

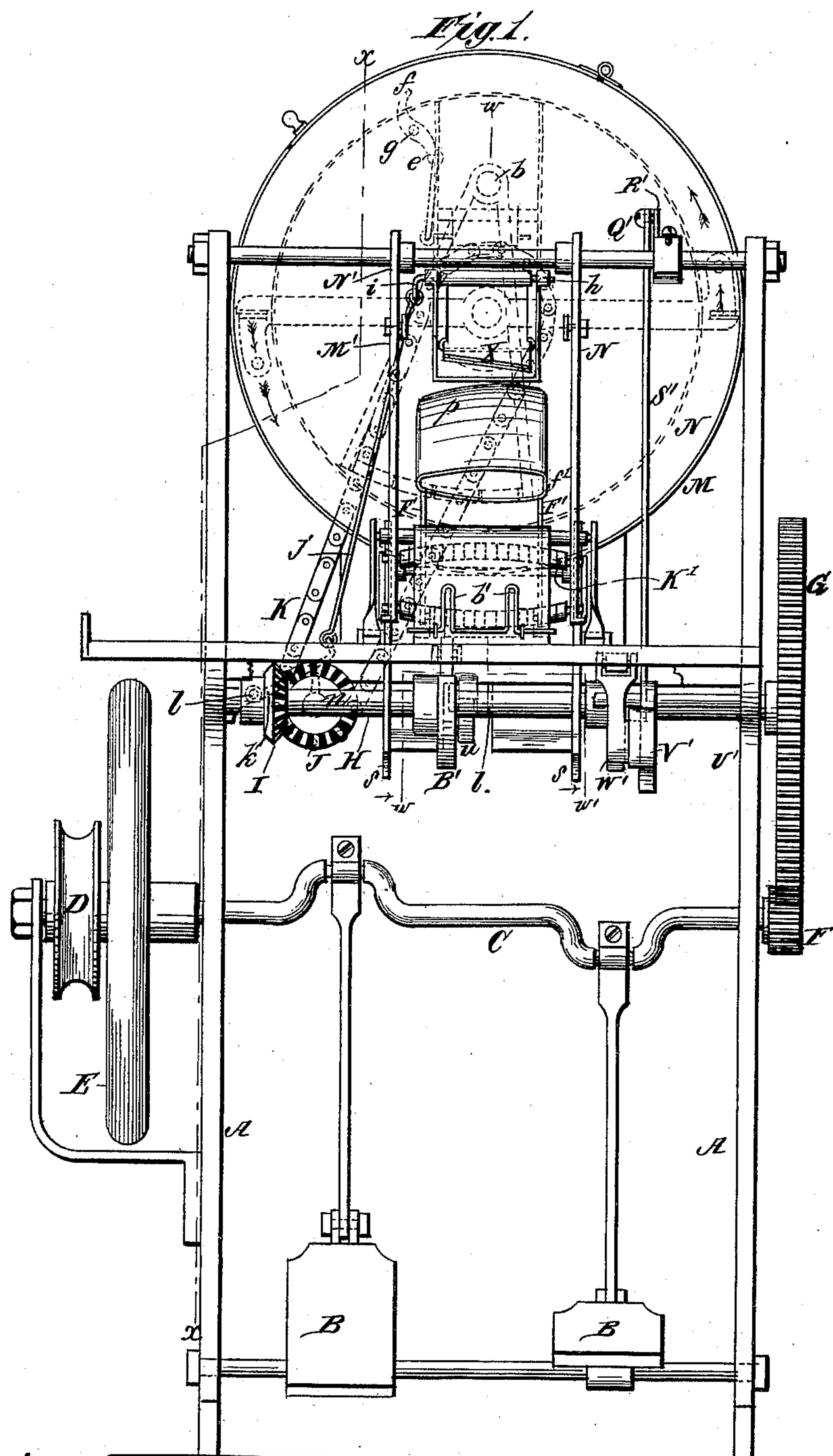
(No Model.)

5 Sheets—Sheet 1.

F. A. SCHUTZ.
CIGAR BUNCHING MACHINE.

No. 409,807.

Patented Aug. 27, 1889.



Witnesses:
Robert Emmett,
Geo. W. Rea.

Inventor.
Frederick A. Schutz.
By James L. Norris.
Atty.

