

(No Model.)

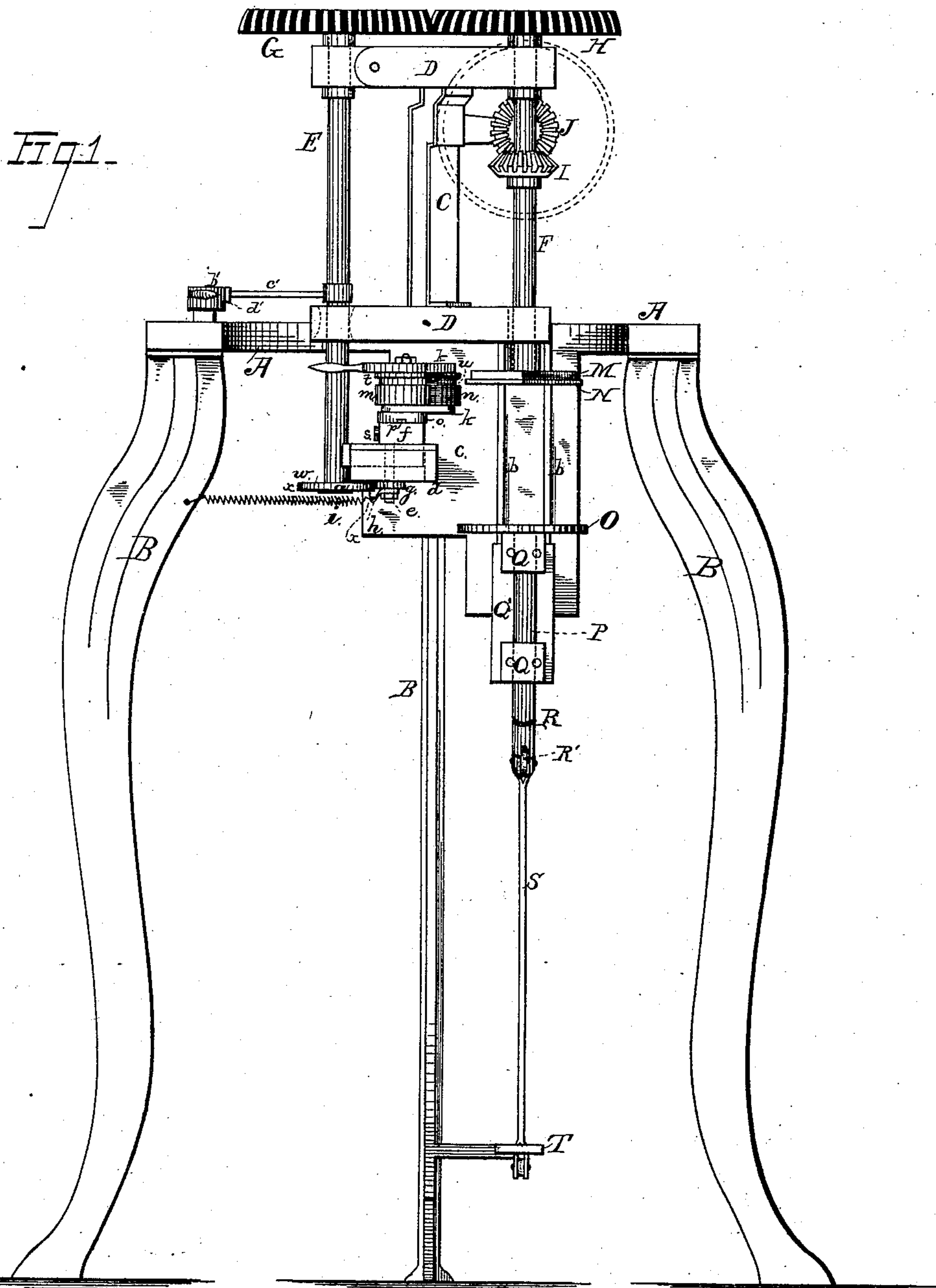
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W. HIPPERLING.

MACHINE FOR USE IN THE MANUFACTURE OF TIN CANS.

No. 281,508.

Patented July 17, 1883.



Witnesses;
Herman Gustow
A. P. L. Hamilton

Inventor;
William Hipperling,
By Cha. O. Hill
Attorney.

(No Model.)

