

(No Model.)

2 Sheets—Sheet 1.

W. EVANS.

ROLLING MILL FOR TAPERING SPRING POINTS.

No. 255,958.

Patented Apr. 4, 1882.

FIG. 1

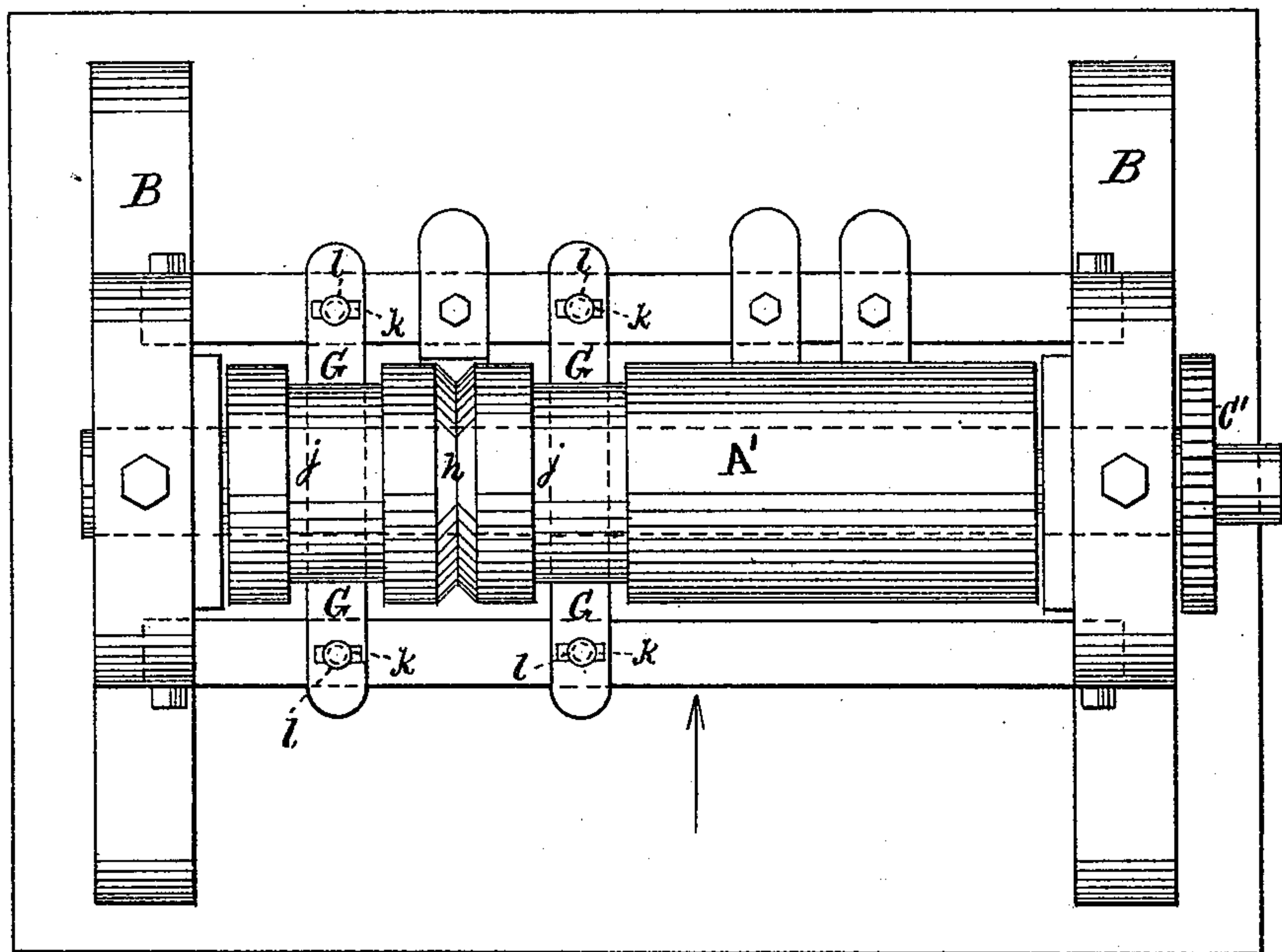
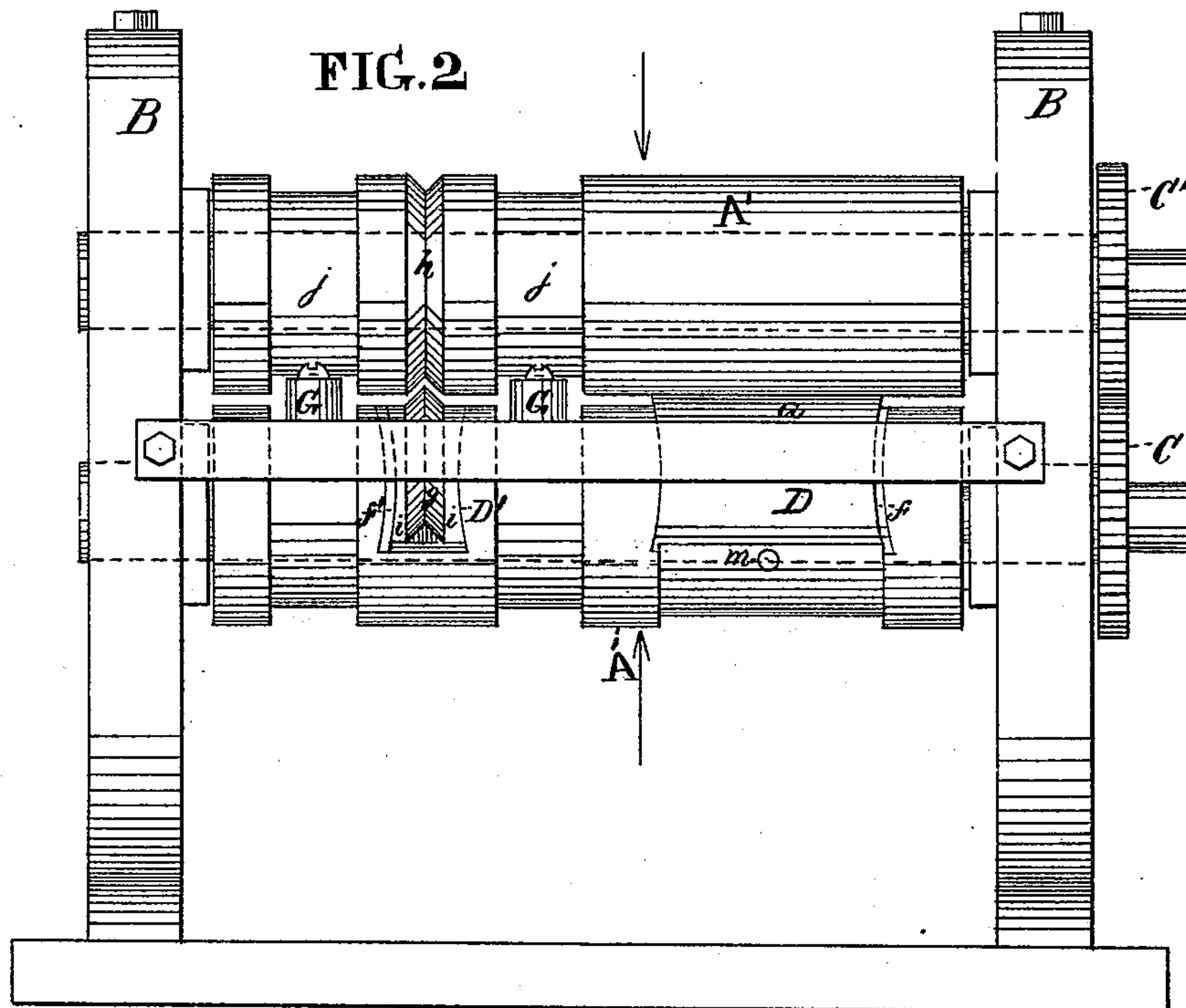