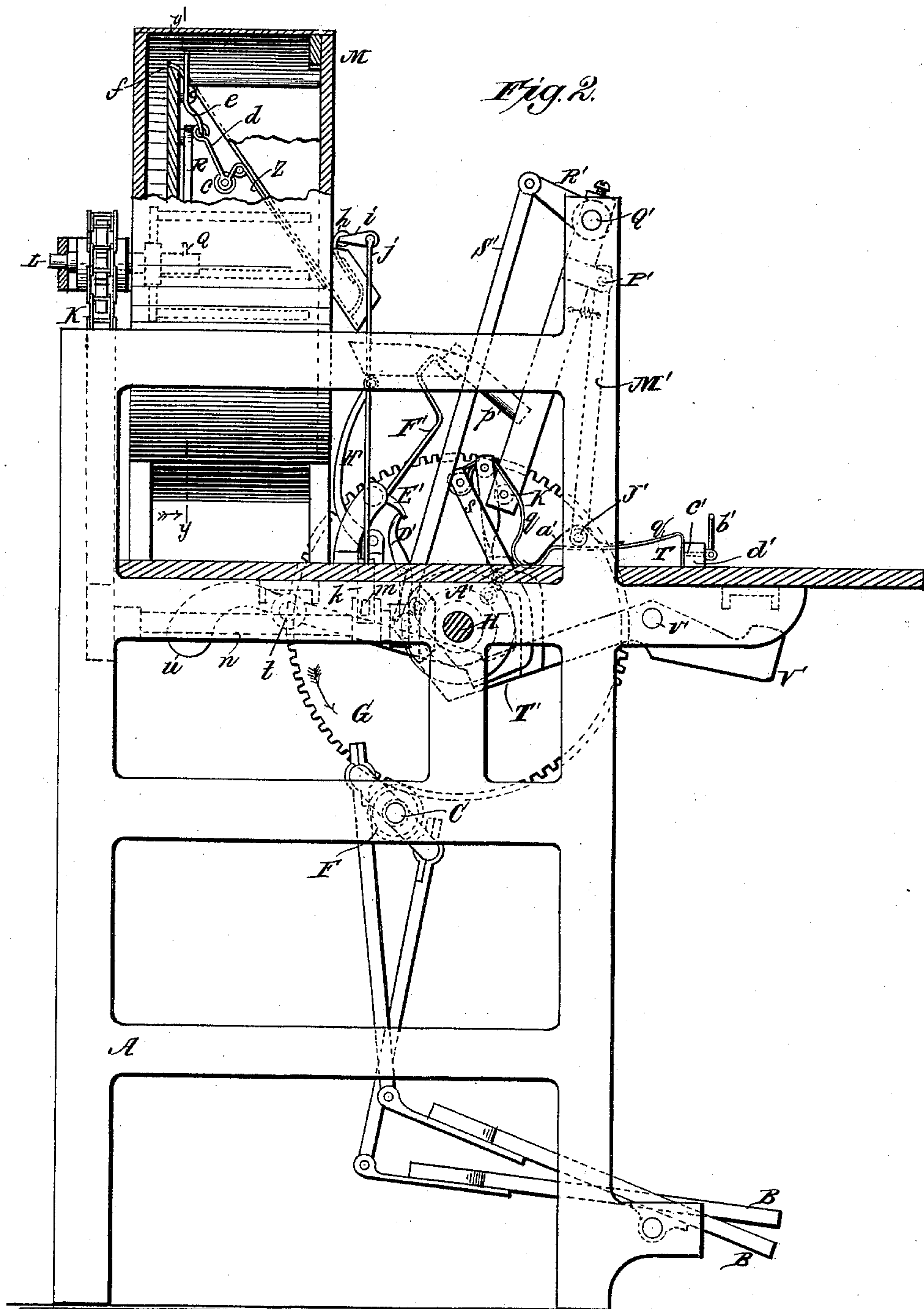
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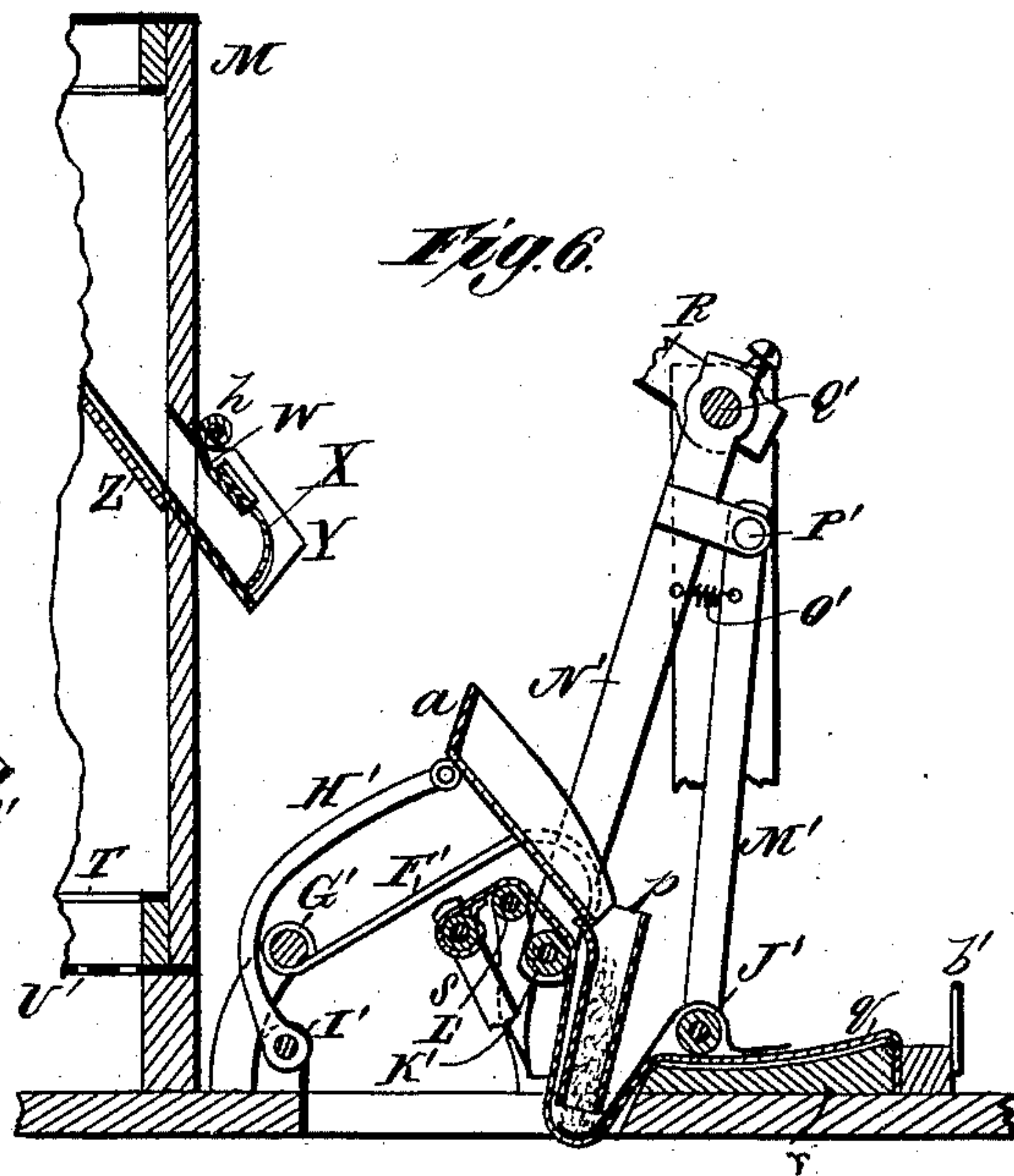
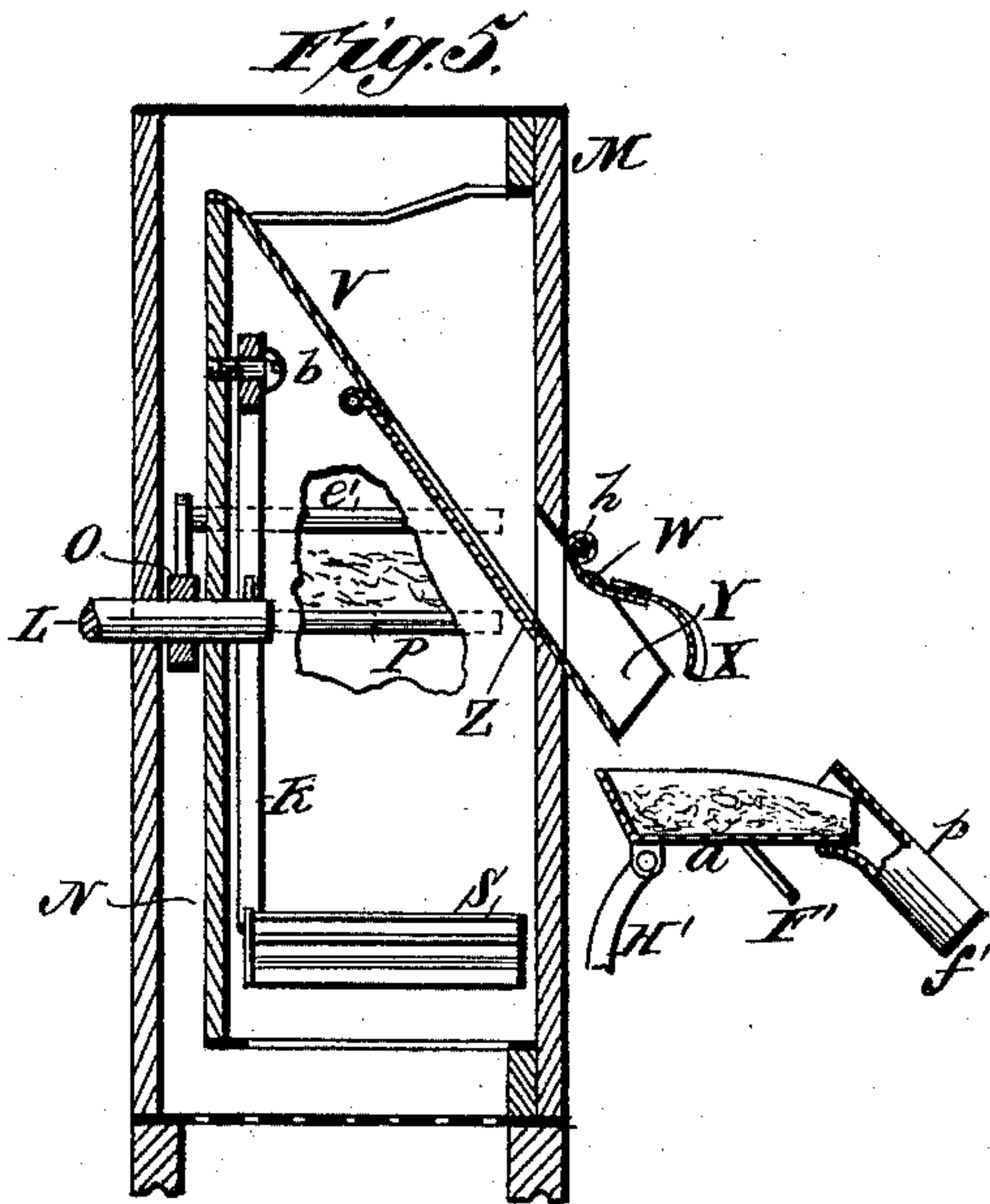
