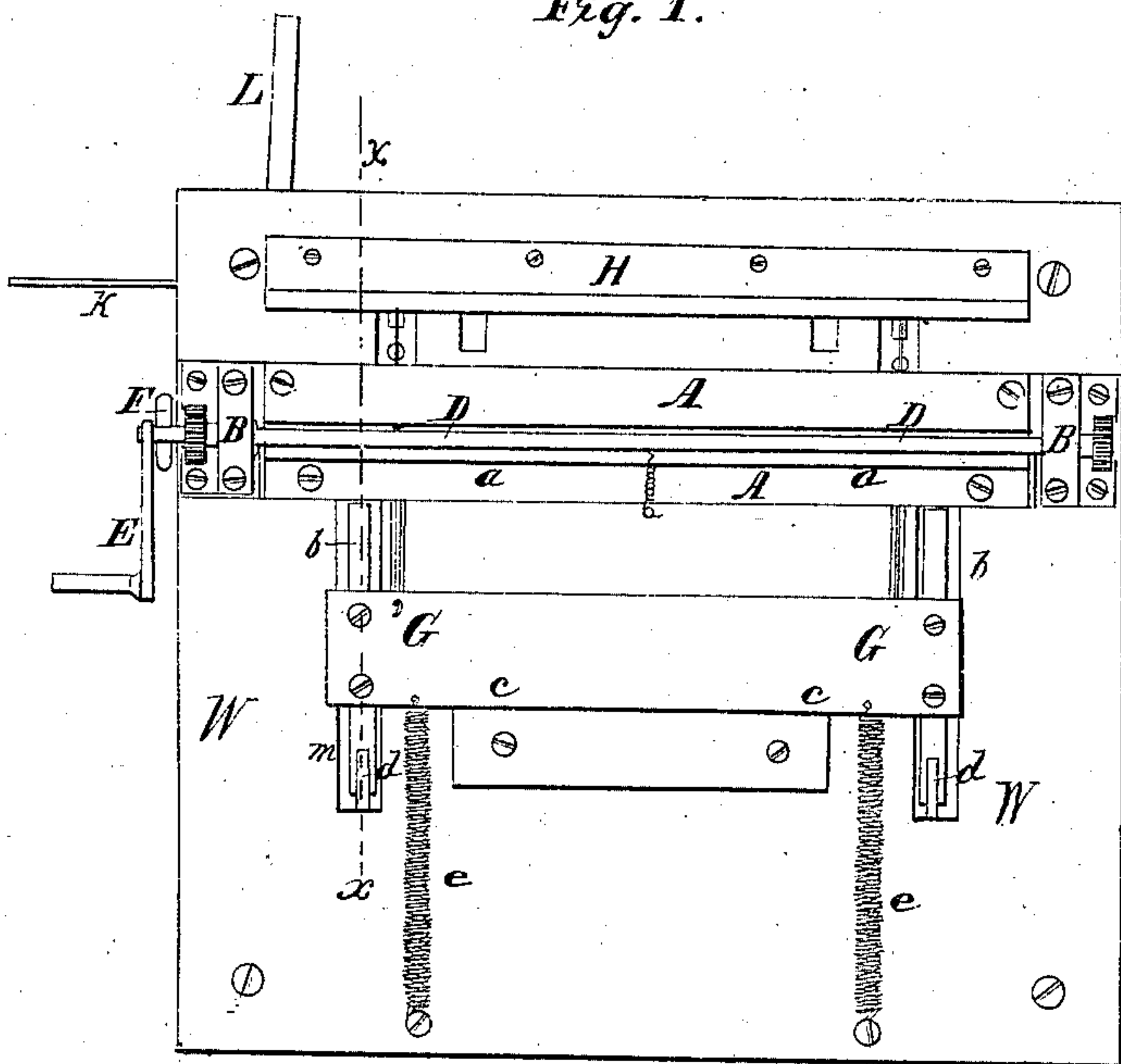


Fig. 3.

