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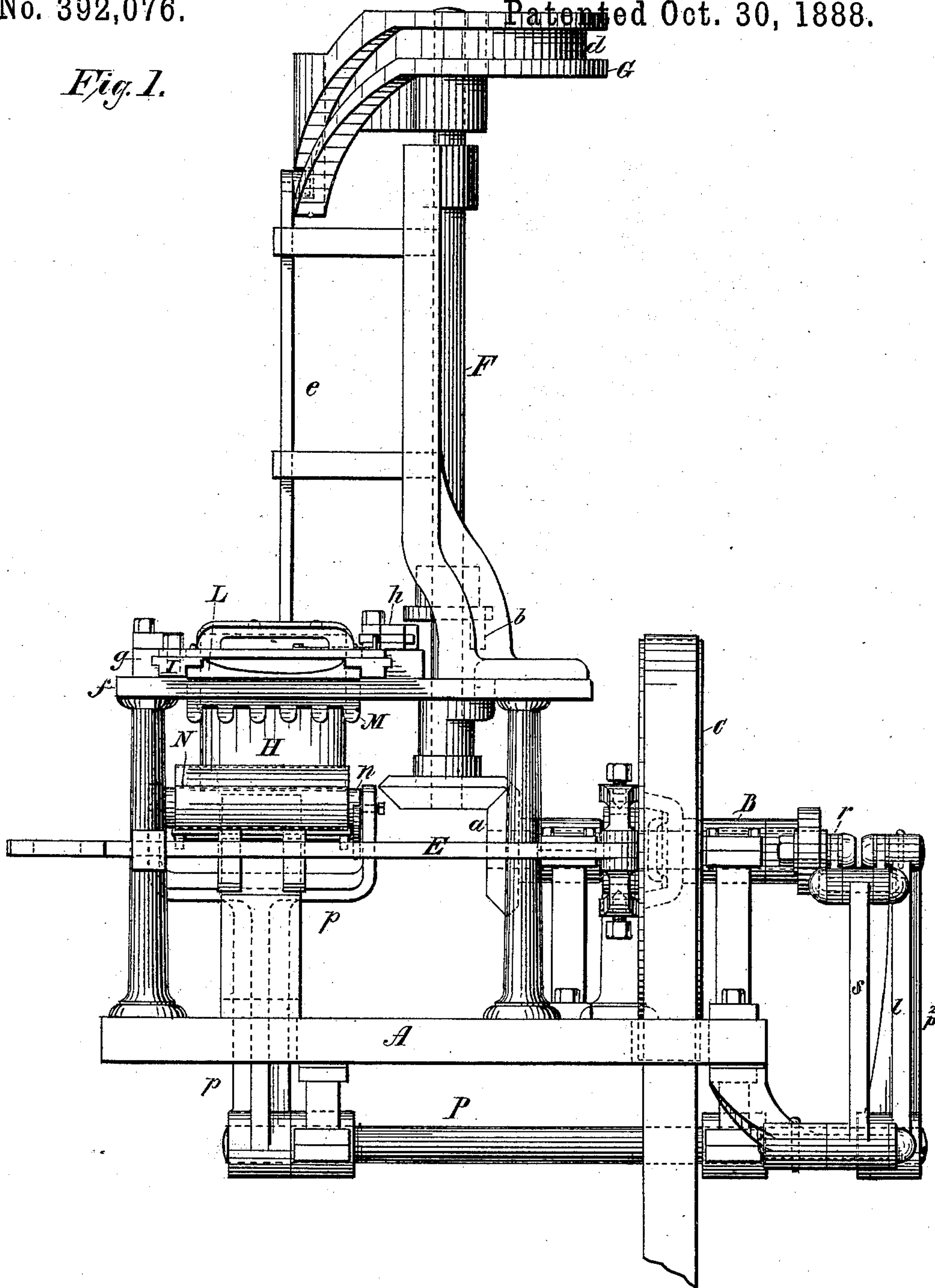
5 Sheets—Sheet 1.

J. E. SMITH.
CIGAR BUNCHING MACHINE.

No. 392,076.

Patented Oct. 30, 1888.

Fig. 1.



WITNESSES:

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T. F. Bourne.

INVENTOR,

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BY *Briesen & Steele,*
his ATTORNEYS.