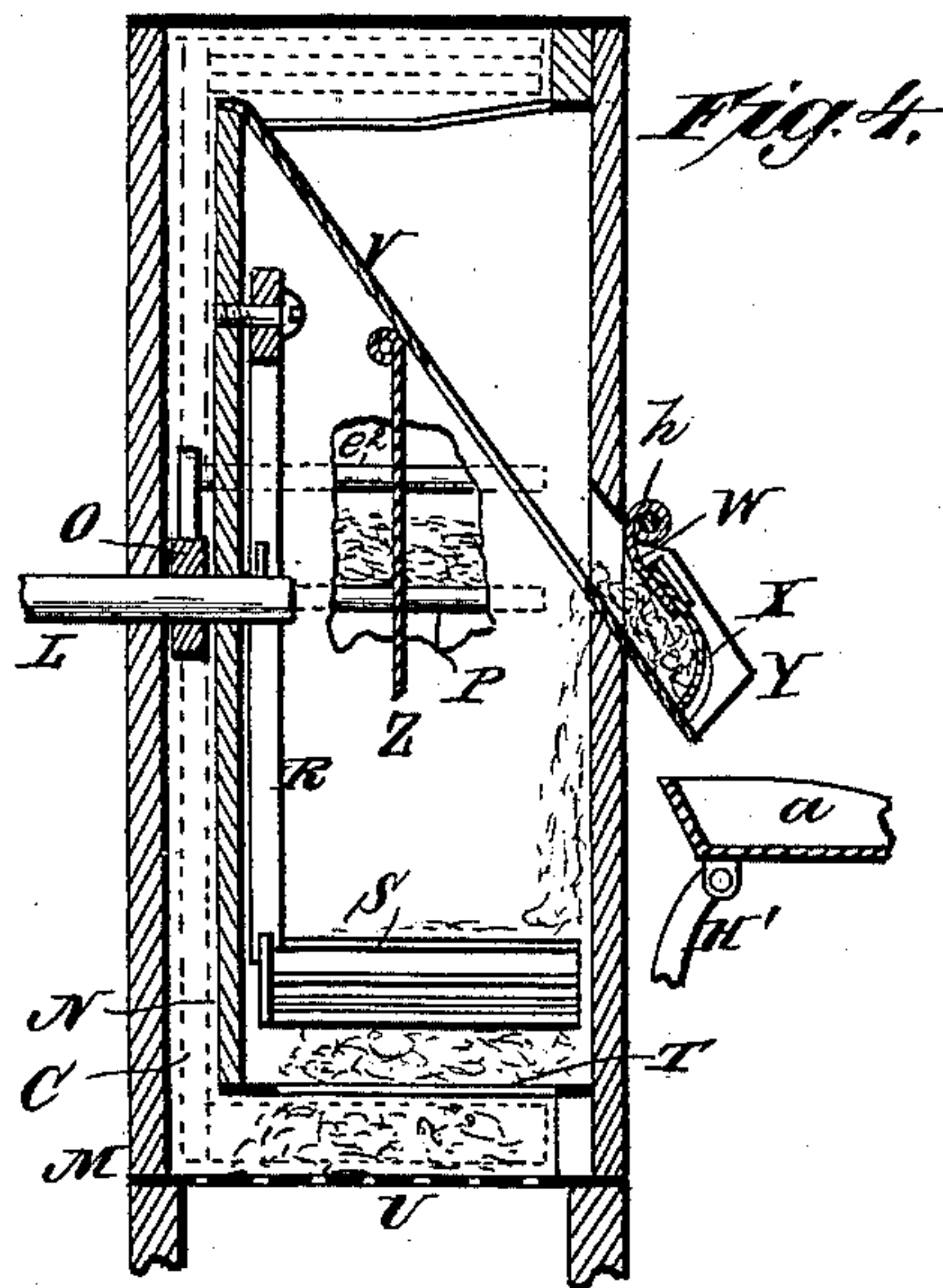
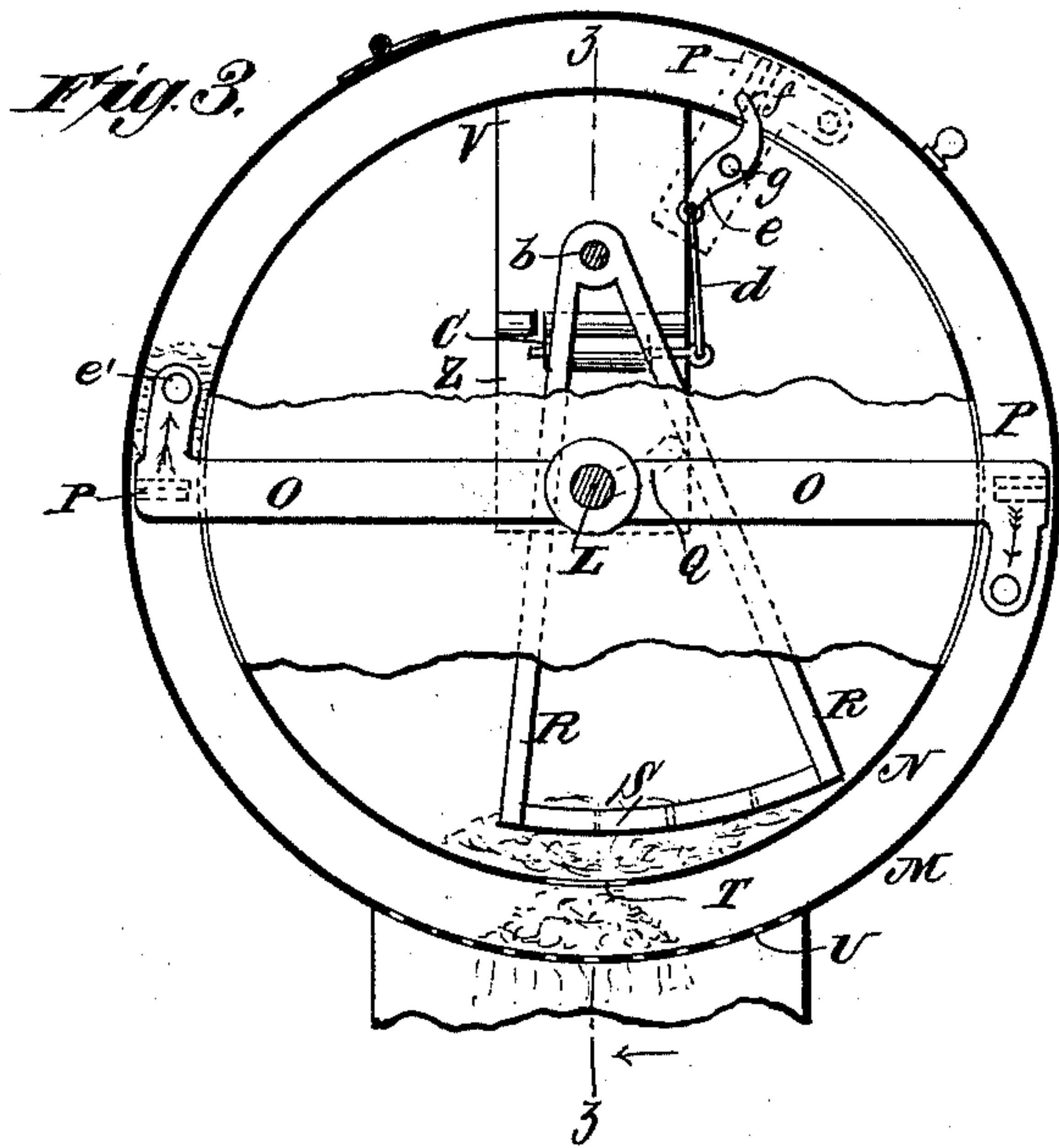
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F. A. SCHUTZ.
CIGAR BUNCHING MACHINE.