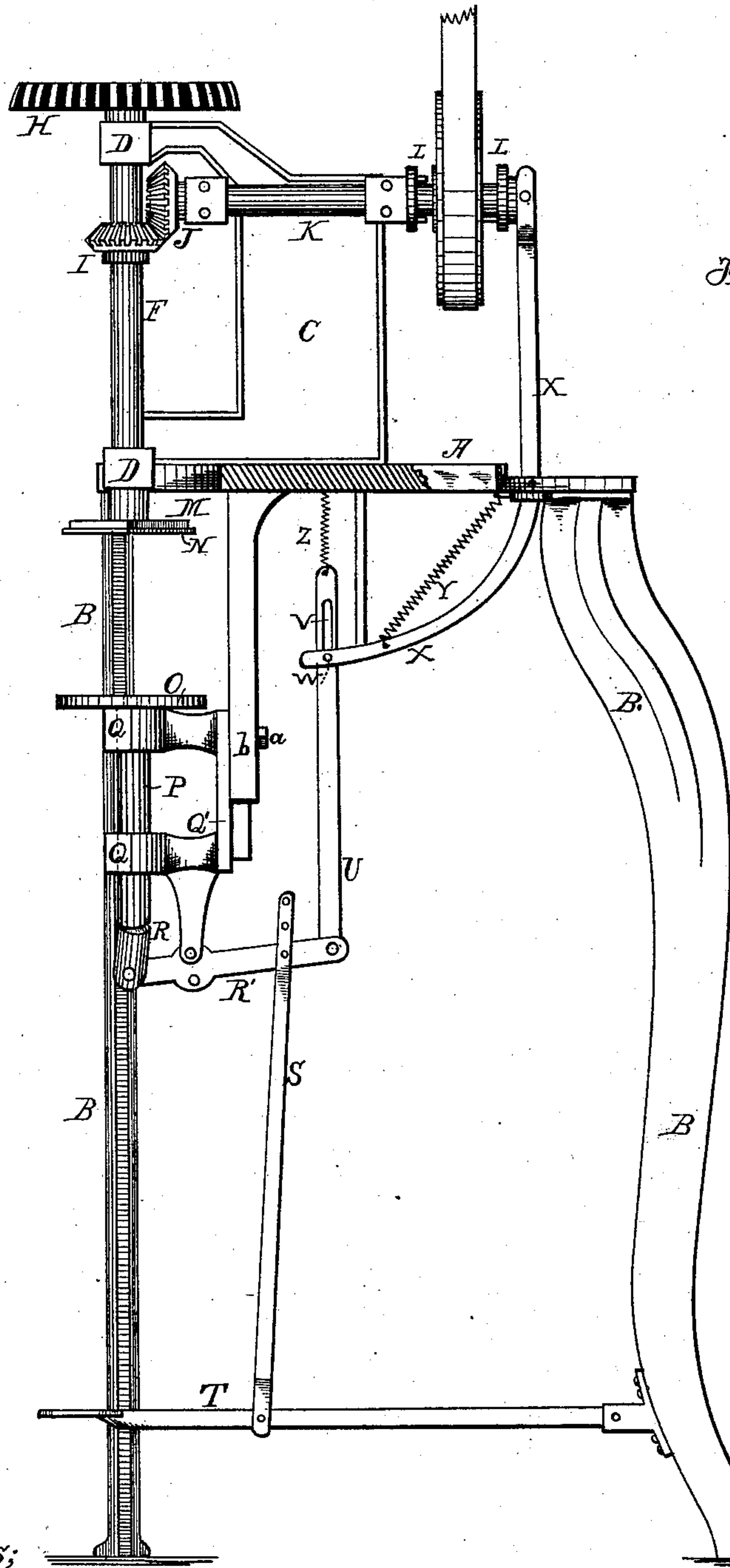
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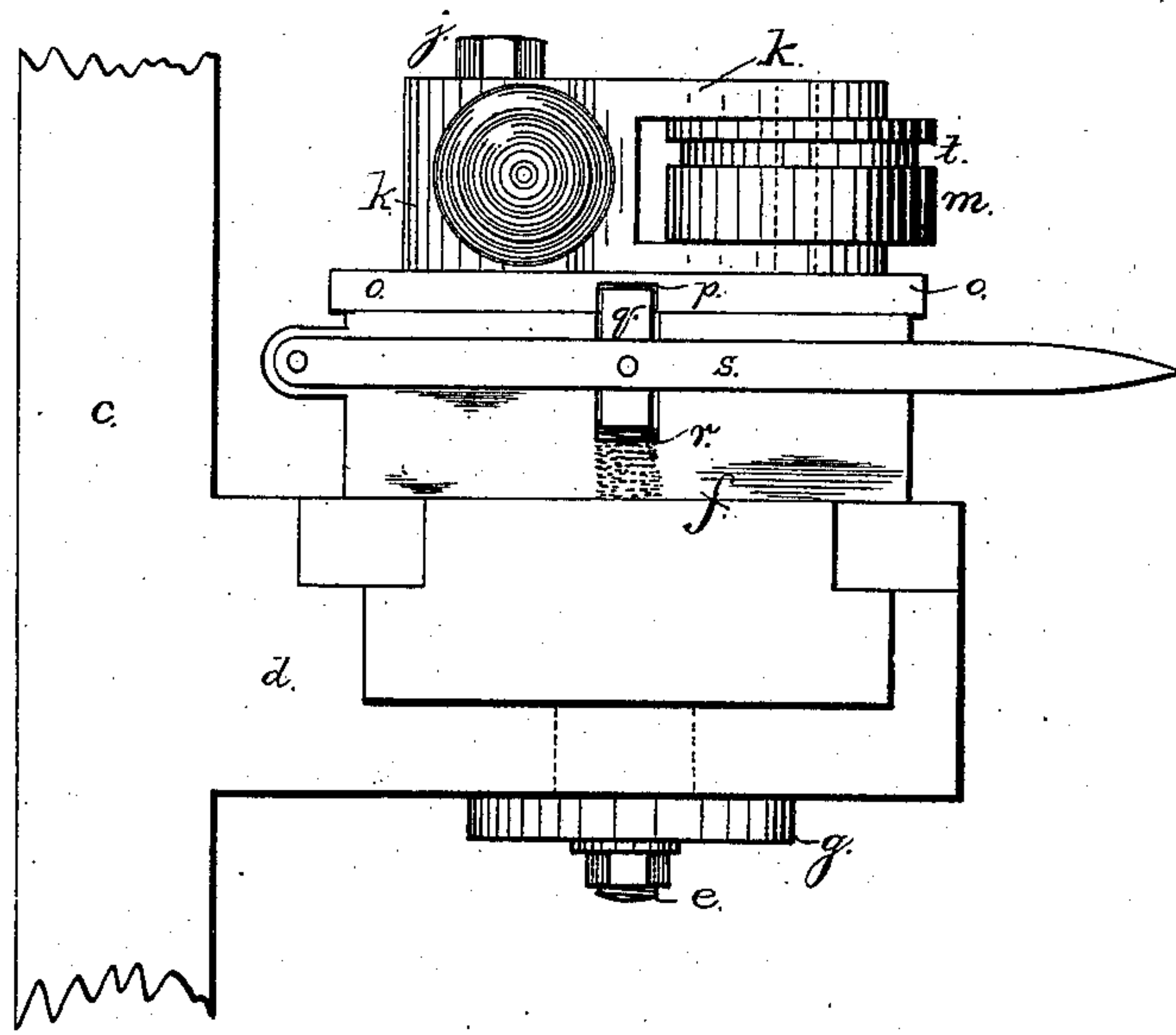


Fig. 3.

