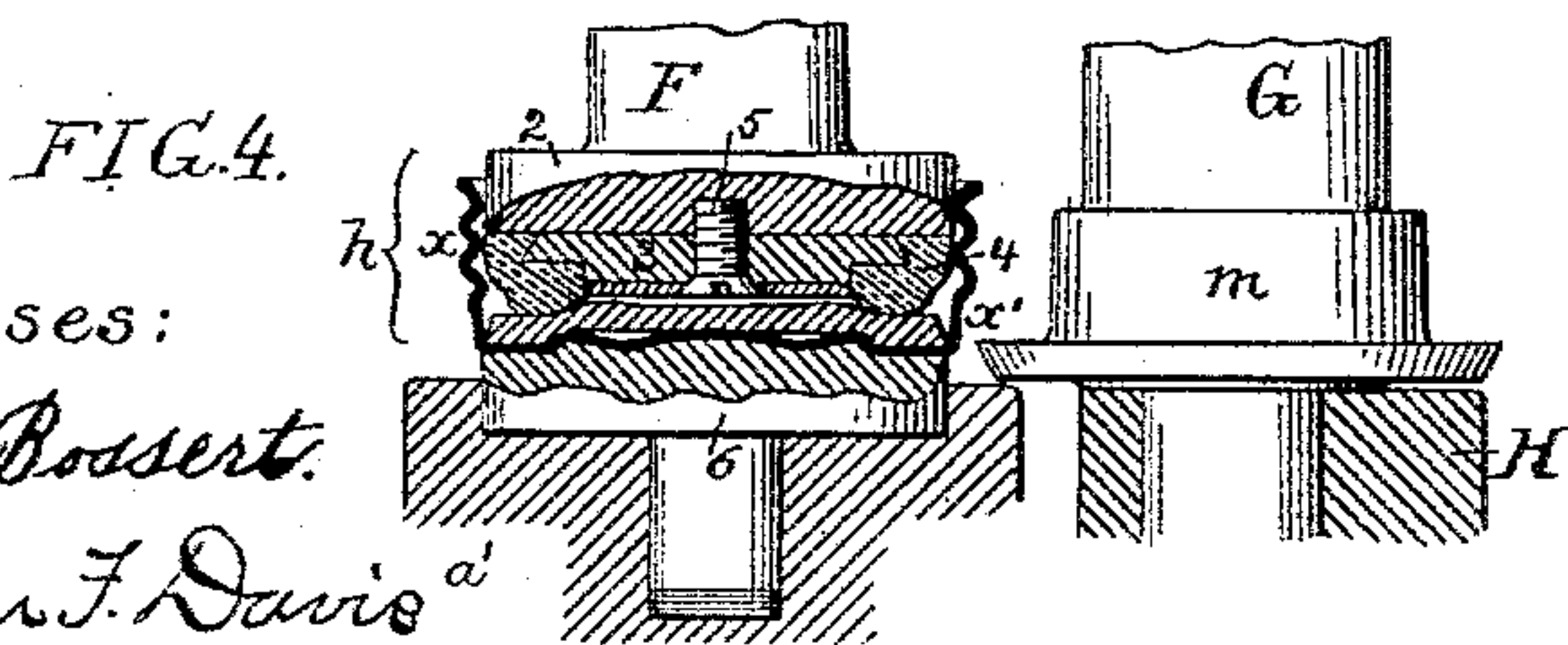
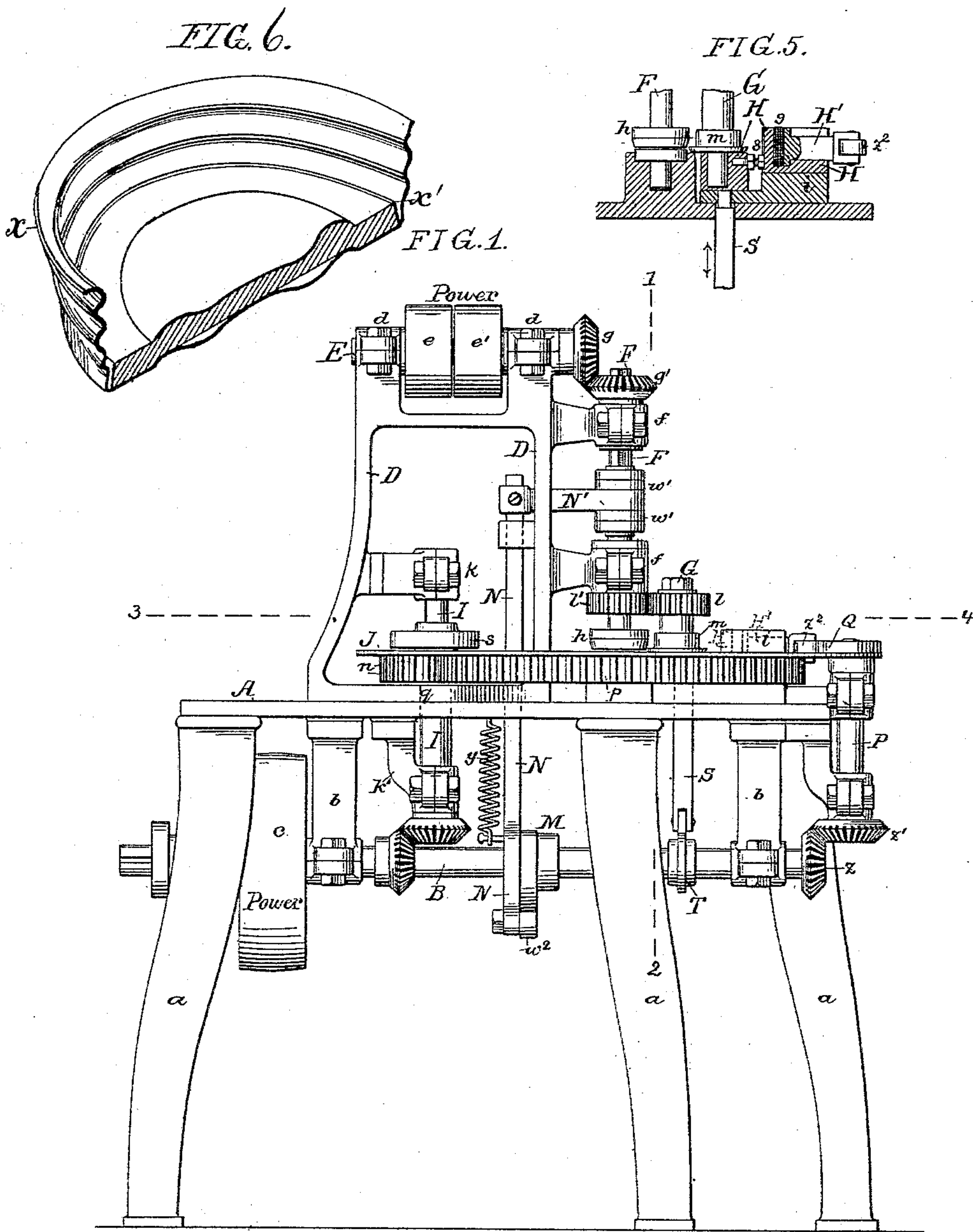