No. 409,807.

Patented Aug. 27, 1889.



Witnesses.
Robert Everett,
Geo. H. Rea

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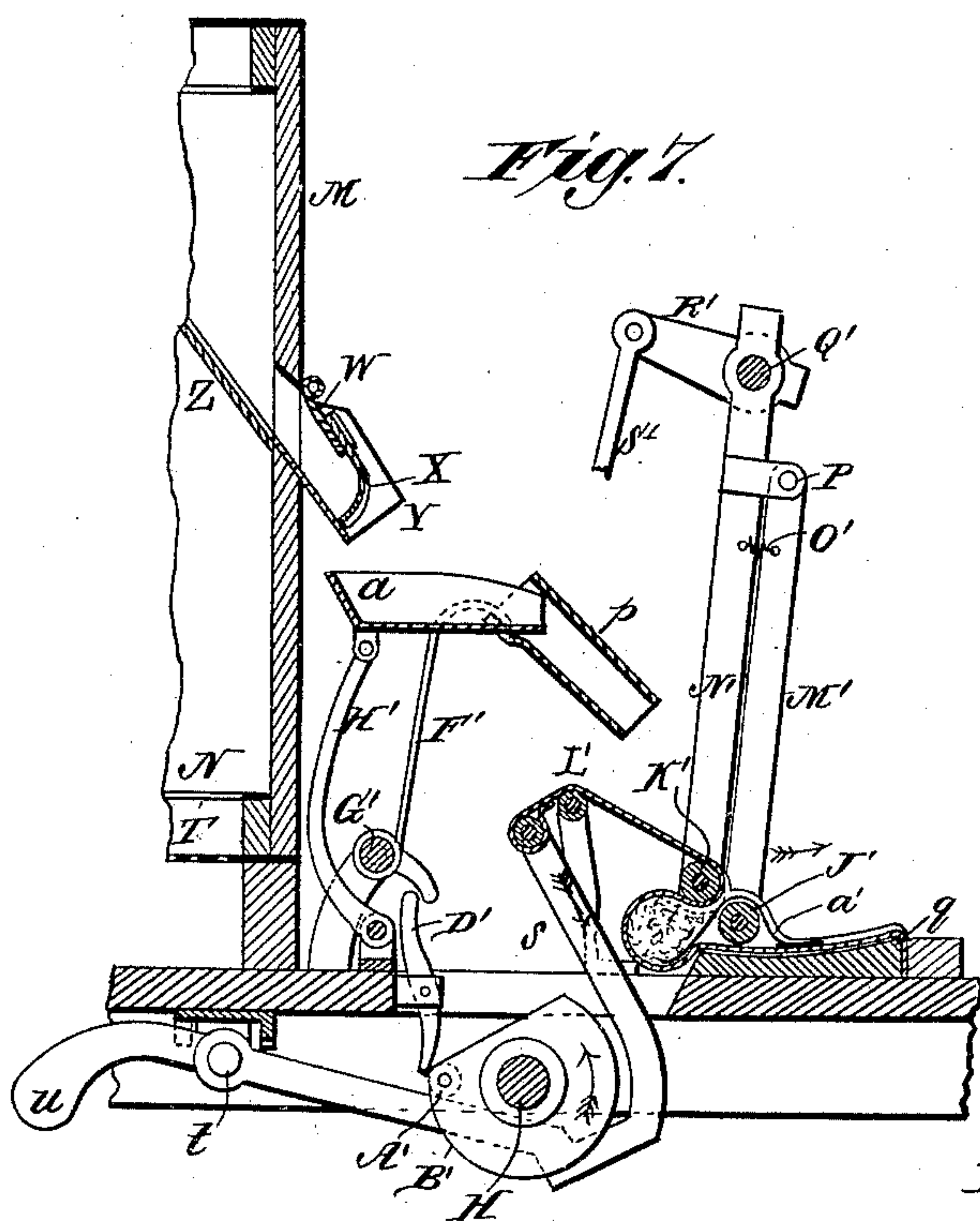


Fig. 7.

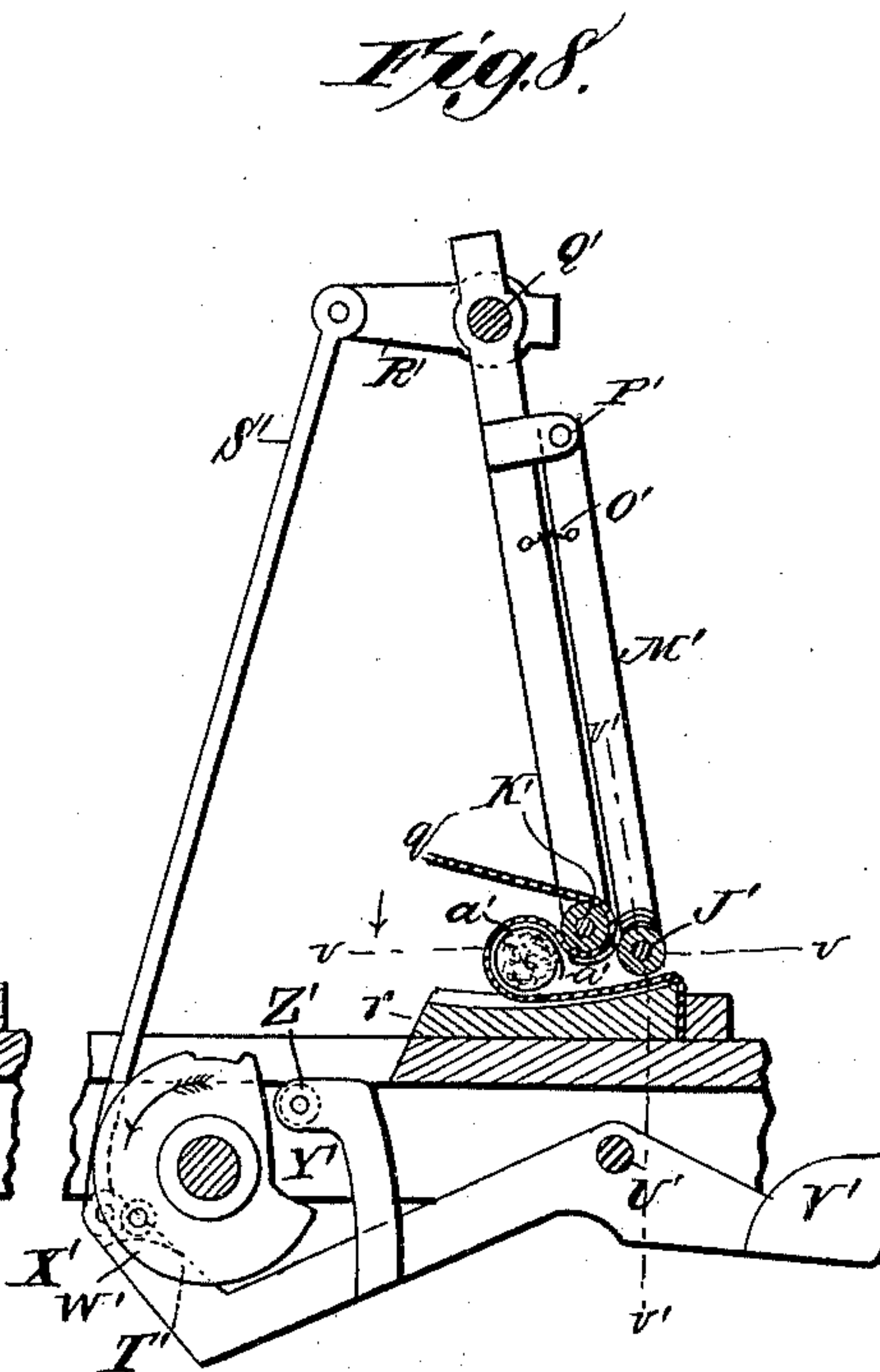


Fig. 8.