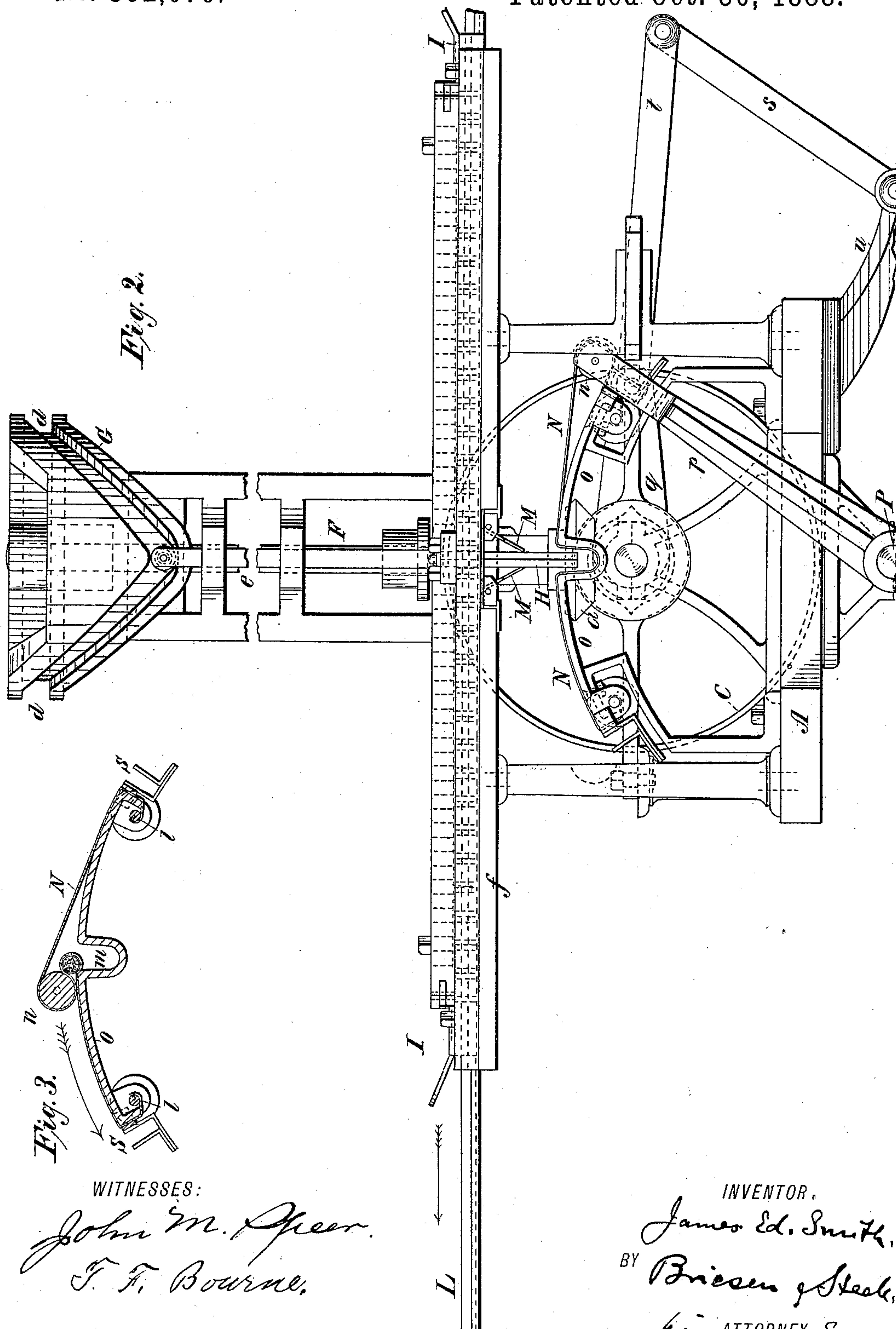
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J. E. SMITH.
CIGAR BUNCHING MACHINE.

No. 392,076.

Patented Oct. 30, 1888.



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5 Sheets—Sheet 3.

J. E. SMITH.
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No. 392,076.

Patented Oct. 30, 1888.