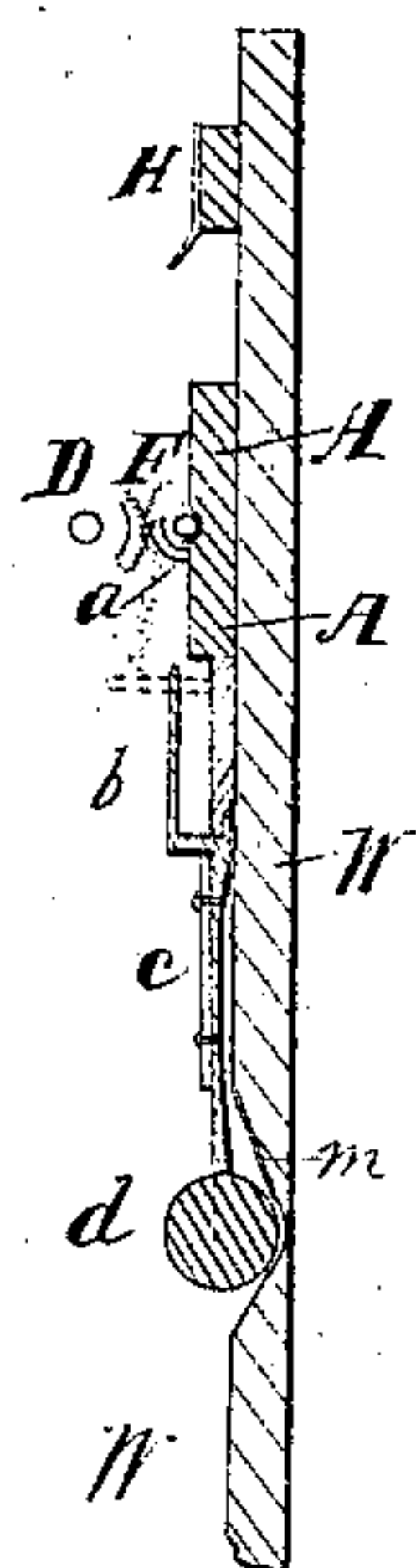


Fig. 2.