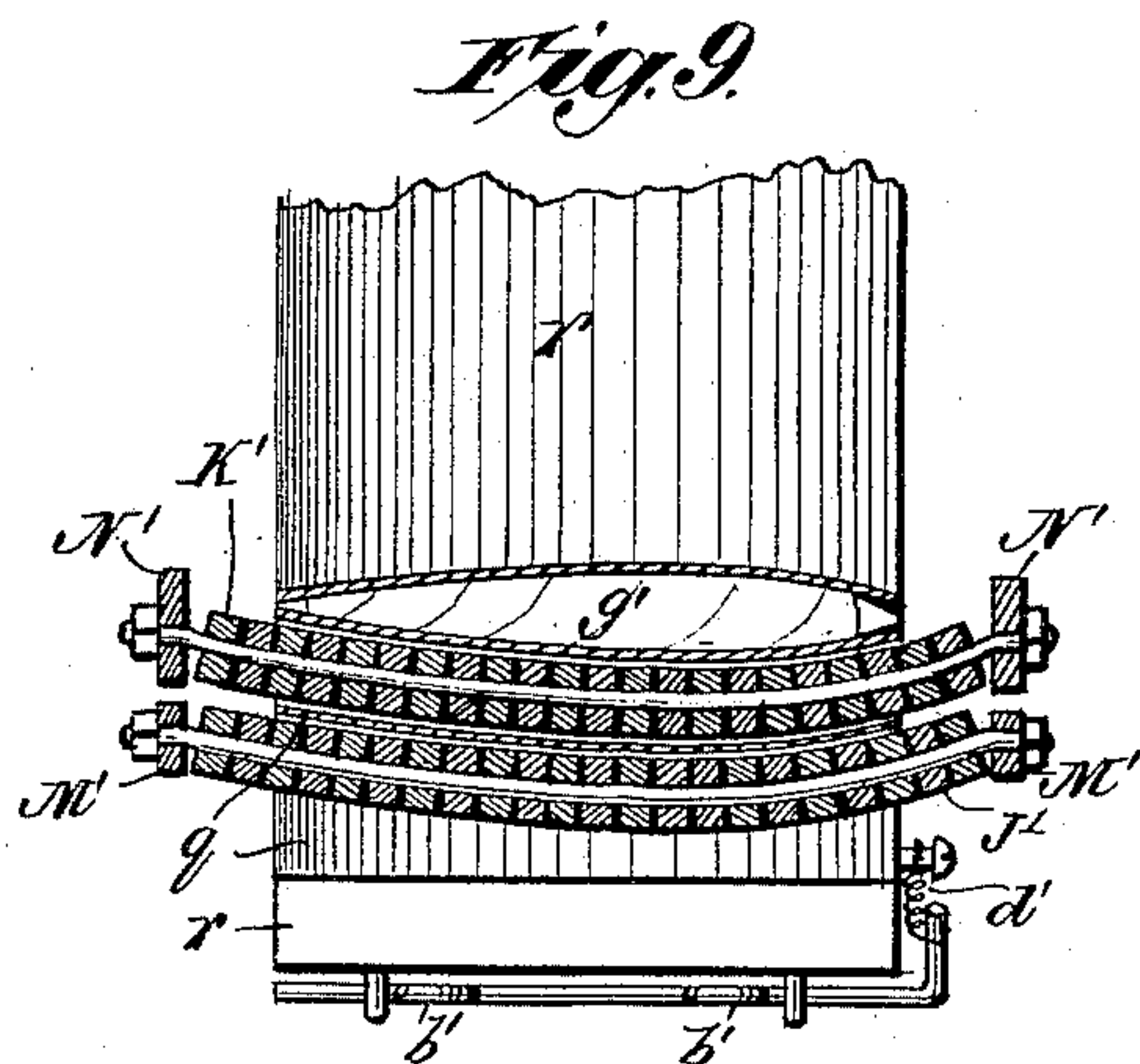


Fig. 9.

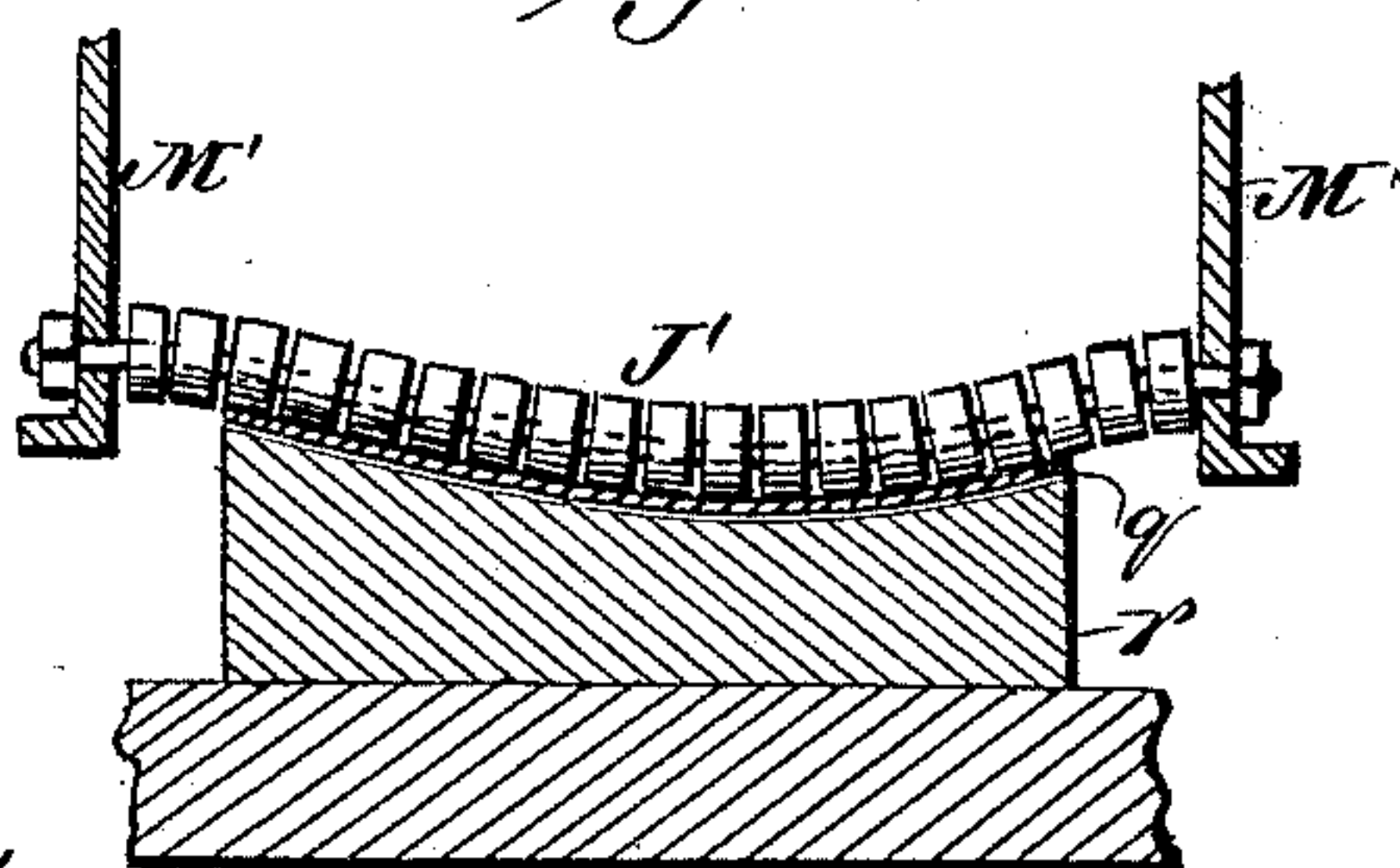


Fig. 10.

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(No Model.)

5 Sheets—Sheet 5.

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Fig. 13.

