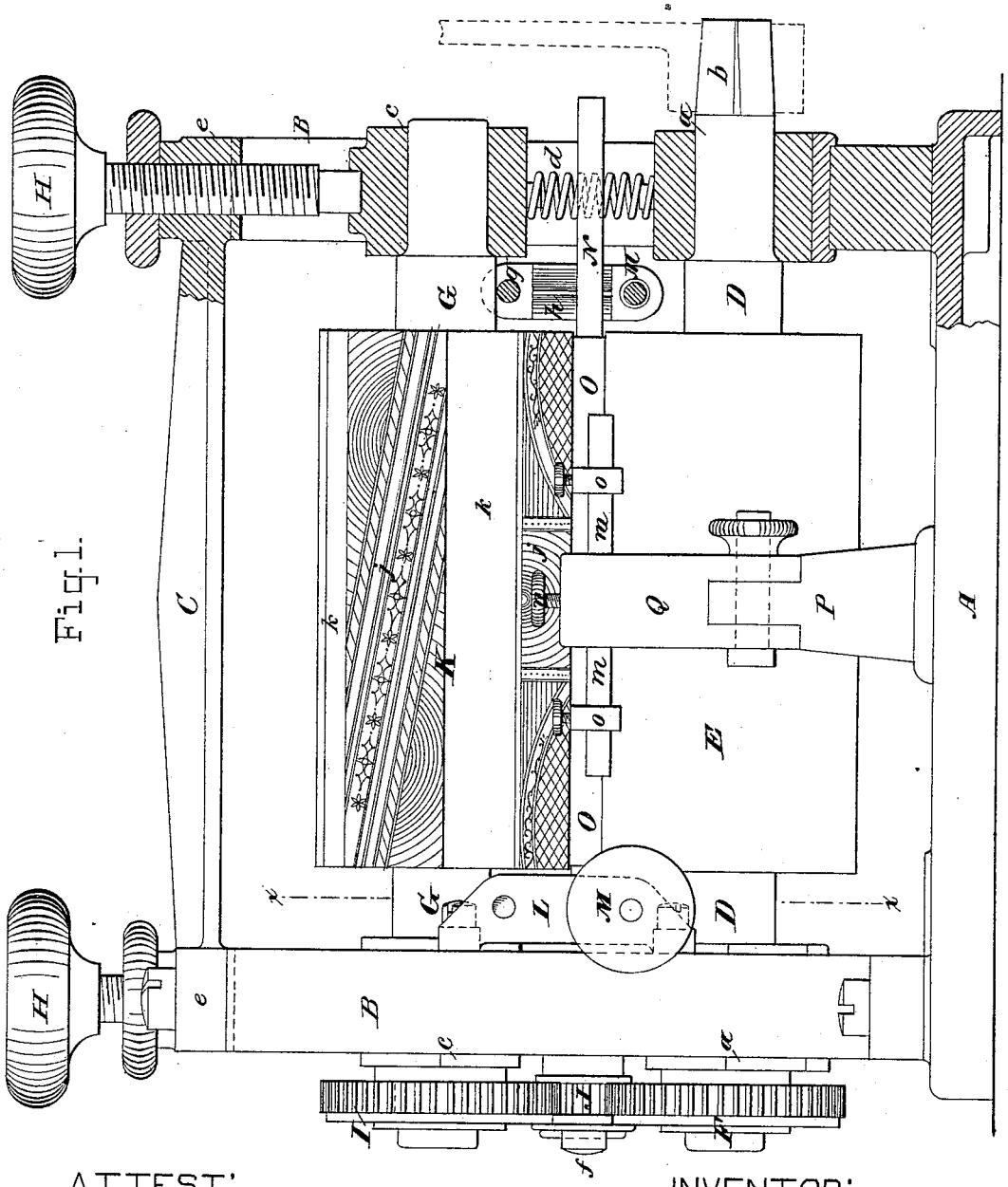
(Model.) 2 Sheets—Sheet 1.

E. FACKNER.

MACHINE FOR IMPRESSING DESIGNS ON TUBES AND RODS.

No. 266,616. Patented Oct. 31, 1882.

Fig. 1.