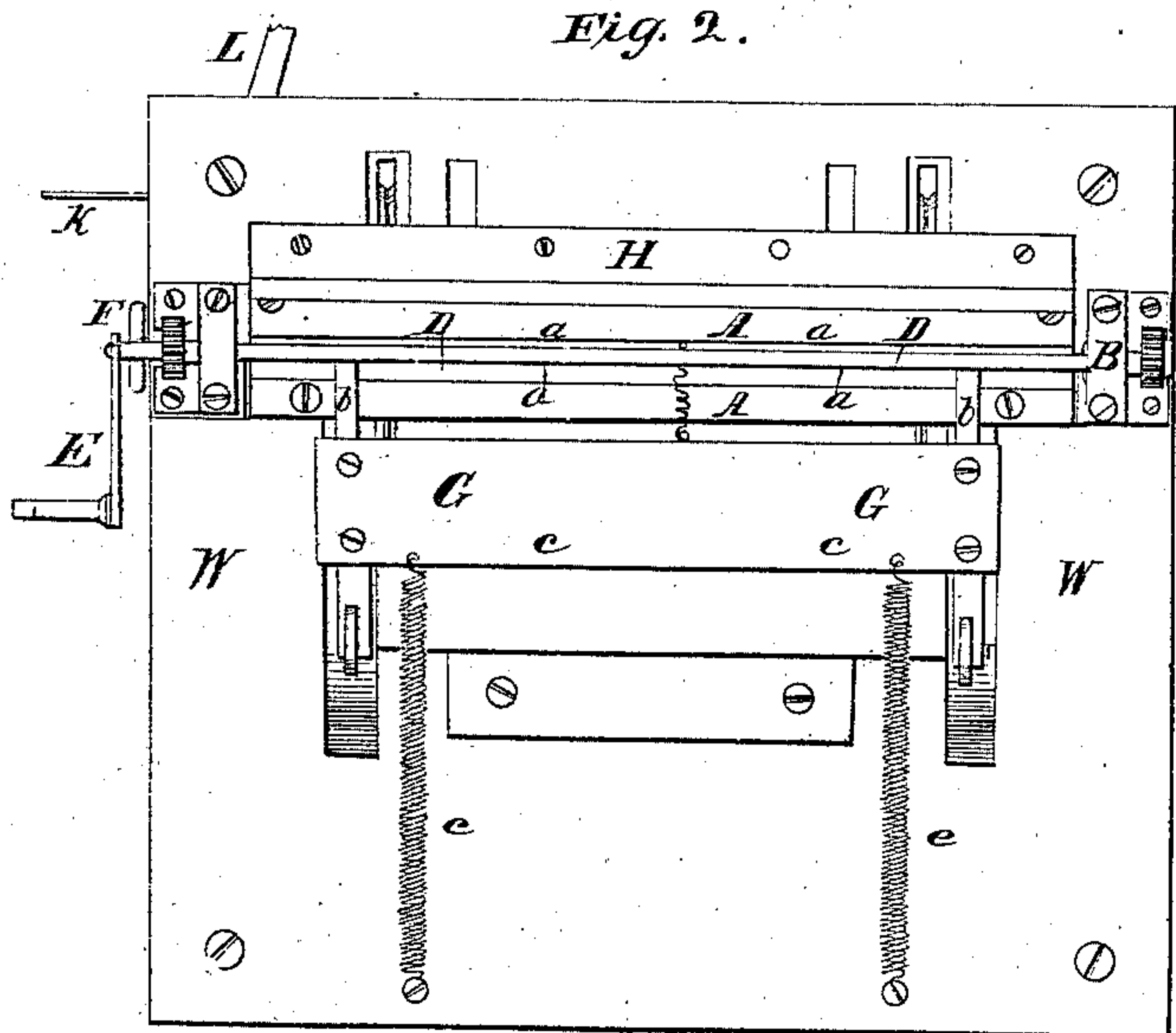
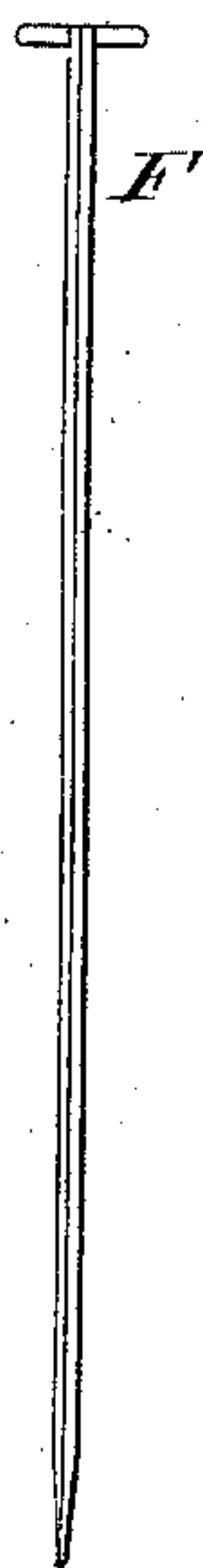


Fig. 4.



Witnesses:
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Inventor:
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United States Patent Office.

WILLIAM HALL, OF DUBUQUE, IOWA.

Letters Patent No. 63,793, dated April 16, 1867.

IMPROVED MACHINE FOR FORMING TUBES OF SHEET METAL.

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

Be it known that I, WILLIAM HALL, of the city of Dubuque, county of Dubuque, and State of Iowa, have invented a new and useful Machine for Forming Sheet Metal into 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 drawing, making a part of this specification, in which—

Figures I and II represent top views of the machine.

Figure I shows the machine open and at rest; and

Figure II shows the machine when closed for work.

Figure III represents a sectional view, *x x*, of the machine.

Figure IV shows the mandrel or rod around which the metal is to be formed.