F. W. PERRY.

MACHINERY FOR SECURING LININGS TO JAR CAPS.

No. 387,808.

Patented Aug. 14, 1888.



Witnesses:
Henry Bossert.
William F. Davis

Inventor:
Frank W. Perry
by his Attorneys,
Howson & Son.

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FIG. 1.

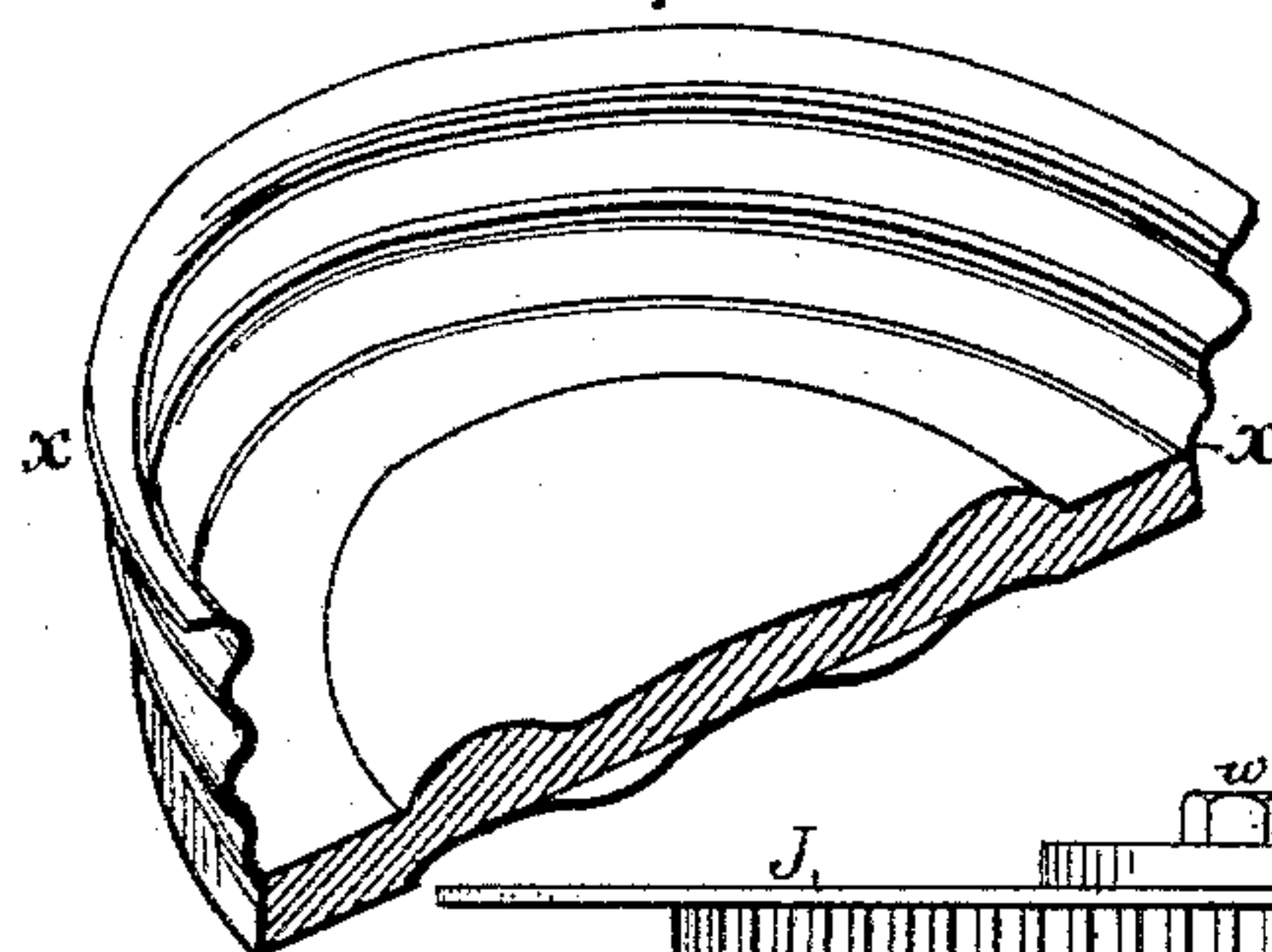


FIG. 2.