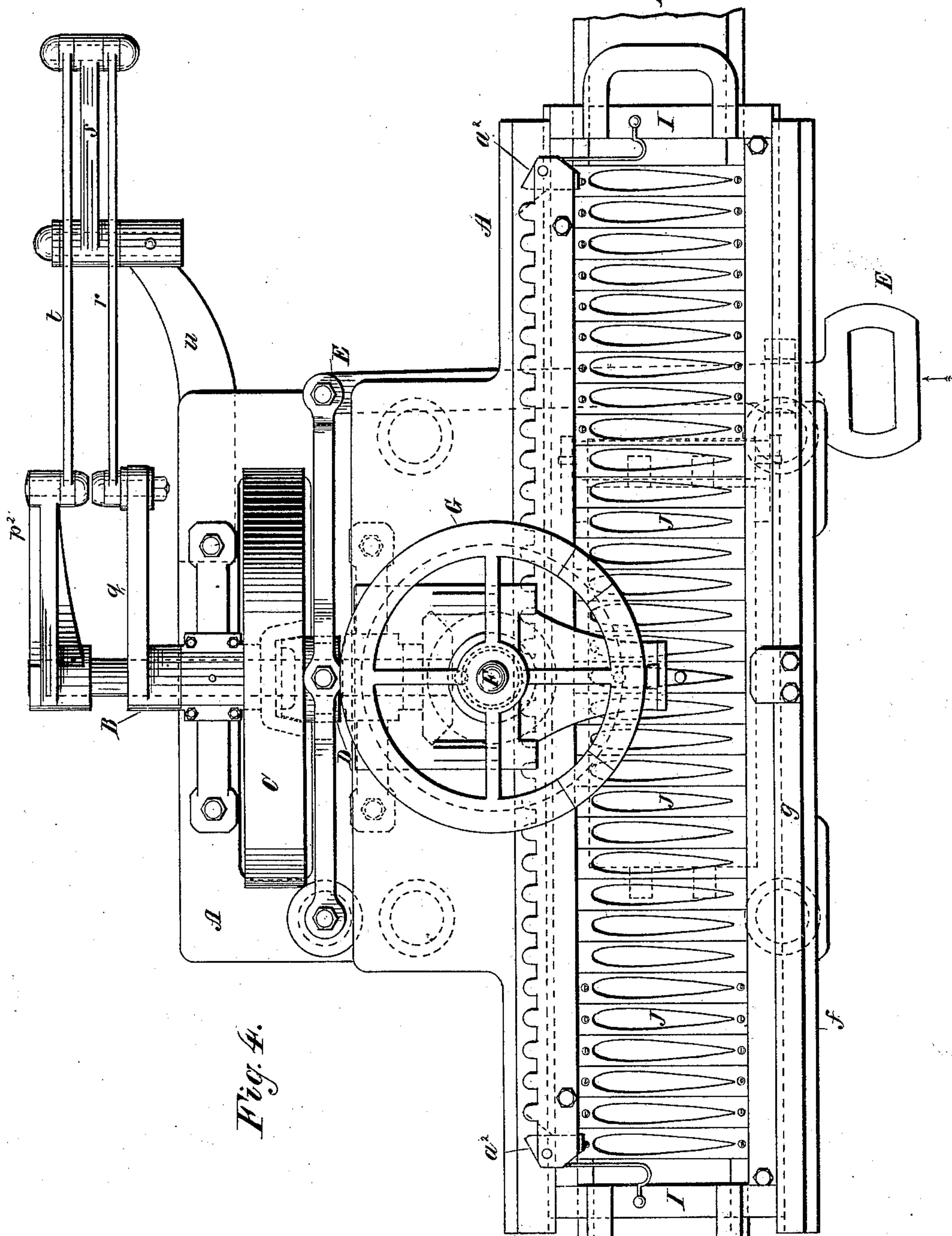


Fig. 4.

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(No Model.)