FIG. 2



Witnesses

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Inventor

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(No Model.)

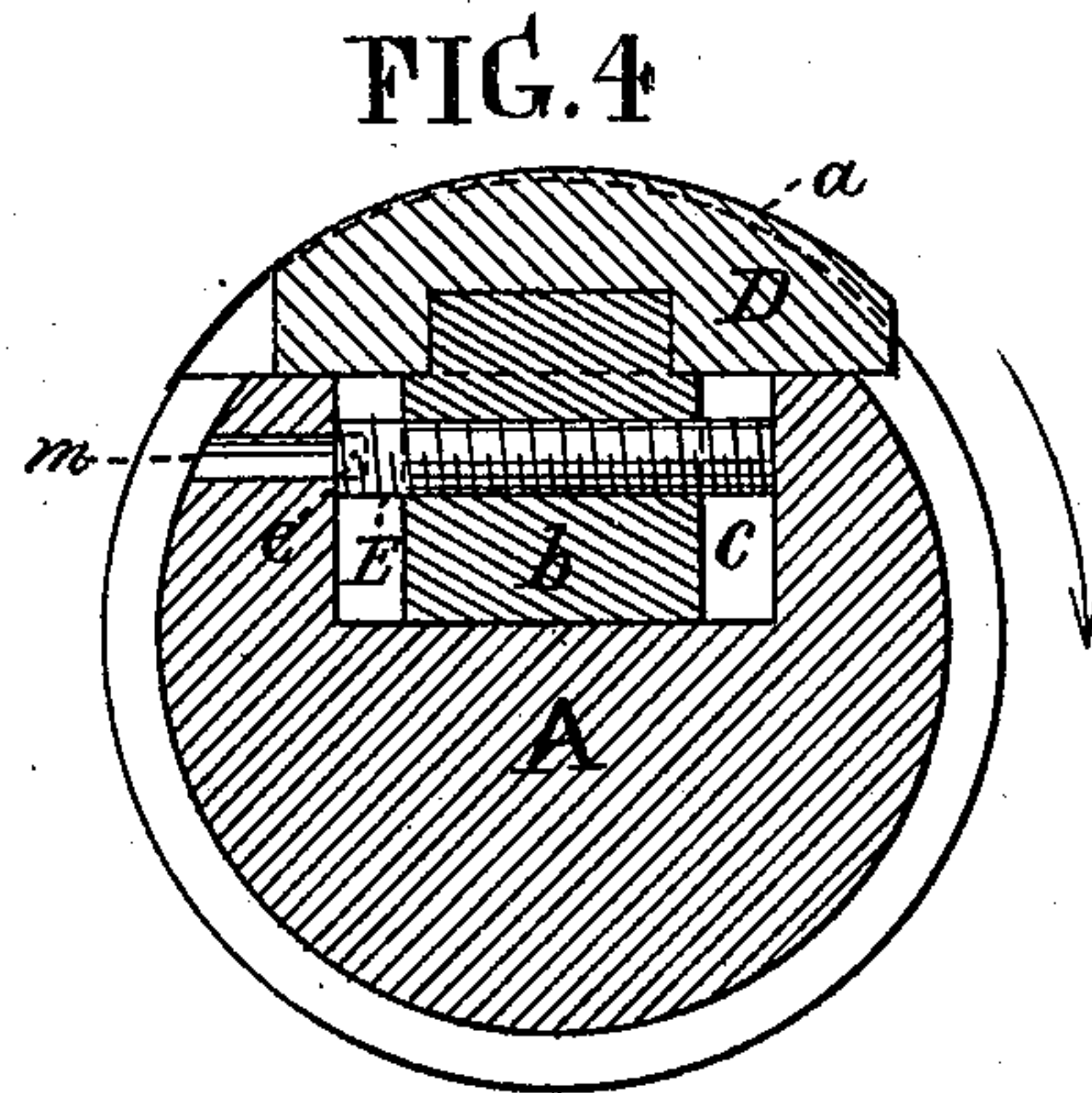