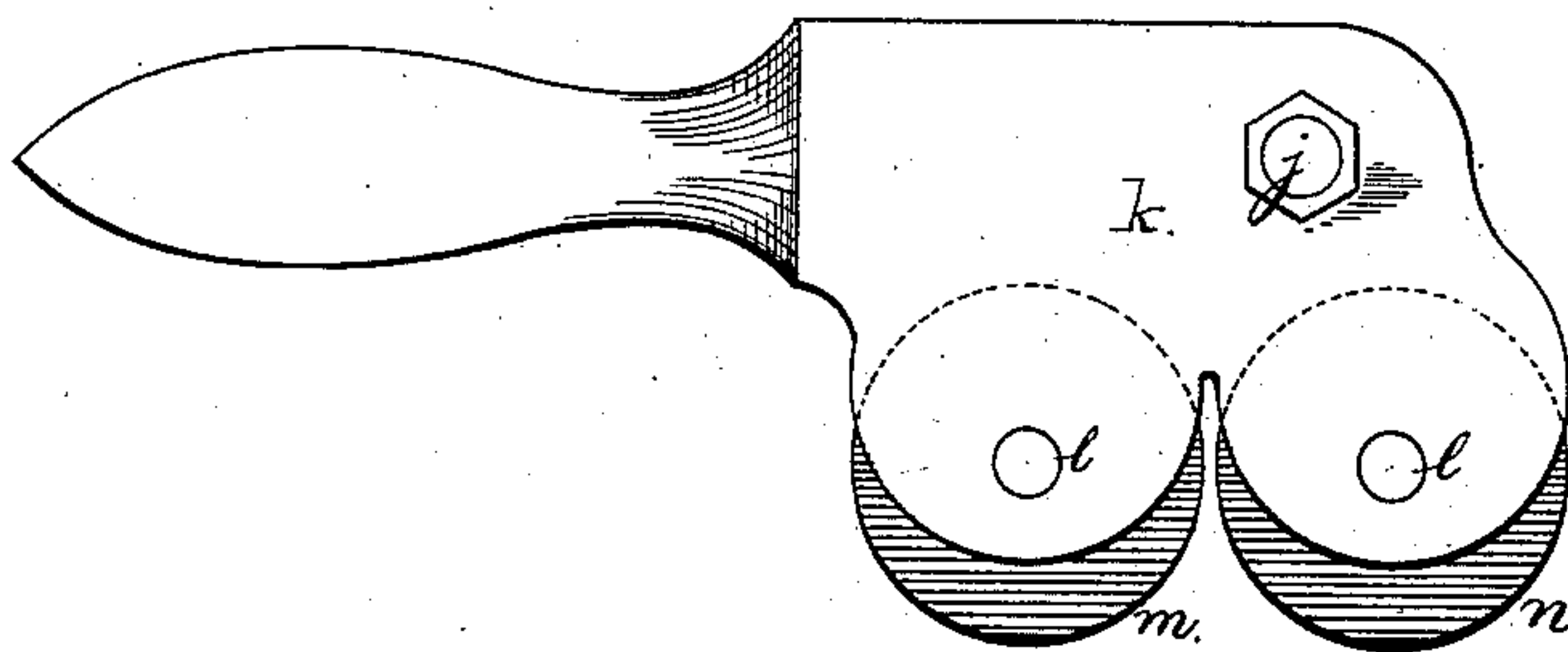


Fig. 4.

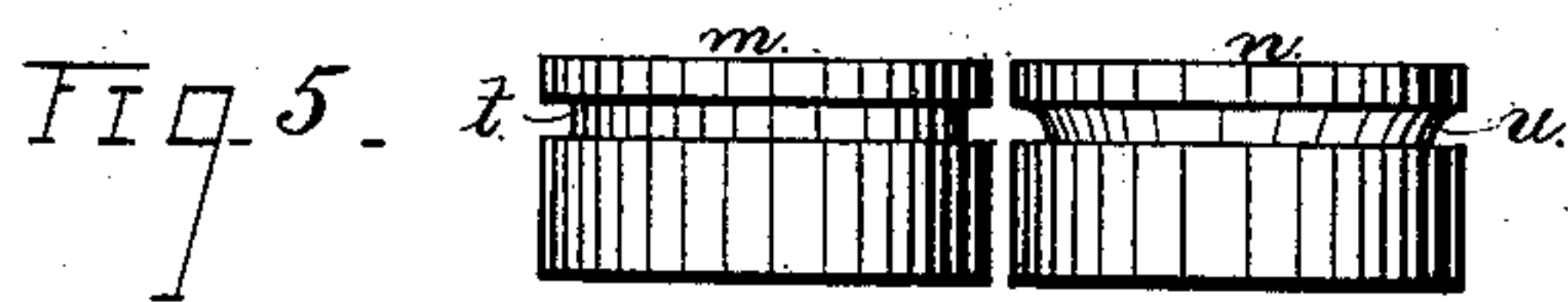


Fig 5

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(No Model.)