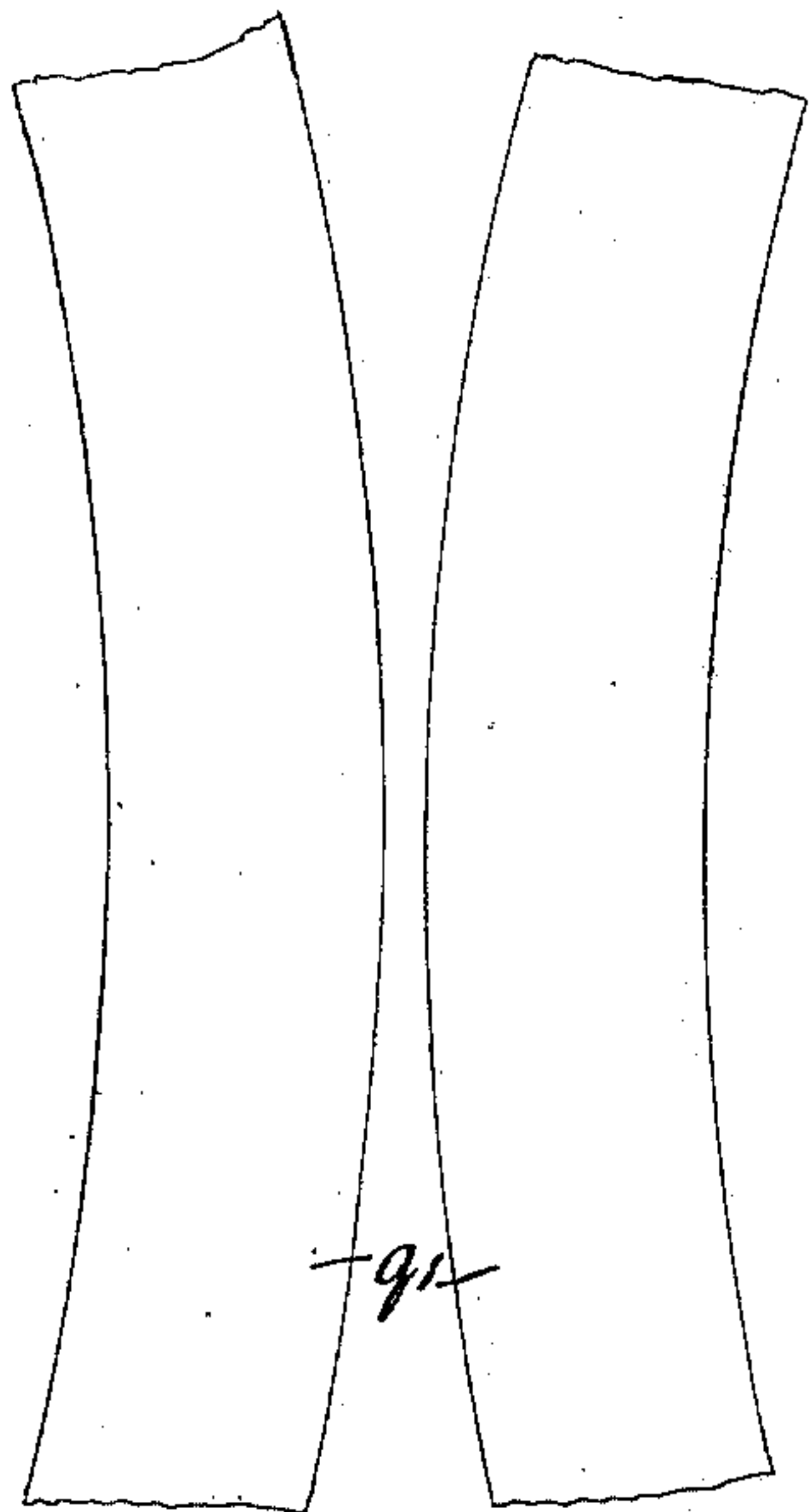


Fig. 11.

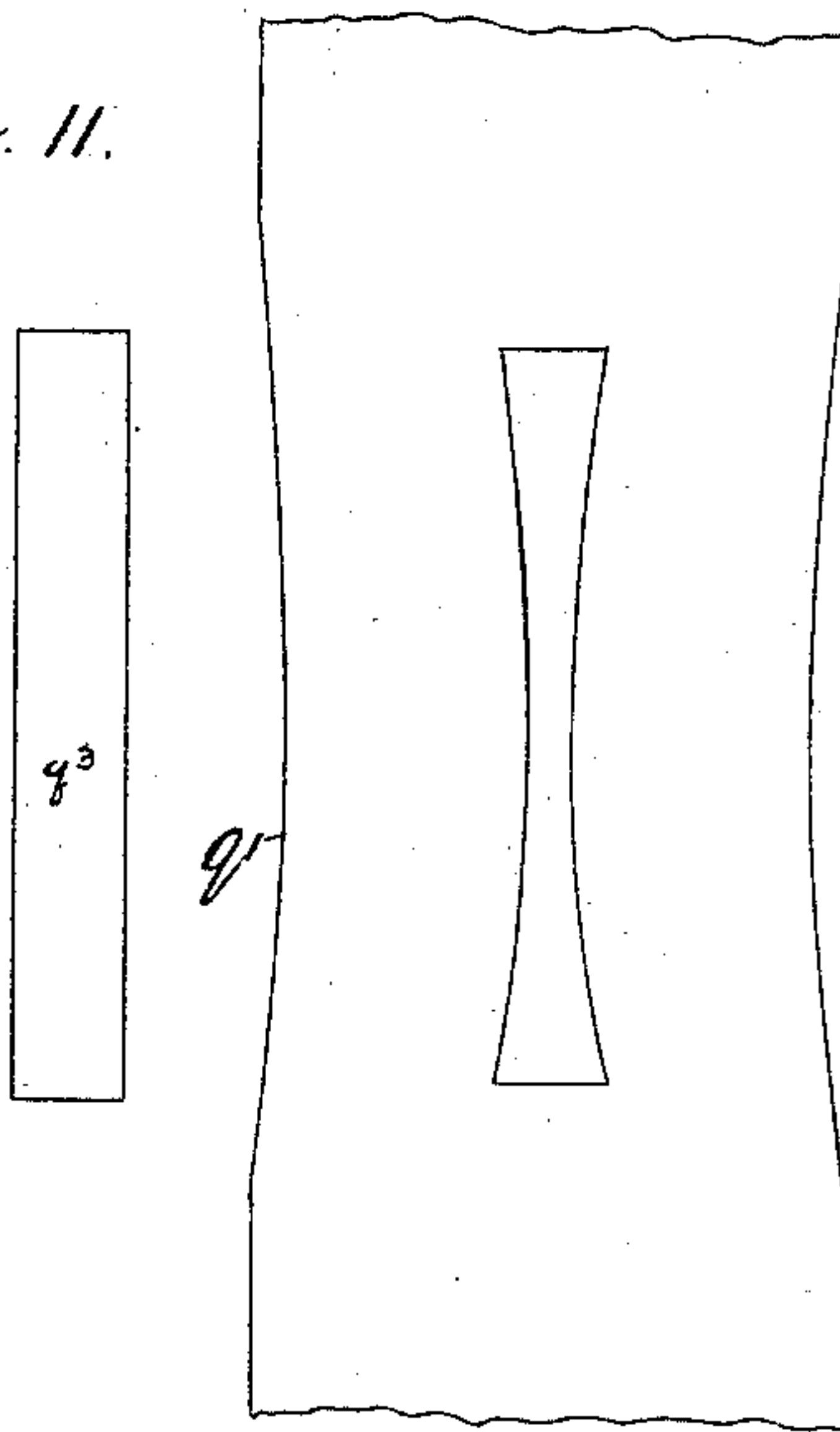
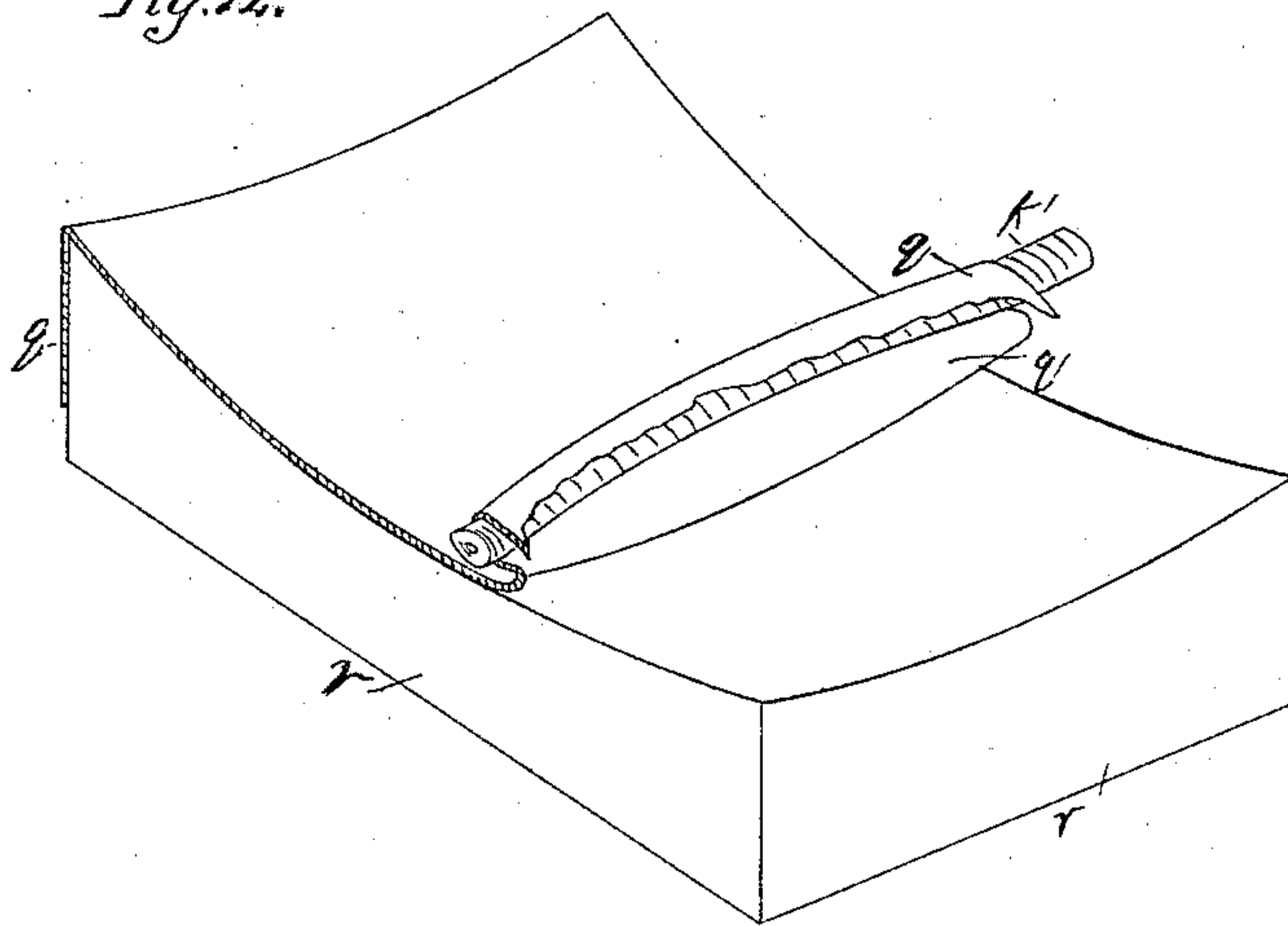