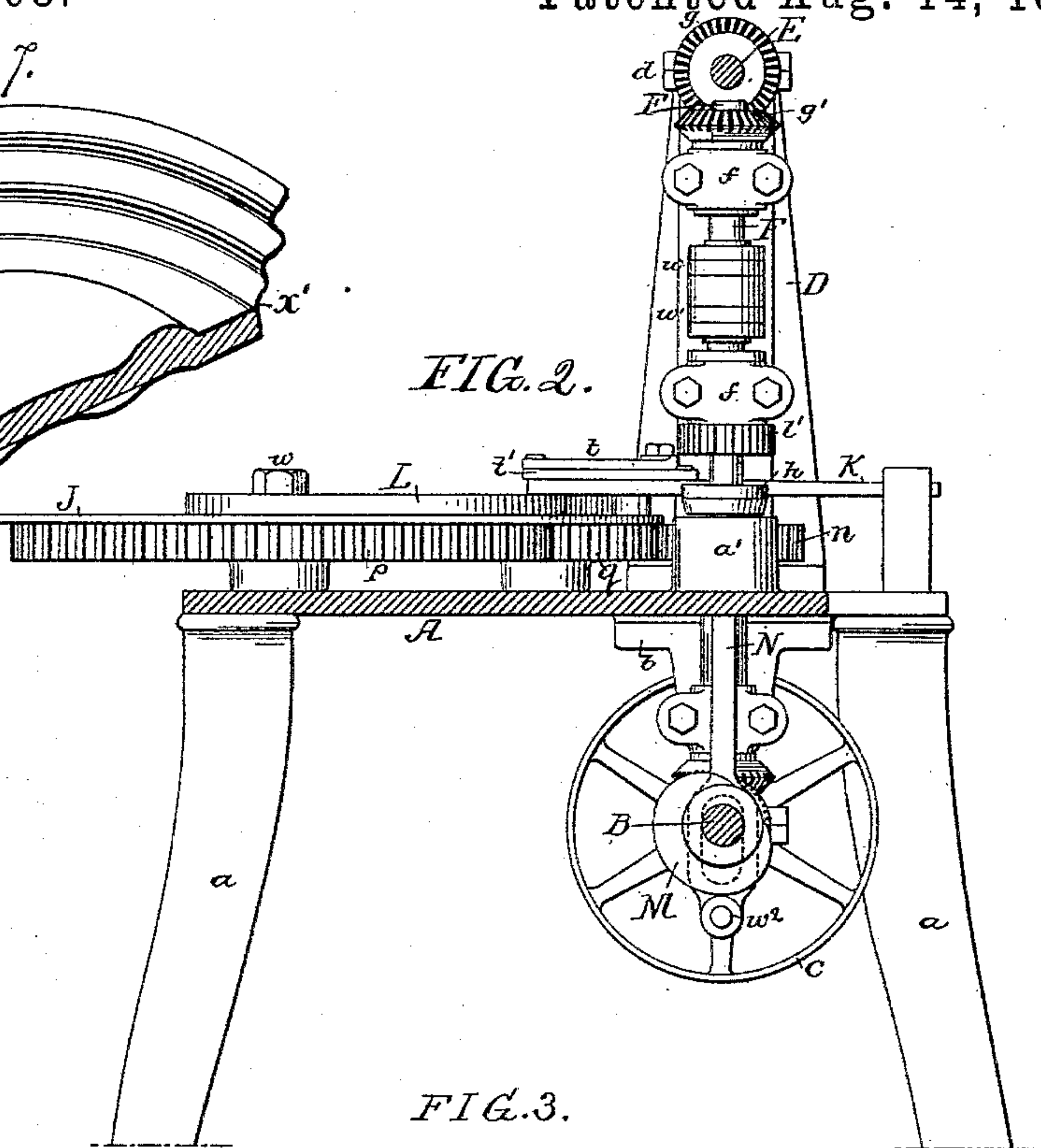