4 Sheets—Sheet 4.

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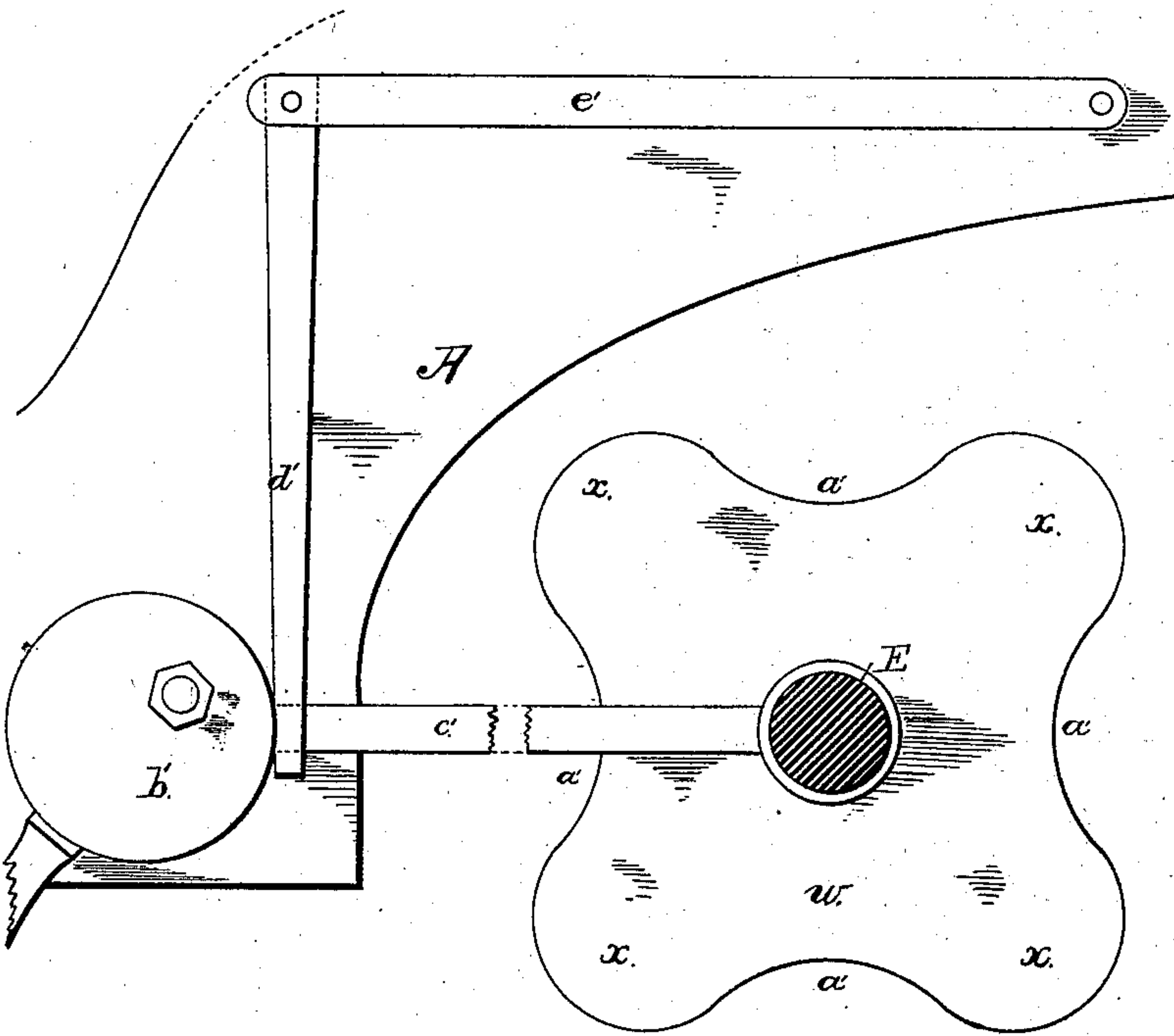


Fig. 6.