ATTEST:

Julian A. Hurdle.

Anna M. Fraser.

INVENTOR:

Edward Fackner,

By his Attorneys,

Burke, Fraser & Bonnett

(Model.)

2 Sheets—Sheet 2.

E. FACKNER.

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Fig. 3.

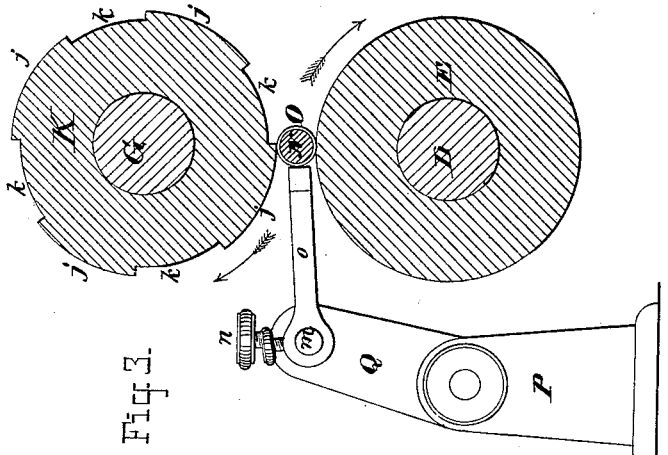


Fig. 4.

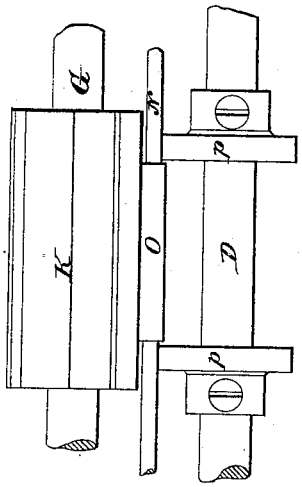
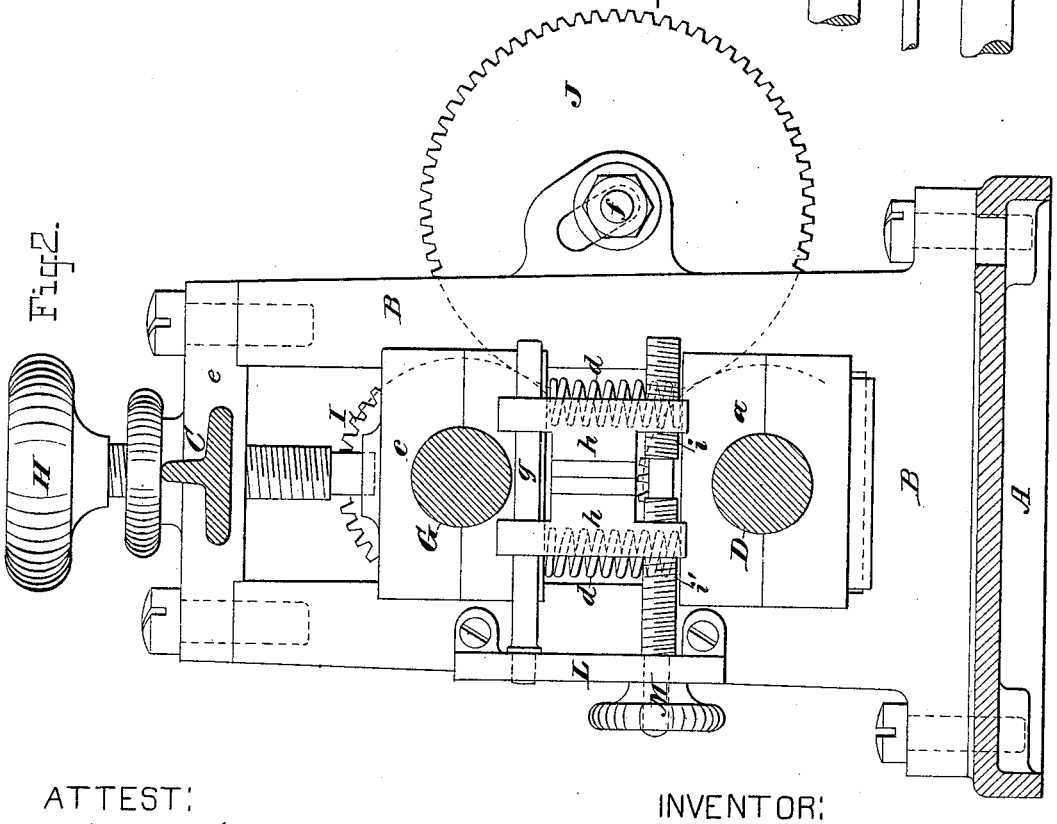


Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWARD FACKNER, OF BROOKLYN, NEW YORK.