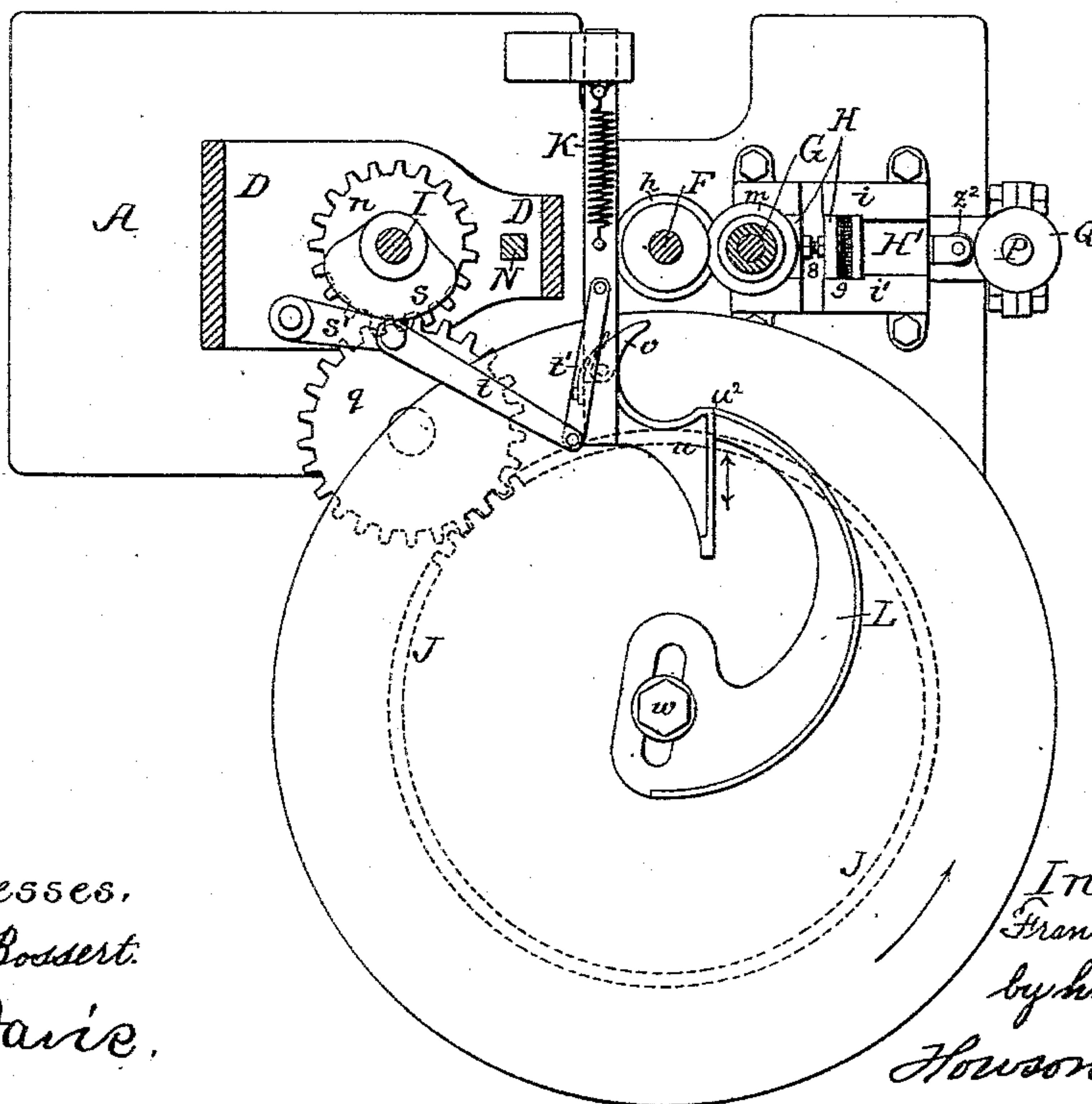