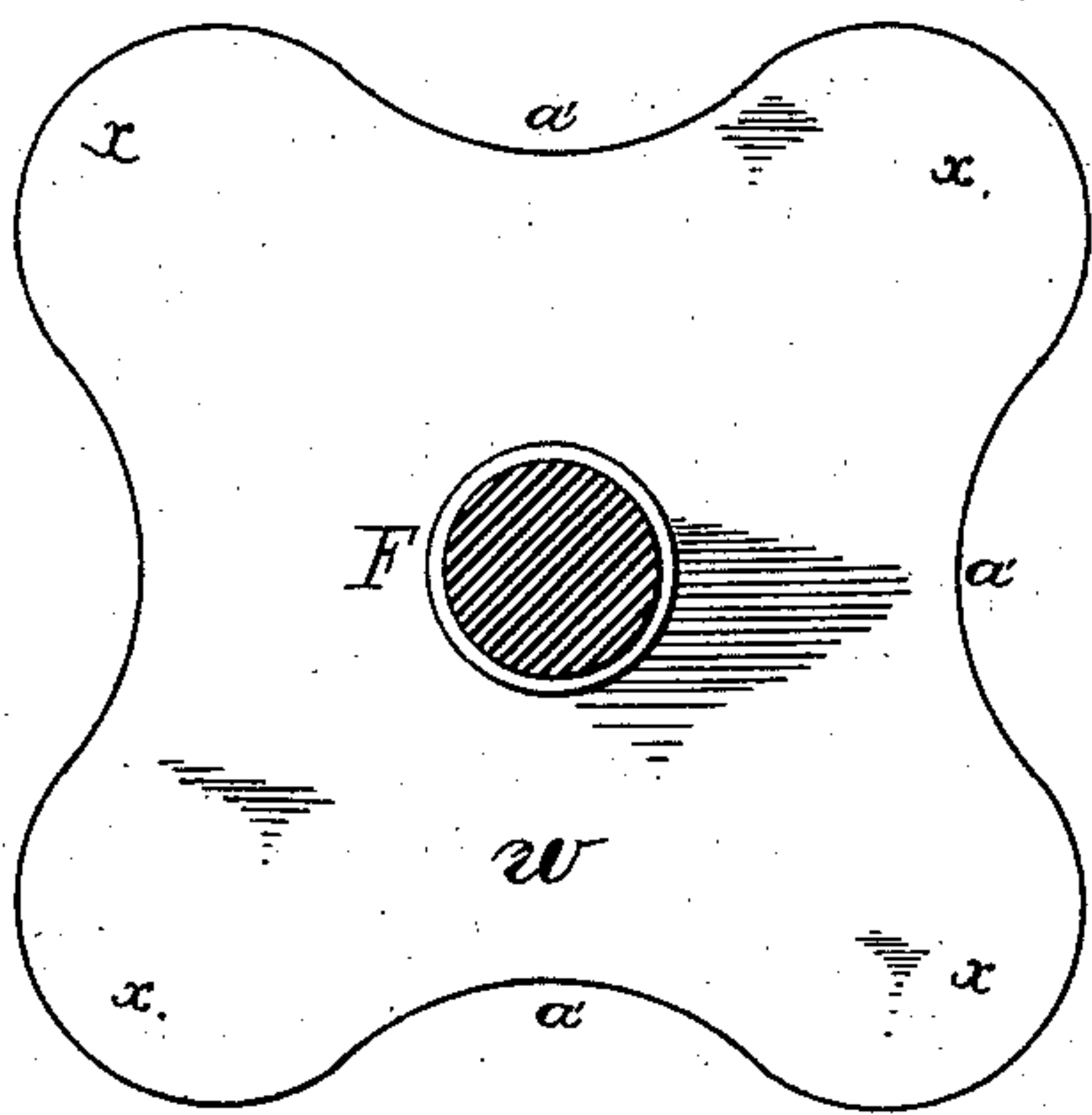
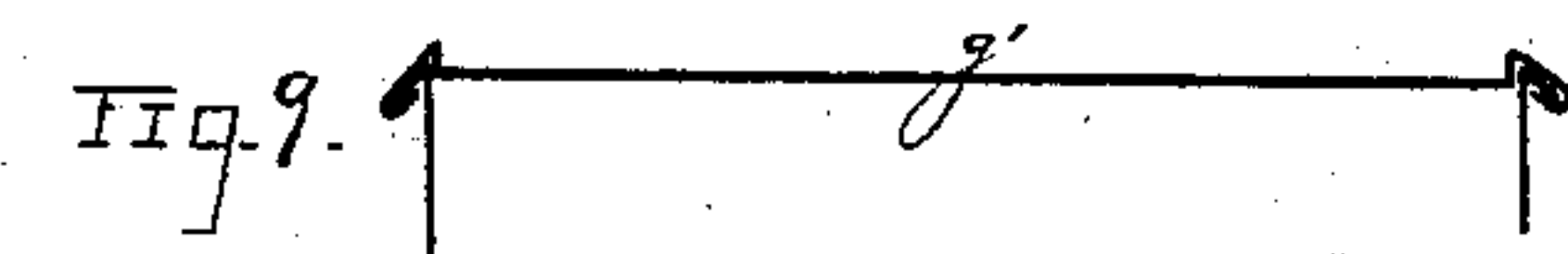
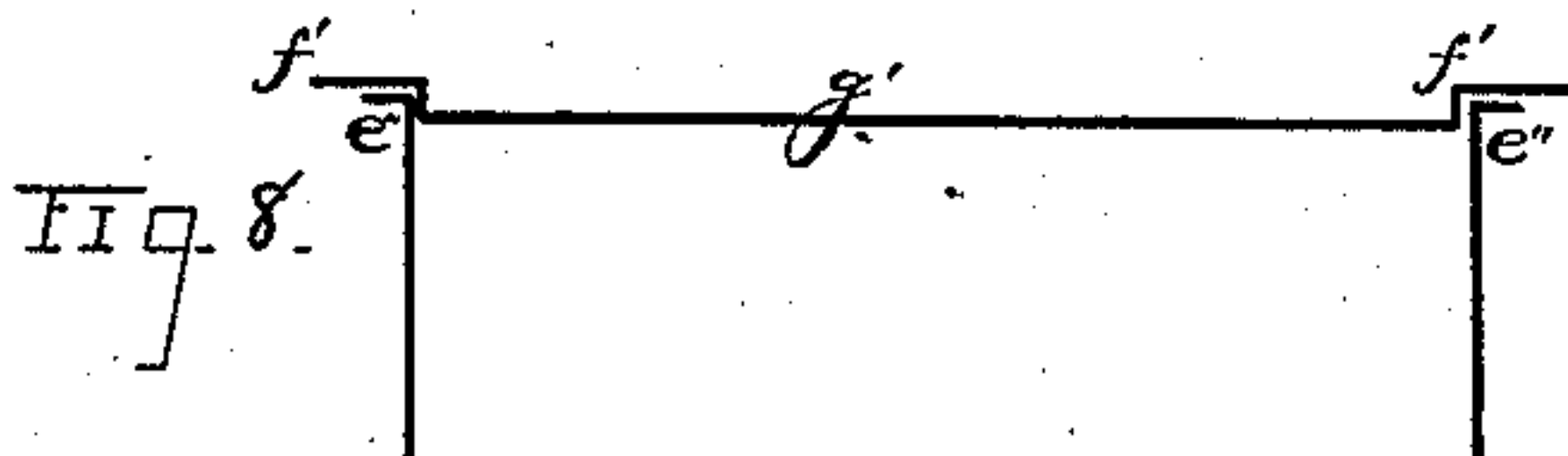
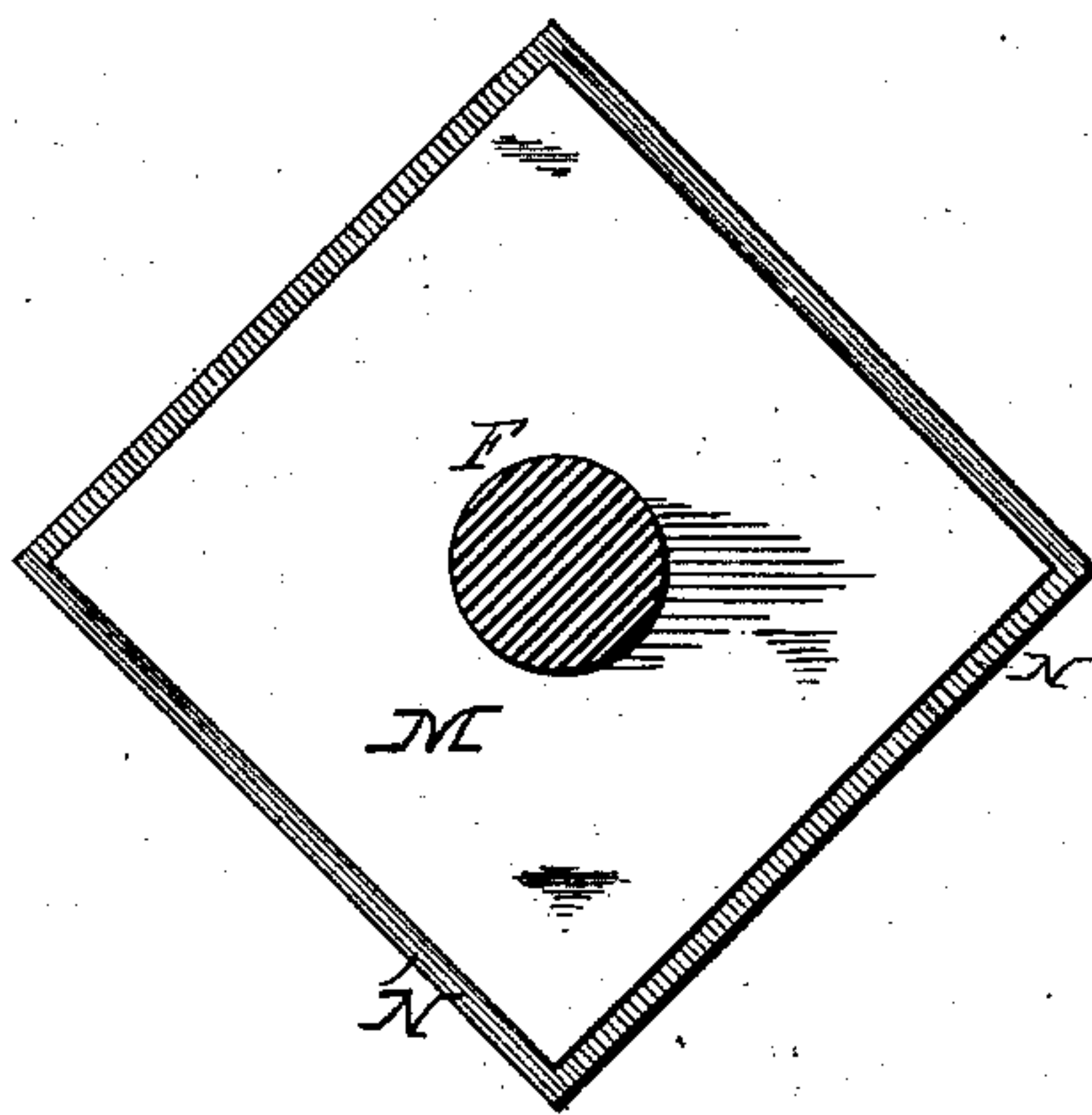