MACHINE FOR IMPRESSING DESIGNS ON TUBES AND RODS.

SPECIFICATION forming part of Letters Patent No. 266,616, dated October 31, 1882.

Application filed February 25, 1880. Renewed March 1, 1881. Again renewed September 8, 1881. Again renewed April 7, 1882. (Model.)

To all whom it may concern:

Be it known that I, EDWARD FACKNER, of the city, county, and State of New York, have invented certain new and useful Improvements relating to Machines for Impressing or Embossing Designs on Tubes or Rods, of which the following is a specification.

This invention has for its object to impress upon tubes or rods, but more especially to cylindrical tubes, designs of various kinds, mainly for ornamentation. The application of the invention will be mainly to the impression on gold and silver tubes for pencil-cases and pen-holders of outlines for ornamental designs to be afterward deepened and touched up by hand with the graver; but the invention is equally well adapted to embossing or otherwise ornamenting tubes or rods for various purposes.

In the drawings which serve to illustrate my invention, Figure 1 is a side elevation of the machine, the right-hand end of the frame being in vertical mid-section. Fig. 2 is a vertical transverse section taken in the plane of the line *x x* in Fig. 1. Fig. 3 is a sectional view detached, and arranged to illustrate the mechanism for steadying the tube or rod while it is being operated upon. Fig. 4 illustrates a modification, which will be more fully hereinafter described.

Let A represent a base, upon which are mounted end frames, B B, which may, for the purpose of strengthening the machine, be connected by a tie-bar, C.

D is an arbor or shaft, which has bearings at *a a* in the end frames, and on which is fixed a roll, E, preferably of hard wood. The arbor is made slightly tapering, so that the roll may fit tightly thereon. One end, *b*, is prolonged to receive a crank, by which it is turned, and the other is prolonged to receive a toothed wheel, F.

G is another slightly-tapered arbor, which has bearings in boxes *c c*, that play vertically on guides formed by parts of the end frames. Between the bearing-boxes *a* and *c*, at each end of the machine, are arranged springs *d d*, which elastically support the boxes *c c*, while adjusting-screws H H, which pass through the caps *e e* on the end frames, infringe upon the said caps *e*, and serve to depress them.

On the prolonged extremity of the arbor G is fixed a toothed wheel, I, preferably corresponding in size to the wheel F, and both of these wheels mesh with an idler-wheel, J, which has a bearing on an adjustable stud, *f*, arranged in a slotted lug on the end frame.

K is the impressing or embossing roll, which will generally be made of steel and fixed upon the tapered arbor by friction. This roll has the design to be impressed upon the tube or rod engraved upon its surface, and it has some important and novel features, which will be pointed out farther on.

L is a flanged plate, screwed to the main frame and bearing a guide-rod, *g*, which extends across the machine under the arbor G. On this rod slide or play centering-plates *h h*, and through them passes a screw, M, one portion of which, *i*, has a right-hand and another portion, *i'*, a left-hand thread arranged to engage corresponding threads in the plates *h h*. These plates are so arranged and adjusted with reference to the arbors G D (see Fig. 2) that when closed together their line of junction will be in the same plane with the axes of the said arbors, and when the screw M is rotated the said plates advance toward or recede from that plane with equal speed. A centering device of this character is provided at each end of the machine, as will be seen by reference to Fig. 1.

Having thus described the main or leading features of the machine, I will now proceed to describe its operation.