FIG. 3.



Witnesses,
Henry Bossert,
W. F. Davis,

Inventor:
Frank W. Perry,
by his Attorneys
Hobson & Son.

UNITED STATES PATENT OFFICE.

FRANK W. PERRY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE
HERO FRUIT JAR COMPANY, OF SAME PLACE.

MACHINERY FOR SECURING LININGS TO JAR-CAPS.

SPECIFICATION forming part of Letters Patent No. 387,808, dated August 14, 1888.

Application filed May 12, 1885. Serial No. 165,243. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. PERRY, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Machinery for Securing Linings in Caps of Jars, of which the following is a specification.

The object of my invention is to construct a machine for rapidly and firmly securing linings to sheet-metal caps of jars, as fully described hereinafter.

My improvements relate mainly to the mechanism for feeding the caps with the linings under a revolving disk, which holds the cap while a forming-tool spins the bevel on the cap over the edge of the lining.

In the accompanying drawings, Fig. 1 is a rear view of my improved machine with the feed-guide removed; Fig. 2, a transverse section on the line 1 2, Fig. 1; Fig. 3, a sectional plan on the line 3 4, Fig. 1; Fig. 4, an enlarged detached view; Fig. 5, a detached view on a smaller scale, and Figs. 6 and 7 are sectional perspective views of the cap before and after passing through the machine, respectively.