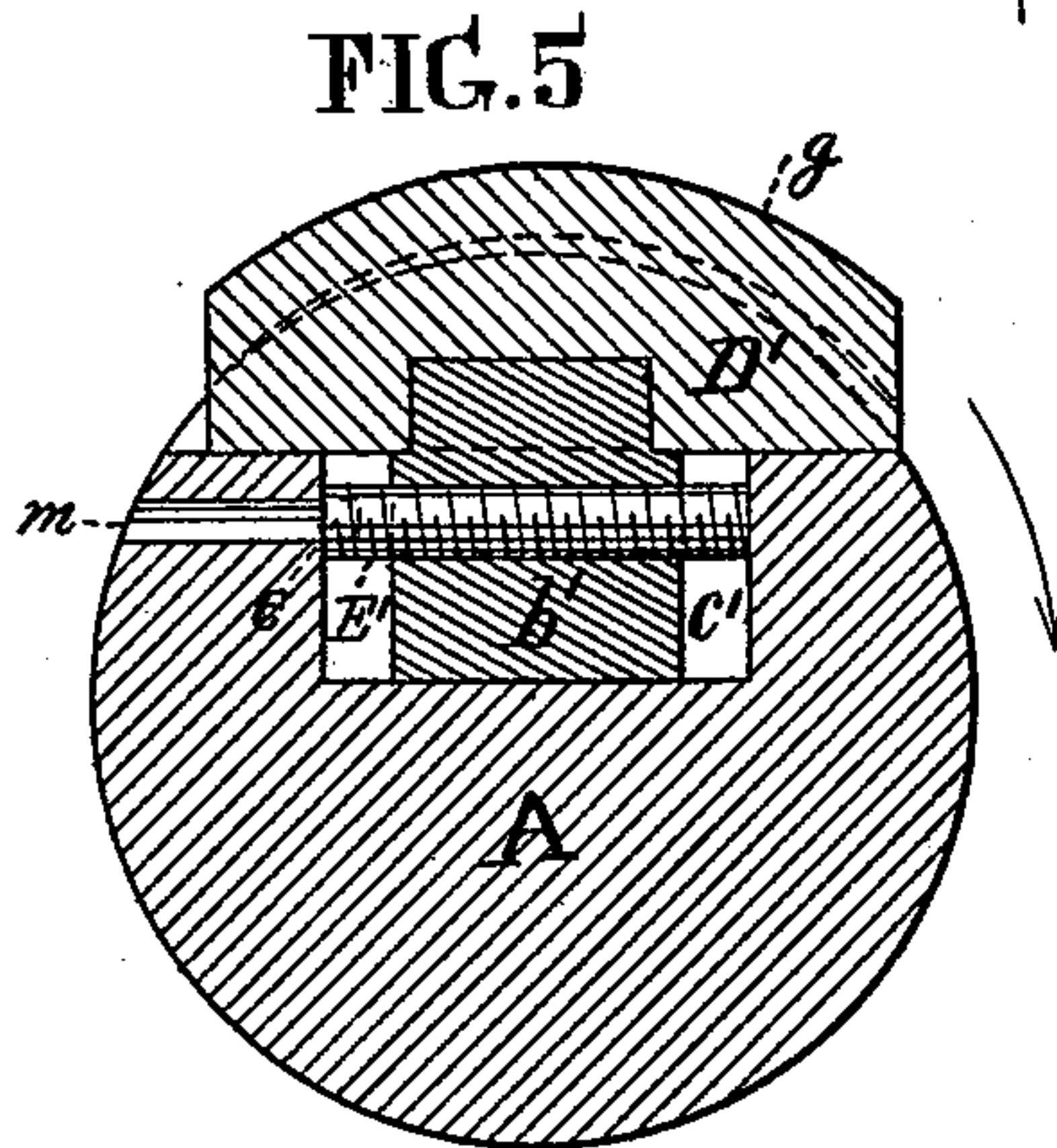
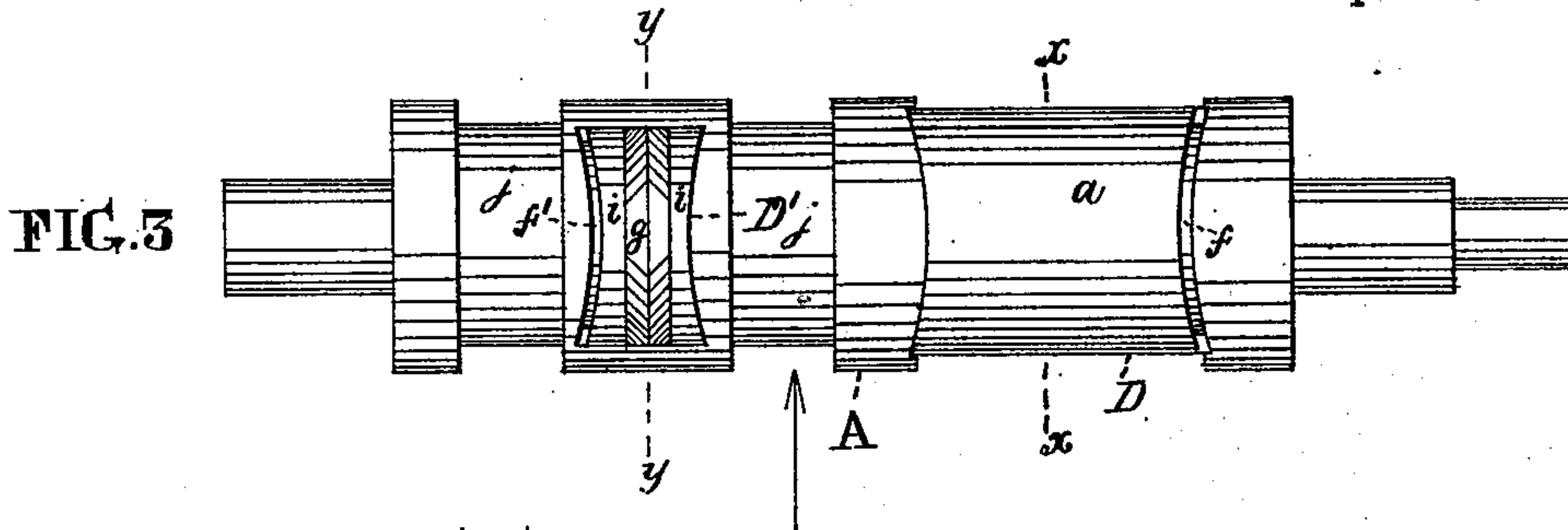
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UNITED STATES PATENT OFFICE.