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM HIPPERLING, OF NEW YORK, N. Y., ASSIGNOR TO GINNA & CO.,
OF SAME PLACE.

MACHINE FOR USE IN THE MANUFACTURE OF TIN CANS.

SPECIFICATION forming part of Letters Patent No. 281,508, dated July 17, 1883.

Application filed May 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HIPPERLING, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for use in the Manufacture of Tin Cans, of which the following is a specification.

The invention has relation to an improvement in machines for use in the manufacture of tin cans, and particularly to a machine for double-seaming the head and bottom of rectangular-shaped cans.

The invention will be fully understood from the description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of a machine embodying my invention. Fig. 2 is a side view of the same. Fig. 3 is a view of the slide carrying the seaming-dies, looking at the left-hand end thereof. Fig. 4 is a top view of the block in which the seaming-dies are journaled. Fig. 5 is a detached side elevation of the seaming-dies. Fig. 6 is a top view of the cam and intermediate mechanism employed to move the shaft E. Fig. 7 is a top view of the cam and platen M, illustrating the relative positions of these elements to each other. Fig. 8 is a diagram view, showing the head and body of the can before being acted upon by the seaming-dies. Fig. 9 is a view of the can after it has been subjected to the action of the die *n*, and Fig. 10 is a view of the same after the seam has been completed by the die *m*.

In the said drawings, A denotes the table of the machine, which is supported upon the legs B, and has extending above the table the head C, upon the front edge of which are rigidly secured the cross-bars D, in which are journaled the vertical shafts E F, carrying upon their upper ends the gear-wheels G H, by which simultaneous motion may be communicated to the shafts.