A is the bed-plate of the machine supported by suitable legs *a*, and in hangers *b b* suspended from the under side of the bed A turns a shaft, B, which is provided with a driving-pulley, *c*. To the upper side of the bed A is secured a frame, D, at the top of which are bearings *d d* for a shaft, E, having fast and loose pulleys *e e'*. In suitable bearings, *f f*, at the side of the frame D is a vertical shaft, F, which is driven from the shaft E by bevel gear-wheels *g g'*. This shaft F turns with, but is free to slide in, the bevel-wheel *g'*, for a purpose described hereinafter.

At the lower end of the shaft F is a holding-disk, *h*, which fits snugly into the cap *x*, as shown in Fig. 4, and holds said cap in position during the spinning up of the metal around the lining. This holder *h*, as shown in Fig. 4, is composed of the disk 2, between which and a clamp-plate, 3, is held a rubber ring, 4, a set-screw, 5, serving to secure the plate and disk together. The rubber ring 4 rests on the lining of the cap and forces the cap onto the disk 6, which is free to revolve in the bed

a', and forms, in effect, part of the cap-holder. At the side of the shaft F is a shaft, G, secured to a slide, H, which is guided in ways *i i'*, attached to the bed A of the machine, and on this shaft G is a disk, *m*, having on its hub a spur-wheel, *l*, which meshes with a pinion, *l'*, on the shaft F. The spur-wheel and pinion do not mesh closely, but allow for a limited movement of the slide H from and toward the shaft E, as explained hereinafter.

The shaft B is geared to a vertical shaft, I, adapted to a bearing, *k*, on the frame D, and to a similar bearing on a bracket, *k'*, attached to the under side of the bed-plate A. Secured to this shaft I is a spur-pinion, *n*, which drives a large spur-wheel, *p*, on the under side of a rotary table, J, the driving being effected through the medium of an intermediate gear-wheel, *q*, on a stud secured to the base A. On the table J are placed the caps to be lined.

On the shaft I and above the gear-wheel *n* is a cam, *s*, which acts on a rock-arm, *s'*, pivoted to the frame D and connected to a sliding feed-bar, K, through the medium of a projecting finger, *t*, and link *t'*, (shown in Fig. 3,) the finger being secured to and forming a rigid continuation of the arm *s'*, and the link being pivoted to the outer end of the finger and to the feed-bar K. This feed bar K is guided in suitable bearings on the bed A and has at one end a hooked projection, *u*, the edge *u'* of which bears against an eccentric-guide, L, which is secured to the stud *w*, on which the table J revolves, the guide being adjustable on said stud.

Pivoted to the bar K is a segmental spring-pawl, *v*, which forms with the projection *u* a segmental recess for the reception of the cap to be lined, the pawl *v* being pivoted to slip past the cap on its return movement.

On the shaft B is a cam, M, which acts on a pin, *w'*, projecting from a vertical bar, N, guided in ways on the frame D. This bar N has an arm, N', through the end of which passes an enlarged portion of the shaft F, this enlarged portion of the shaft being threaded for the reception of two screw-collars, *w'*, on each side of the arm, so that the shaft is confined vertically to the arm, but is allowed to

revolve freely therein, the screw-collars being adjusted in order to raise or lower the shaft F. A spring, *y*, secured at one end to the under side of the bed A and at its opposite end to a pin on the bar N, tends to keep the pin *w*² always in contact with the face of the cam M, the latter acting on the rod N, tending to force the disk *h* into the cap *x*.

At the end of the shaft B is a bevel-wheel, *z*, gearing into a bevel-wheel, *z'*, on a vertical shaft, P, having its bearings in boxes in the bed A, and having at the top a cam, Q, which acts against an anti-friction roller, *z*², carried by the forked end of a pin, H', on the slide H.