Fig. 12.



Witnesses
Benj. Drinkwater
Henry Sharp.

Inventor
F. A. Schutz

UNITED STATES PATENT OFFICE.

FREDERICK A. SCHUTZ, OF BROOKLYN, NEW YORK.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 409,807, dated August 27, 1889.

Application filed September 11, 1888. Serial No. 285,101. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. SCHUTZ, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

This invention relates to a cigar-bunching machine—that is to say, one which will automatically produce the inner part or bunch of a cigar, which inner part consists of a filler and binder, and by means of this invention the proper amount of material for each bunch is formed into the shape required for a cigar, as set forth in the following specification and claims and illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a cigar-bunching machine. Fig. 2 is a side elevation, partly in section, on line *xx* of Fig. 1. Fig. 3 is a section in the plane *yy*, Fig. 2, showing a feeding and receiving vessel. Fig. 4 is a section in the plane *zz*, Fig. 3. Fig. 5 is a view similar to Fig. 4, with parts in a different position. Fig. 6 is a detail view similar to Fig. 4, showing the discharge of material onto an apron. Figs. 7 and 8 show movements of parts, Fig. 7 being a section in the plane *ww*, Fig. 1, and Fig. 8 a section of the plane *ww'*, Fig. 1. Fig. 9 is a section in the plane *vv*, Fig. 8. Fig. 10 is a section in the plane *vv'*, Fig. 8. Figs. 11 and 13 are plan views showing the way of forming an apron which is concave in two different directions. Fig. 12 is an isometric view showing the suitable concavity of apron of Fig. 11, combined with the bed or support *r*, lapped over by the curved roller *K'*, as adapted to the production of bunches, showing the convexity of form imparted to the filler or bunching material.

In the drawings, the letter *A* indicates a support or frame. The treadles *B B* are adapted to rotate the driving-shaft *C*, having a fly-wheel *E*. Instead of the treadles, a pulley *D* may be used to rotate the shaft *C*. From the driving-shaft *C* motion is transmitted through the gear-wheel *F G* to the main shaft *H*, and thence through the gear-wheels *I J* and belt or chain *K* to the scraper-shaft *L*. The scraper-shaft passes through the receiving-vessel *M* and the feeding-vessel *N*, and to

said shaft *L* are fixed the scraper-arms *O*, carrying the scrapers *P*.

To the scraper-shaft *L* is secured a lug *Q*, Fig. 3, and as the shaft *L* rotates the lug *Q* is carried around and, striking against the arms *R R*, will cause said arms to oscillate about the pivot *b*, thus imparting an oscillating motion to the stirrer or comminuter *S*. From the feeding-vessel *N* the scrap-tobacco passes through the passage or opening *T* into the receiving-vessel *M*, and impurities or dust in the scrap-tobacco will pass or sift through the perforations *U*. The material which has passed through the opening *T*, and which rests in the receiving-vessel *M*, is taken by a scraper *P* and carried onto the incline *V*, whence the material comes to rest against the lid *W X* of the spout *Y*. When the material has come to rest against the lid *W X*, the trap or lid *Z* is opened, Fig. 4, which constitutes an overflow-opening in the way *V*, and allowing the excess of the material to fall back into the feeding-vessel *N*, while the proper quantity of material rests against the spout-lid *W X*. The part *X* of the lid *W X* is extensible upon the part *W*, so that by adjusting the free end of the part *X* nearer to or farther from the exit end of the spout *Y* a greater or less quantity of material will come to rest in the spout, according as the bunch to be formed is to contain more or less material. After the excess of material has passed through the overflow, as seen in Fig. 4, the lid *W X* is opened, Fig. 5, and the material passes on to the scrap-receiver *a*.

The overflow-trap *Z* and the lid *W X* are operated as will be now described.

The overflow-lid *Z* is normally held closed by a weight *c*, Figs. 2 and 3, and link *d* connects said weight *c* and a lever *ef*, having a fulcrum *g*. After one of the scrapers *P* has deposited its material on the incline *V* such scraper *P*, continuing its motion, comes to the position indicated in dotted lines in Fig. 3, and, striking against the arm *f* of the lever *e*, causes said lever to oscillate, so as to actuate the link *d* and the weight *c* and swing the overflow-lid *Z* to the open position shown in Fig. 4. After the scraper *P* has passed the lever *e* and arm *f* the weight *c* will swing the lid *Z* back to its closed position. To the pivot

or joint *h* of the spout-lid *W X* is connected
 an arm *i*, which is in turn connected by a
 link *j* with a lever *k*, having a fulcrum *l*,
 Figs. 1 and 2. As the shaft *n* of the gear-
 5 wheel *J* rotates, it carries with it a pin or lug
m, and as said pin *m* strikes the lever *k* said
 lever is raised, thus raising the link *j*, the
 arm *i*, and the spout-lid *W X*, and when the
 pin *m* has passed the lever *k* said lever drops
 10 and lid *W X* is closed. When the receiver *a*
 has received a charge of scrap, as seen in Fig.
 5, the lid *W X* closes and the scrap is then
 carried from the receiver *a* through chute *p*
 onto the bunch-rest apron *q*, Fig. 6. Said
 15 apron *q* is secured at one end to a support *r*
 and at the other end to a cross-bar or roller
 connecting levers *s s*, and said levers *s s* are
 fulcrumed at *t*, and each has a weight *u*,
 Figs. 7 and 8. A pin *A'* on the rotating cam
 20 *B'* causes the levers *s* to move about the ful-
 crum *t* against the resistance of the weight *u*,
 and when the levers *s s* are relieved from the
 action of the pin *A'* said weights *u* carry the
 levers *s s* back to the point from which they
 25 were started by the action of the pin *A'*, and
 the levers act as an extension or stretching
 device for the apron *q*. The cam *B'* is adapt-
 ed to press at suitable intervals upon a lever
D', Fig. 7, and when the cam *B'* presses upon
 30 said lever *D'* said lever is held in the posi-
 tion shown in Fig. 2, and maintains the chute-
 lever *E' F'*, with the chute *p* and scrap-re-
 ceiver *a*, in the position there shown. When
 the lever *D'* is relieved from the pressure of
 35 the cam *B'*, the weight of the chute and scrap-
 receiver causes the chute-lever *E' F'* and the
 arm *H'* to oscillate about the pivots *G'* and
I', Fig. 6, so as to carry the scrap-receiver
 and the chute toward the apron *q*. When
 40 the cam *B'* now again presses on the lever *D'*,
 said lever will carry the chute-lever *E' F'*,
 with the chute *p*, the receiver *a*, and the arm
H', back to the position shown in Fig. 7.