2. Description by Letters.

A *a*, fig. 1, represents two iron plates hinged together. On their inside surfaces each has a groove so constructed that when the two plates are closed they form a perfect cylinder or tube their whole length. In arranging this machine for use the plate A will rest upon and be securely fastened to the bench or table W. B B represent the frames or stands of boxes in which the journals of the gearing play. These stands are secured to the table W at each end of the plates A *a*. C C represent the gearing, which consists of four cog-wheels, two at each end of the machine, arranged vertically, the lower wheels being turned by the upper ones. D is an iron rod connecting the upper cog-wheels of the gearing, which are secured firmly to it, and turning the lower cog-wheels on each end at the same time. The said rod D acts as journals for said upper gears. E is the crank by which the rod D is turned. F is the outer end of the rod or mandrel around which the tube or cylinder is to be formed. The transverse bar on the end of the rod forms a handle for removing it. (See description of fig. 4.) G G is an apparatus by which the plates A *a* are firmly held together while the metal is being formed around the mandrel F. In this apparatus the letters *b b* represent the clamps or jaws which confine the plates A *a*; there may be one, two, or more of them. The bars or arms to which they are attached extend back beyond the board or bar *c c*. On the outer ends of these bars are attached wheels *d d*. (See description of fig. 3.) *e e* represent the spiral springs by which the clamps are removed from the plates A *a*. H H represents a straight-edge worked by a lever or any other convenient manner, by which both ends can be pressed forward exactly equal. This straight-edge has a flange projecting from its upper front, at an elevated angle from the plane of its horizontal movement, the object of which is to force down the outer edge of the sheet to be rolled to a line with the upper horizontal surface of the plate A. A *a*, fig. 2, the plates are closed. The apparatus G G is thrown forward and clamps the plates A *a*. The straight-edge has been forced against the plate A, and the machine is supposed to be in motion.

3. Mode of operating the Machine, in which are described Figures III and IV more fully.

The strip of metal to be formed into a tube or cylinder is laid on the plate A. The lever K is now borne down, by which the apparatus G G is brought forward, the upper plate *a* thrown down and securely held on the plate A by the clamps *b b*. In order to understand this process see fig. 3, in which the jaws *b b* are seen approaching the plates A *a*. At the other extremity of the arms or bars are seen the wheels *d d*, in a groove or depression in the table W. In front of these wheels there is an inclined plane *m*. As the clamps *b b* slide over and under the plates A *a* loosely, the wheels *d d* climb the plane *m*, and thus throw down the upper jaws of the clamps *b b* on the plate *a*. The mandrel or rod F (as seen, fig. 4,) now lies in the tube formed by the grooves in the plates A *a*, the inner end fitting a square hole in the centre of the journal connected with the gearing, and the other held to the other gearing by a pin running through the rod. This rod has a slot or groove its whole length, into which the inner edge of the metal is forced by the straight-edge. The crank E is then turned, and the gearing on both ends operating exactly alike, the mandrel F is turned and the sheet of metal drawn between the plates A *a* and around the mandrel, which may be extended once, twice, or as many times around it as is desired. The lever K is then raised, the wheels *d d* descend the inclined plane *m*, the jaws of the clamps *b b* are released from their hold on the plates A *a*, and the springs *e e* instantly draw the apparatus G G back to its place and raise the plate *a*. The mandrel F is now drawn out of the tube, and the operation repeated as desired.

Claim.

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

1. The grooved plates A *a*, hinged together and operated as and for the purpose set forth.
2. The slotted mandrel F, in combination with gear-wheels C C, arranged and operating as described.
3. In combination with the grooved plates A *a*, the sliding straight-edged bar H H, with its elevated projecting flange, as operated and described.
4. The sliding frame G G, with its clamping device *b b*, and wheels *d d*, in combination with the inclined plane *m m*, operating substantially as described and for the purpose set forth.
5. I claim the combination and arrangement of the plates A *a*, mandrel F, gear-wheels C, sliding frame G, with its parts *b b*, inclined plane *m*, and sliding bar H, with projecting flange, substantially as and for the purpose set forth.

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Witnesses:

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