Upon the shaft F, below the upper cross-bar D, is secured the beveled wheel I, which meshes with the gear-wheel J, secured upon a driving-shaft, K, to which power may be applied by the band-wheel and pulley, or otherwise. The shaft K will be provided with an ordinary clutch

mechanism, L, by which the power may be relieved from the shaft or connected therewith at the proper time in the customary manner. The shaft E is sustained in the cross-bars D, so that it may have a limited swinging or lateral motion, the aperture in the lower cross-bar D, through which it passes, being somewhat enlarged, and the upper part of the shaft E being journaled in the hinged end of the upper cross-bar D to permit this operation. The gear-wheels G H are beveled on their periphery, as shown, so that the said shaft E may have this swinging movement without disengaging the gear-wheel G from that lettered H.

Upon the lower end of the shaft F is rigidly secured the rectangular-shaped platen M, having a projecting shoulder, N, around its lower edge. The platen M will be of such size as that the shoulder N may snugly enter the space provided for it in the head of the can, as hereinafter described.

Directly below the platen M is provided a revolving table, O, upon which the can to be treated is placed. The revolving table O is secured upon the upper end of the vertical shaft P, which is journaled in the collars Q, forming part of the adjustable slide Q', and is connected by a ball-and-socket joint, R, with the horizontal lever R'. The rear end of the lever R' is connected with the pitman-rod S, which is operated by the foot-treadle T, and the said rear end of the horizontal lever R' is also connected with the vertical rod U, which has a spring-tension upward, and in the upper end of which is provided a slot, V, in which the lower end of the clutch-operating lever X is secured by the pin W. The upper end of the clutch-operating lever X is connected with one half of the clutch mechanism L, as indicated, and is provided with a spring, Y, whose action is to keep the two halves of the clutch L separated, so as to prevent the band-wheel from communicating its motion to the driving-shaft. When it is desired to operate the driving-shaft, it may be accomplished by simply depressing the treadle T, which has the effect of drawing downward the horizontal lever R' and the connecting-rod U, and in so doing the rod U acts upon the pin W to overcome the tension of the spring Y and to tilt the lever X

inward, so as to throw the two halves of the clutch mechanism together against the driving-wheel. Upon the removal of the foot of the operator from the treadle T the spring Z
 5 will retract the rod U and lever R' to their former positions, the effect being to relieve the spring Y and move the lever X to its former position, freeing the clutch. The space
 10 between the platen M and the revolving table O will be such as to snugly receive the can to be treated, and permit it to have a slight vertical movement when the treadle T is depressed, as hereinafter more fully explained. The bracket Q, carrying the table O, is adjust-
 15 able vertically on the guides b, and is secured in any set position by the screw a, whereby the machine may be adapted for treating various sizes of cans.

Depending from the table A, and arranged
 20 adjacent to the side of the guides b, is the bar c, upon the front face of which is secured the guide-block d, which is slotted to receive the set-screw e, by which the carriage f is sustained in position, and is permitted to have a
 25 lateral sliding movement on the said guide-block. Below the guide-block d a small wheel, g, is secured upon the screw e, and there is also secured upon the set-screw a lug, h, in which one end of the spring i is secured, the
 30 other end of the said spring i being attached to the leg B, the purpose of the spring being to draw the carriage f toward the said leg B when the machine is at rest, and to prevent its coming in contact with the can being
 35 treated, except when the tension of the spring is overcome by the operator, in the manner hereinafter described.

Upon the carriage f is pivotally secured, by means of the screw j, the swinging block k,
 40 in which is secured, upon the axles l, forming wheels or dies m n. Upon the lower portion of the swinging block k is provided the ratchet-plate o, in which are formed the notches p, properly arranged to be engaged by the pawl
 45 q at the proper time. The pawl q is secured in the side of the carriage f, and has an upward tension by the spring r, and is connected with the hand-lever s, by which it may be moved from contact with the notches p when
 50 desired. The purpose of the pawl q and the ratchet-plate o is to secure the swinging block k, carrying the forming wheels or dies m n, in a set position, so as to bring one or the other of the dies in contact with the edge of the can
 55 when desired. The revolving dies m n have upon their vertical periphery the grooves lettered, respectively, t u, the groove u being beveled from its upper portion downward and inward, as indicated in Fig. 5. The particular
 60 operation of the grooves t u will be pointed out hereinafter.

Upon the lower end of the vertical shaft E is secured the cam w, which is in constant contact with the small wheel g, and the form of
 65 which is shown in Fig. 6. The cam w is substantially rectangular in form, having, as indi-

cated, circular corners x and concave sides a'. The cam w is so timed upon the shaft E that during the operation of the machine its concave sides a' will be opposite to, though re-
 70 moved from, the corners of the platen M, as indicated in Fig. 7, and the circular corners of the cam w will come opposite to the sides of the platen. When the machine is at rest, the
 75 spring i, drawing the carriage f to the left and causing the wheel g to impinge the edge of the cam w, tilts the lower end of the shaft E toward the left also, and when the machine is in use the shaft E is given a vertical position,
 80 and the carriage f, being acted upon through the cam w and wheel g, is moved toward the right by means of the cam b', having a handle, and being in contact with the outer end of the rod c', the inner end of which is seated into a
 85 collar on the shaft E. The rod c' is sustained in part by the jointed rods d' e', the latter being pivoted to the table A. When the greater eccentricity of the cam b' is turned against the rod c', the shaft E will be forced inward, and
 90 in this movement it will assume a vertical position and act through the cam w and wheel g to force the carriage f toward the platen M, whereby the dies or forming-wheels m n are brought in such relation to the said platen that
 95 by turning the block k either of said forming-wheels may be brought in contact with the edge of the can at will. Upon turning the cam b' so that its greatest eccentricity is removed from the rod c' the spring i will draw the carriage
 100 f, and through it the shaft E, to the left to their former positions. When the block k is in the position indicated in Fig. 1, the die or wheel n will come in contact with the edge of the can when the carriage f and shaft E are forced inward by the cam b' and intermediate rod, c';
 105 and when the handle of the block k is turned to the front (the pawl being disengaged temporarily to permit this movement) the forming-wheel m will be thrown against the edge of the can, the wheel n being by this action
 110 moved therefrom.