The slide H is made in two parts, the rear part carrying the pin H' above alluded to, and the front part forming a bearing for the lower end of the shaft G, on which, immediately above the bearing, is the presser-disk *m*, a set-screw, 8, being carried by the forward part of the block and bearing against the front face of the rear portion of the same, so that the forward part of the block can be adjusted to any desired distance in advance of the rear part of the same, and is free to move vertically independently of said rear part, the head of the set-screw 8 sliding on the face of the latter. This vertical movement of the forward part of the slide H is effected by means of a rod, S, guided in the table A beneath said forward part of the slide and acted on by a clamp, T, secured to the shaft B of the machine. Between the inner end of the pin H' and a bearing on the rear part of the slide H is a rubber or other elastic washer, 9, which serves to press the pin H rearward and maintain the roller *z*² in contact with the face of the cam Q, this washer also permitting a limited movement of the slide independently of the pin.

The caps, with their linings loosely laid in them, as shown in Fig. 6, are placed on the disk J, and as it rotates are carried one after another by the cam L into the path of the projection *u*, which as it reciprocates feeds the caps in succession under the shaft F, the caps being deposited on the disk 6. The shaft F being then pressed down by the action of the cam M on the rod N, the disk *h* presses the cap against the disk, clamps the lining and cap together, and at the same time causes the rotation of the cap and lining at a high rate of speed. The disk *m*, which is beveled, as shown in Fig. 4, is forced against the periphery of the cap at *x'*, owing to the action of the cam Q upon the slide H.

Owing to the bevel of the edge of the lining-disk in the cap, the presser-disk will naturally have a tendency to rise as it presses the sheet metal of the cap against said beveled edge of the lining, this sliding movement of the disk being the one best calculated to effect the spinning of the cap over the edge of the lining without buckling or breaking the sheet metal of which the cap is composed. In order, how-

ever, to impart a positive rising movement to the presser-disk as it is pushed forward against the cap, the front portion of the slide H is, as it moves forward, at the same time slowly elevated by the rod S, under the influence of the cam T.

The rod K is restored to its original position by the cam *s* and receives another cap with loose lining, the spring-pawl *v* yielding as the rod is retracted in order to pass the cap *x*, which is being subjected to the action of the disk *m*.

The shaft F and the devices carried thereby are then raised by the spring *y* and the disk *h* lifted out of the cap *x*, so that as the rod feeds another cap under the shaft F the lined cap is pushed out of the way.

I claim as my invention—

1. The combination, in a machine for lining sheet-metal caps, of the clamping-disks and means for rotating the same with a pressing-tool having a beveled acting face, said tool being movable from and toward the cap, but being also free to move in a different plane, whereby it slides upon the cap while pressing the same upon the beveled edge of the lining, all substantially as specified.

2. The combination, in a machine for lining sheet-metal caps, of the clamping-disks, a pressing-tool movable from and toward the cap, but free to move in a different plane, so as to slide upon the cap while pressing the same upon the lining, and gearing for rotating said clamping-disks and the pressing-tool, all substantially as specified.

3. The combination of the clamping-disks, a slide, H, made in two parts, the front being free to move across the face of the rear part, and a pressing-tool carried by said front part of the slide, with a cam for moving the slide toward the clamping-disks, all substantially as specified.

4. The combination, in a machine for lining sheet-metal caps, of the clamping-disks, a slide comprising two parts, one of which is free to move across the face of the other, a pressing-tool carried by one part of the slide, a pin carried by the other part thereof, a cam acting on said pin, and an elastic cushion interposed between said pin and a bearing on the slide, all substantially as specified.

5. The combination, in a machine for lining sheet-metal caps, of the clamping-disks, the two-part slide, the pressing-tool carried by one part of the same, a cam acting upon the other part of the slide to move the same toward the clamping-disks, and a cam acting upon the tool-carrying portion of the slide and moving the same in a different plane, all substantially as specified.

6. The combination of the carrying-table and guide-bar, the clamping-disks, and a feed-bar having a hook which engages with a cap on the forward movement of the bar, and a spring-pawl which yields on the back-

ward movement of the bar, all substantially as specified.

7. The combination of the lower support-
ing-disk, 6, of the cap-holder, with the upper
5 clamping-disk having a projecting elastic pad
secured to its under face, all substantially as
specified.

In testimony whereof I have signed my name
to this specification in the presence of two sub-
scribing witnesses.

FRANK W. PERRY.

Witnesses:

J. GORDON SHOWAKER,
WILLIAM H. JARDEN.