WILLIAM EVANS, OF PHILADELPHIA, PENNSYLVANIA.

ROLLING-MILL FOR TAPERING SPRING-POINTS.

SPECIFICATION forming part of Letters Patent No. 255,958, dated April 4, 1882.

Application filed October 26, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM EVANS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Rolling-Mills for Tapering and Ribbing Spring-Points, of which the following is a specification.

The nature of my invention consists in the combination of two rollers, one of which has an adjustable die which operates, in conjunction with the cylindrical surface of the other roller, for tapering the points of the springs, and a similar die provided with a V-shaped rib, which is combined with a corresponding annular groove of the other roller for ribbing the points, as hereinafter fully described.

In the accompanying drawings, which make a part of this specification, Figure 1 is a plan view of the mill. Fig. 2 is a front elevation of the same. Fig. 3 is a face view of the roller A, having adjustable dies D and D'. Fig. 4 is a cross-section at the line *xx* of Fig. 3, on an enlarged scale. Fig. 5 is a cross-section at the line *yy* of Fig. 3, on an enlarged scale. Figs. 6 and 7 are side and edge views of the wedge-key *f*.

Like letters of reference in all the figures indicate the same parts.

A and A' are the rollers for tapering and ribbing the points of the springs, and B B the housings which support the journals of the rollers.

C and C' are gear-wheels which connect the rollers together.

The roller A is provided with a die, D, having a cylindrical tapered surface, *a*, which combines with the cylindrical surface of the roller A' in giving the requisite taper to the points of the springs as the rollers turn in the direction of the arrows. The die D is adjustable for the purpose of giving any desired taper to the points of the springs by means of the set-screw E, which works in the connected block *b*, the latter having free play crosswise of the roller in the recess *c* thereof, and the screw being held in a positive position lengthwise by means of its rear end fitting against the rear side of the recess and the front end against the front side thereof. The screw is provided

with a square recess, *c*, in its front end for the reception of a wrench, which is inserted in the hole *m* of the roller. When the die D is adjusted it is held firmly in position by means of the wedge-key *f*. (Shown in detail in Figs. 6 and 7.)

For the purpose of ribbing the tapered ends of the springs the roller A is provided with a die, D', connected with it by means of the screw E', block *b'*, recess *c'*, and wedge-key *f'*, the said die having a segmental rib, *g*, which is combined with the annular V-groove *h* of the roller A'.

The rib *g* and the marginal surfaces *i i* of the die D' are of the same taper as the taper of the die D, for the purpose of making the finished taper of the spring the same as that produced by the action of the die D.

The wearing-surfaces of the rollers are chilled for the purpose of giving the requisite hardness thereto.

For the purpose of varying the places of contact of the dies D and D' with the roller A', whereby to cause an even wearing of the said surfaces of the roller which press upon the springs in the tapering and ribbing processes, I give unequal velocities to the rollers A and A', which in the present case I effect by having a fewer number of teeth in the gear-wheel C' than in the wheel C, the two wheels being made of corresponding sizes. G G are guides for the spring-plates.

The roller A has annular grooves *j j*, wide enough to admit of the adjustment of the guides G G, and deep enough to pass the guides in the revolutions of the roller. As the points of the tapered ends of the springs are very thin, these grooves are absolutely essential to admit of the guides being made of sufficient thickness.

I claim as my invention—

1. The combination of the die D', having the circumferential annular rib *g* and flat marginal surfaces *i i*, block *b'*, adjusting-screw E', and roller A, with the roller A', having an annular groove *h* for ribbing the tapered ends of the springs, the die being held in its adjusted position by means of the key *f'*, substantially as described.

2. The combination of the roller A, provided

with dies D and D', with the roller A', having
an annular groove, *h*, and gear-wheels C and C',
with unequal numbers of teeth, this combina-
5 in contact with the springs shall vary in their
relative positions, substantially as and for the
purpose set forth.

3. The combination of the segmental dies

D and D', having blocks *b* and *b'*, the screws
E and E', and keys *f* and *f'*, with the roller A, 10
having recesses *c* and *c'*, substantially as and
for the purpose set forth.

WILLIAM EVANS.

Witnesses:

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