5 Sheets—Sheet 4.

J. E. SMITH.
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Patented Oct. 30, 1888.

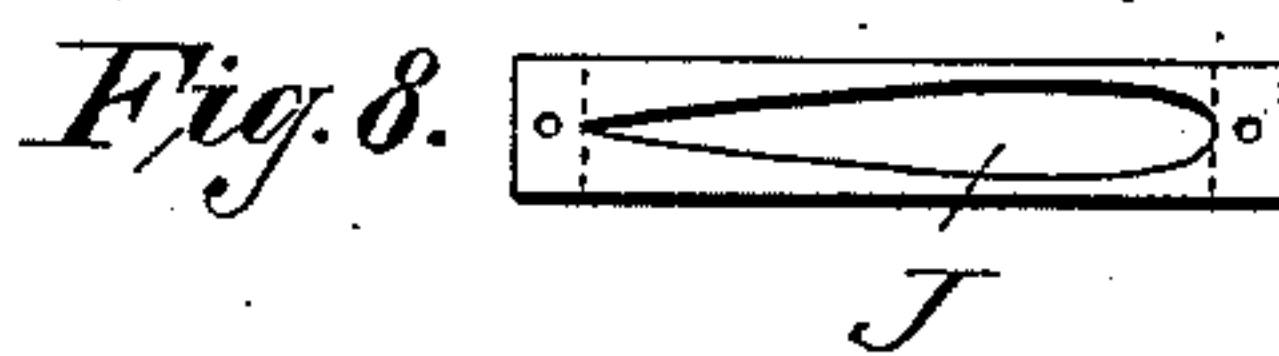
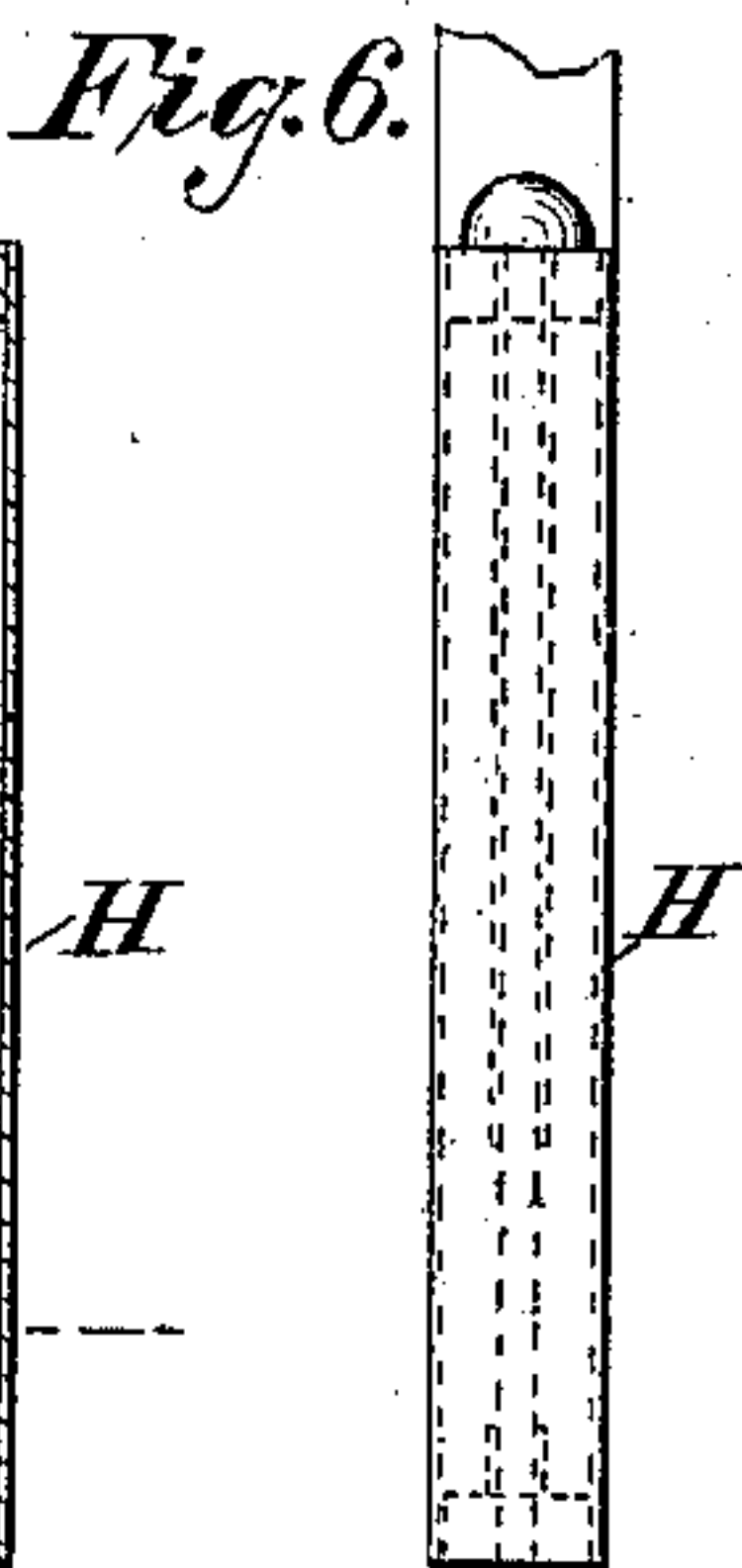
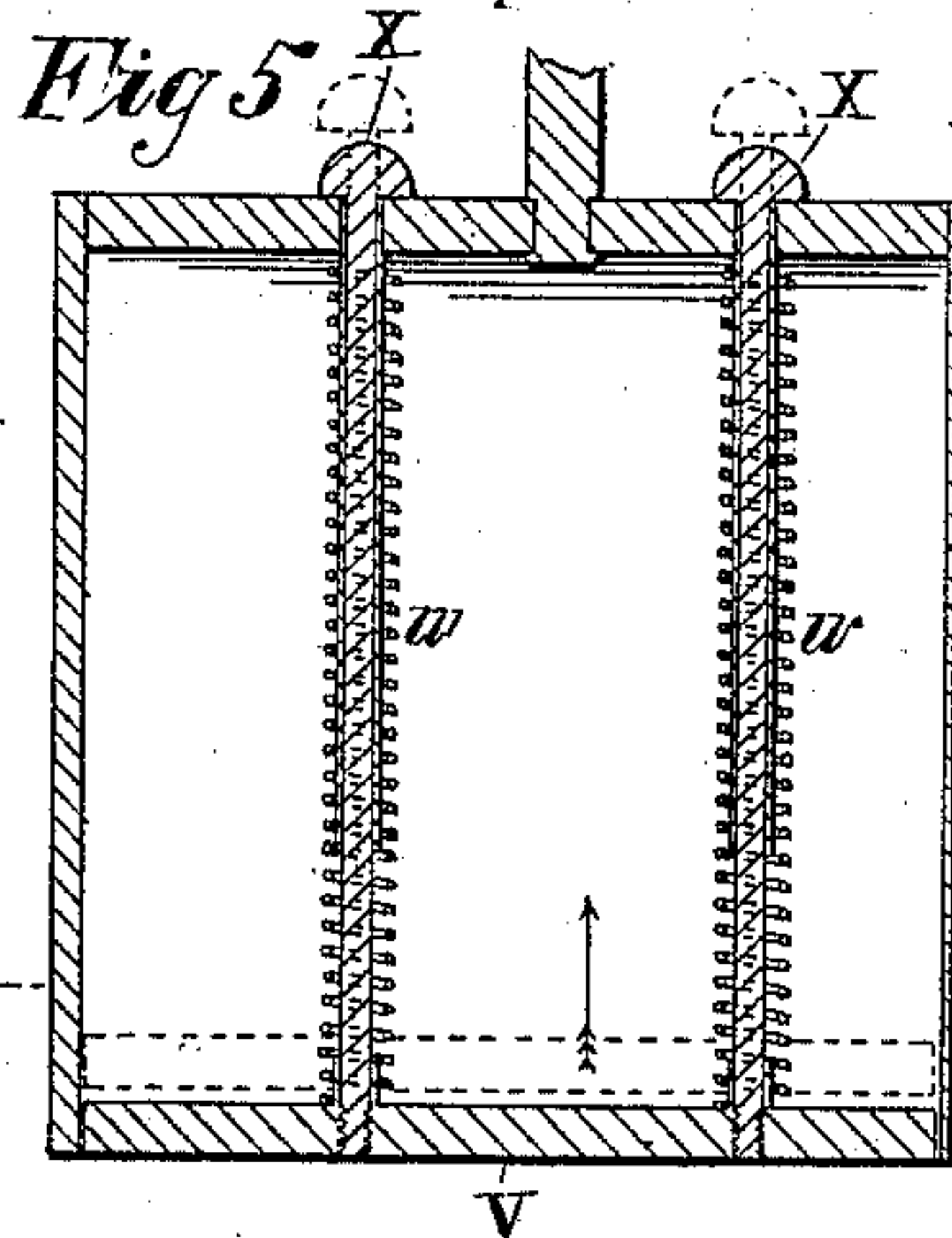


Fig. 10.