If a tube is to have a design impressed upon it, it is slipped upon a rod which fits snugly into its bore. Referring to Fig. 1, N represents the rod, and O the tube. The rod, bearing the tube, is passed through the machine between the plates *h h* at each end and the rolls E K, the tube resting on the roll E. The plates *h h* are now run together upon the rod, so as to "center" it, or arrange it in the same plane with the axes of the rolls, and the upper or engraved roll, K, is run down upon the tube by means of the screws H H. The pressure should be sufficient to cause the raised engraved lines on the roll K to enter the substance of the tube. The roll E is now revolved by means of a crank on the arbor D, and this causes the

upper roll, G, to revolve and in the same direction, the two being geared together. The tube O, which is compressed between them, also revolves and receives the impression from the engraved roll.

In carrying out my invention in its entirety I lay off the face of my engraved roll K in strips *j j* of a width equal to the circumference of the tube to be impressed, and cut away the spaces *k k* slightly between these strips, as clearly indicated in Fig. 3. This construction enables me to employ an engraved roll of any desired diameter greater than that of the tube to be operated upon, and the recessed spaces permit the finished tube to be withdrawn readily and another inserted. Any number of strips *j* may be provided, according to the size of the roll, care being taken to leave space enough between them for recesses *k* wide enough to free the tube. In Fig. 2 the roll is shown at the completion of its work on the tube O. On being turned a little farther in the direction of the arrow the tube would be freed, so as to be capable of removal without disturbing the roll. The different strips *j j* may each have a different design engraved upon it if it is desired, or all may be alike.

To prevent the rod N from being sprung or bent outwardly at the center or between the pairs of centering-plates *h h* by the action of the rolls, whereby the design to be impressed might be distorted, I provide a steady-rest, which consists of a base or post, P, fixed to the base A, and to this is jointed an arm, Q, provided with a clamp-screw, *l*. The arm Q is bored to receive a rod, *m*, which is fixed by a set-screw, *n;* and on this rod are adjustably set rests *o o*, which bear on or against the tube O or the rod N, as the case may be, and prevent it from being bent laterally.

In place of making the base-post P a fixture and hinging the arm Q to it, the two parts P Q may be made in one piece and be fixed adjustably to the base A.

I may make the roll G of the same diameter as the tube to be operated upon, and engrave its entire surface; or I may make the circumference of the roll G equal to some multiple of the circumference of the tube, and engrave its entire surface in sections; or I may engrave the strips *j j* and leave the spaces *k k* unrecessed. In all of these constructions, however, it would be necessary to relieve the tube by disarranging the adjustment of the roll G, and that would necessitate a readjustment for each tube.

The lower roll, E, is, I think, best made from some hard wood, and I prefer to make it of the same size as the engraved roll; but this is not necessary, provided the disparity in size is not too great. Whatever may be the relative sizes of the rolls, and whatever may be their adjustment to suit the tube, the wheel J must be adjusted to intermesh properly with the wheels I F.

When operating upon tubes of rather soft material, the engraving on which would be liable to injury from pressure on the lower roll, I prefer to employ in lieu of the said roll the device shown in Fig. 4, which consists of two short rolls or disks, *p p*, which may be adjusted on and fixed to the arbor D at any desired points beyond the ends of the tubes being operated upon. The rod N then rests upon the said disks, and the tube is between them.

Having thus described my invention, I claim—

1. The combination of the two rolls E and K, arranged to rotate in unison, and the centering device for the rod to be operated upon, all arranged substantially as set forth.

2. The centering device for the rod N, which consists of the plates *h h*, arranged in pairs at opposite ends of the machine, and each pair adapted to be actuated by means of a right and left threaded screw, M, substantially as set forth.

3. The engraved roll K, having its surface divided off into engraved strips *j j* and into recessed spaces *k k* between said strips, substantially as and for the purposes set forth.

4. The steady-rest consisting of the foundation-post and the adjustable-rod *m* and arms *o o*, in combination with the rolls, substantially as shown.

5. The combination of the engraved roll K, having its surface divided off into engraved strips *j j*, and recessed spaces *k k* between the strips, with the bearing-roll E, made of wood or some material softer than metal, and the gear-wheels arranged to drive the rolls in unison, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDWARD FACKNER.

Witnesses:
HENRY CONNETT,
ARTHUR C. FRASER.