The chute-lever *E' F'* supports the chute
 45 *p*, as seen, and the chute supports loosely one
 end of the receiver *a*, the other end of said
 receiver being joined to the swinging arm *H'*.
 The apron *q* is made to pass under the roller *J'*
 and over the rollers *K'* and *L'*, Figs. 6 and 7.
 50 The rollers *J'* and *K'* are carried by the sup-
 ports or arms *M' M'* and *N' N'*. The sup-
 ports *M' M'* are joined at *P'* and connected
 to the supports *N' N'*, and the latter are
 adapted to be oscillated by the oscillation
 55 of the bar *Q'*. A spring *O'* prevents the arms
M' N' from being separated to an excessive
 extent, while allowing a certain separation of
 said arms. To the bar *Q'* is secured an arm
R', and a link *S'* is jointed or connected to
 60 the arm *R'* and to the lever *T'*, having a ful-
 crum *U'* and a weight or balance *V'*. The cam
W' has a stud or roller *X'* and a lug *Y'*.
 When the stud *X'* strikes the lever *T'*, said
 lever is actuated to carry the arms *M' N'* to
 65 the position shown in Fig. 8, and when the
 lug *Y'* strikes the projection *Z'* of the lever
T' said lever is actuated to carry the arms

M' N' to position shown in Fig. 6. Through
 the opening *f* of the chute *p* having curved
 side walls, as seen in Fig. 1, the scrap issuing 70
 therefrom may be pressed by a stamper. (Not
 shown in these drawings.) The rollers *J'* and
K' are curved so as to fit the concavity of
 support *r*, as shown in Figs. 10 and 12. By
 having the rollers *J'* and *K'*, supported by 75
 arms *M'* and *N'*, pivoted above the support or
 bed *r*, said support, to snugly accommodate
 the motion of the rollers, will have to be con-
 cave, as shown in Figs. 7 and 8. As the table
 is thus concave or hollowed both transversely, 80
 as seen in Figs. 9 and 10, and also longitudi-
 nally, as seen in Figs. 7 and 8, said support *r*
 can be readily formed so as to snugly receive
 a bunch, as seen in Fig. 9.

The rollers *J' K'* are sectional, or composed 85
 of a series of roller-sections, each roller-sec-
 tion being movable independently of the
 other roller-section of the series, so that each
 section can exert its proper action on the
 bunch independently of the other roller-sec- 90
 tion.

The scrapers *P* are each provided with a
 loosening arm or rod *e'*, Fig. 3, which passes
 through the scrap in advance of the scraper
 and tends to break or loosen the scrap so as 95
 to give it a suitable degree of looseness.

The roller *K'* may be termed the "actuating"
 or "bunching" roller for the apron *q*, while
 roller *J'* acts as the binder-holding roller, Fig. 6.
 When the binder *a'* is placed on the apron *q* 100
 and over the roller *J'*, said roller holds the
 binder close to the filler material. When the
 actuating or bunching roller *K'* has started,
 Fig. 7, and after the bunch is placed in the
 bunch-receiver *C'*, said roller *J'* is serviceable 105
 to bring back the apron to its working position.

The operation of the device is as follows:
 A binder *a'*, Fig. 6, is placed upon the bunch-
 rest apron *q* and over the roller *J'*. The ma-
 terial from the spout or incline *V* is delivered 110
 by a receiver *a* and a hopper or chute *p* to
 the apron *q*, as seen in Fig. 6. The receiver
 and chute then move out of the path of the
 apron *q*, and the apron *q* is then drawn from the
 position shown in Fig. 6 to the position shown 115
 in Fig. 7, and then to the position shown in
 Fig. 8, thus rolling the binder about the scrap
 and forming a bunch *g*. Said bunch is then
 taken or rolled out of the apron upon the
 support or bed *r*. When the bunch is rolled 120
 out of the apron upon the support *r*, it is
 stopped thereupon by a bunch-receiver in
 front of support *r*, from where it is taken or
 removed for use, as desired.

The apron is made of any suitable material, 125
 so as to give the working-surface a perma-
 nent concavity in two directions, and a con-
 vex back surface adapted to rest in the con-
 cavity of the rolling-bed *r*, Fig. 12, by taking
 two or more pieces of material provided with 130
 curved edges *q'*, as shown by Fig. 13, and join-
 ing said pieces along their curved edges, or
 as shown by Fig. 11, wherein is cut a cavity
 in a piece of material so as to form two con-

vex edges therein. Said convex edges are spread apart and the straight piece q^3 , Fig. 11, is inserted. By this means or in this way the apron q will be made to assume a permanent concavo-convex form in two directions and at all its points for the length, as said apron coacts with the curved actuating or bight-forming roller K' . Thus the whole apron is of even thickness and will roll each binder even and smooth around the filler and impart the form of the apron to each and every bunch.

I do not confine myself to the above method, as there are many other ways to obtain the same result.

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

1. The combination, with the feeding-vessel N , having an opening or passage, and the receiving-vessel M , of a movable scraper P and a spout Y , substantially as described.

2. The combination, with the feeding-vessel N , having an opening or passage, and the receiving-vessel M , of a stirrer or comminuter S , a scraper P , and a spout Y , substantially as described.

3. The combination, with the feeding-vessel N , having an opening or passage, and the receiving-vessel M , of a movable scraper P and a spout Y , provided with an overflow-trap Z , substantially as described.

4. The combination, with the feeding-vessel N , having an opening or passage, and the receiving-vessel M , of a scraper P and a spout provided with an adjustable lid W X , substantially as described.

5. The combination of the spout Y , mechanism for feeding the material to the spout the oscillating arm H , the receiver a on the arm, the chute p on the receiver, the chute-lever $E' F'$, the lever D' , acting upon the chute-lever, and the cam B' , for operating the lever D' at intervals to lift the receiver and chute, substantially as described.

6. The combination of the apron q , the support r , the actuating-roll K' , the pivoted lever s , with which one end of the apron is secured, the shaft H , and the pin A' , for intermittently moving the levers to extend the apron, substantially as described.

7. The combination, with the apron q and its support, of the frame or support M' , having a roller J' , the frame or support N' , having a roller K' , the spring O' , and pivoted intermittently-swinging levers s , connected by a cross-bar, to which one end of the apron is attached, substantially as described.

8. The combination, in a cigar-machine, of the feeding-vessel N , having an opening or passage, the receiving-vessel M , the scraper P , the incline V , having spout Y , oscillating hopper having chute p , apron q , and carrying oscillating frame N' , having the bight-forming roller K' , oscillating frame M' , having a binder-holding roller J' , a connecting-spring O' for said frames, and a bunch-receiver, substantially as described.

9. The combination, with feeding-vessel N , having an opening or passage, and the receiving-vessel M , provided with perforation U , of a scraper P and a spout Y , substantially as described.

10. The combination, with the feeding-vessel N , having an opening or passage, and a vessel M , adapted to receive material such as tobacco, and having a spout Y , of a scraper P , provided with a loosening arm or rod e' , substantially as described.

11. The combination, with the feeding-vessel N , having an opening or passage, the receiving-vessel M , the movable scraper P , the incline V , extending from the upper part of the feeding-vessel, and the feed-spout Y , substantially as described.

12. The combination, with the feeding-vessel N , having an opening or passage, the receiving-vessel M , and the spout Y , of mechanism for feeding material from the lower part of said receiving-vessel to the upper part thereof, and an incline leading from the upper part of said vessel to the spout, substantially as described.

13. The combination, with a concave or hollow support r and bunch-shaped apron, of curved rollers $J' K'$ and actuating-arms $M' N'$ for said rollers, said arms being supported or pivoted above said support r , substantially as described.

14. The combination, in a cigar-machine, with a flexible bunch-rolling apron permanently concave in two directions on its working-surface and convex on its back surface, respectively, of two curved traveling rollers—namely, an actuating or bight-forming and a binder-holding roller—located, respectively, on opposite sides of said apron, substantially as described.

15. The combination, in a cigar-machine, of a rolling bed concave in two directions, a bunch-rolling apron secured at its ends thereto, permanently curved in two directions to form a concave working-surface and having a convex back surface to rest in the concavity of the bed, a curved binder-holding roller located on the upper working-surface, and an actuating or bight-forming bunching-roller located on the opposite side of the apron, substantially as described.

16. The combination, in a cigar-machine, of two independent curved sectional rollers and a bunch-forming apron provided with permanently concave and convex surfaces in two directions, and located between and coacting with said sectional rollers to impart a cigar shape to the bunches, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK A. SCHUTZ.

Witnesses:

GEO. W. REA,
J. A. RUTHERFORD.