In Figs. 8, 9, and 10 I illustrate in detached views the head and body of the can, both separately and united; and it will be observed that
 115 upon the upper edge of the body is formed the horizontal flange e"—say about one-sixteenth of an inch in width—while upon the head is a similar flange, f', which is, say, about one-fourth of an inch in width. In the head of the can is formed the rectangular depression g' to
 120 receive the lower edges of the platen M, as aforesaid, and when the head is placed on the body, preparatory to being double-seamed in place, the flanges e' f' will be in about the relation illustrated in Fig. 8. 125

Operation: The head being placed upon the body of the can in the manner indicated in Fig. 8, the article is rested upon the revolving table O, whereupon the operator, by pressing his foot upon the treadle T, depresses the
 130 rear end of the horizontal lever R' and forces thereby the table O upward toward the platen

M, whereby the can is forced upward until the lower projecting edges of the said platen enter the depression g' , formed in the head of the can, the can being by this means effectually held in position. The movement of the treadle T, which forces the can upward under and against the platen M, also operates to connect the clutch mechanism L, so that motion will be at the same time communicated to the driving-shaft K, and thence, through the wheels J I, to the vertical shafts E F, the movement of the shaft F being communicated to the can. The revolving movement of the can, which is imparted to it by the platen M, is permitted to be communicated to the table O and shaft P, by reason of the ball-and socket joint R, without straining the machine. The can, being in this position between the table O and platen M, is permitted to revolve without coming in contact with any of the other parts of the machine until the operator, by the movement of the cam b' , as hereinbefore described, forces the shaft E and carriage f toward the platen M. When the machine is in the position illustrated in Fig. 1, and the can is in position, as aforesaid, the movement of the cam b' forces the forming-wheel n against the projecting flange f' of the cover and turns it beneath the flange e'' , formed on the body of the can. After this has been accomplished, by the movement of the lever s and pawl q the block k may be moved upon its pivot, so as to bring the forming-wheel m against the now folded flanges $e'' f'$, and the effect is to press the said flanges closely against the body of the can, completing the seam. The revolution of the can while its flange is in contact with the forming wheels or dies $m n$ insures an even folding of the seams. The forming-wheels $m n$ are permitted to travel around the corners and on the sides of the rectangular-shaped can by reason of the fact that the cam w is of such form as to preserve the carriage f in an equidistant relation to the can at all times. When the forming-wheels $m n$ are moved toward the platen M in the act of seaming a can, the edges of the flanges $e'' f'$ enter (when the wheel n is pressed against the can) the groove u , which by its formation forces the outer edge of the flange f' downward and beneath the flange e' , formed on the body of the can; and then when the wheel m is brought against the folded flanges $e'' f'$ the said flanges will enter the groove t and be flattened against the side of the can.

Certain modifications of the machine hereinbefore described will suggest themselves to the skillful mechanic, which need not be specifically mentioned, but one of which might be to construct a single forming wheel or die having two grooves, the wheel being capable of elevation and depression, according to the groove it may be desired to bring in contact with the flange of the can. These, however, are matters which refer to the details of the

construction without departing from the spirit 65 of the invention.

It will be obvious that while the construction shown and hereinbefore described is particularly adapted for treating rectangular-shaped cans it will only be necessary, in order 70 to seam cans of other form, to give the platen an outline conforming in cross-section to that of the can upon which it may be desired to seam the head and to cut the edges of the actuating-cam w to agree with the platen. 75

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

1. In a can-seaming machine, the revolving table and platen between which the can to be treated is held, the platen conforming in outline to that of the can in cross-section, in combination with a movable carriage, a revolving cam whose edges agree with those of the platen, and which cam is adapted to actuate the carriage, and a seaming device sustained by said 85 carriage, substantially as set forth.

2. In a can-seaming machine, the revolving table and platen between which the can to be treated is held, the platen conforming in outline to that of the can in cross-section, in combination with a movable carriage, a revolving cam whose edges agree with those of said platen, and which cam is adapted to actuate the carriage, and a seaming device sustained by said carriage, and having grooves adapted 95 by their separate contact with the can to complete the seam, substantially as set forth.

3. In a can-seaming machine, the revolving table and platen between which the can to be treated is held, in combination with a movable 100 carriage, a revolving cam whose edges agree with those of said platen, and which cam is adapted to actuate the carriage, a seaming device sustained by said carriage, and having grooves of suitable form to (by their separate 105 contact with the can) complete the seam, and a pawl-and-ratchet mechanism whereby the separate grooves may be brought into position to engage the seam, substantially as set forth.

4. In a can-seaming machine, the revolving 110 table O and platen M, in combination with the carriage f , carrying the seam-forming wheels, the cam w , secured upon the lower end of the shaft E, and means for moving said shaft and seam-forming wheels toward the platen, substantially as set forth. 115

5. In a can-seaming machine, the revolving table O, platen M, carriage f , carrying the seam-forming wheels, cam w , shaft E, cam b' , and the intermediate rod, c' , substantially as 120 set forth.

Signed at New York, in the county of New York and State of New York, this 8th day of May, A. D. 1883.

WILLIAM HIPPERLING.

Witnesses:

CHAS. C. GILL,
HERMAN GUSTOW.