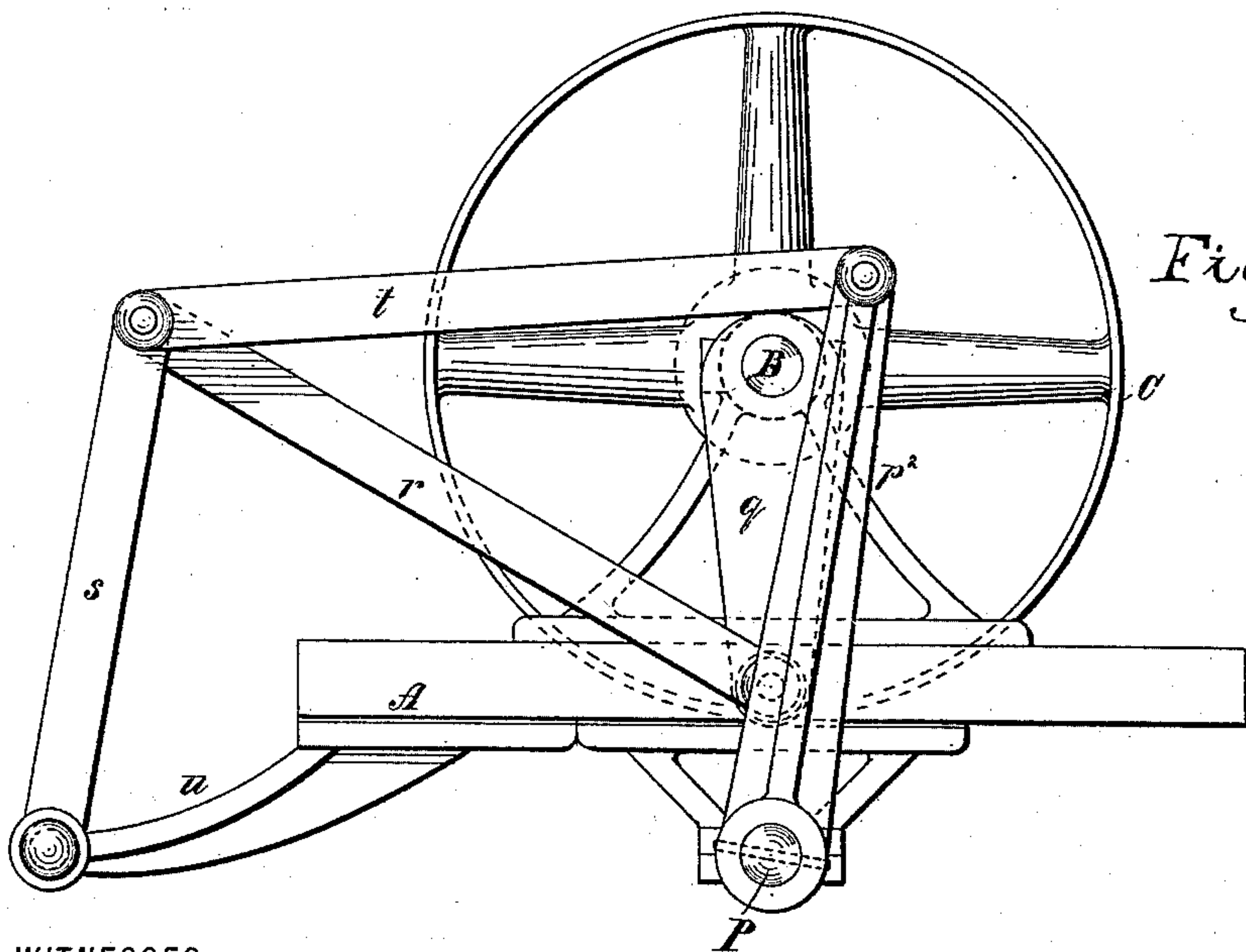
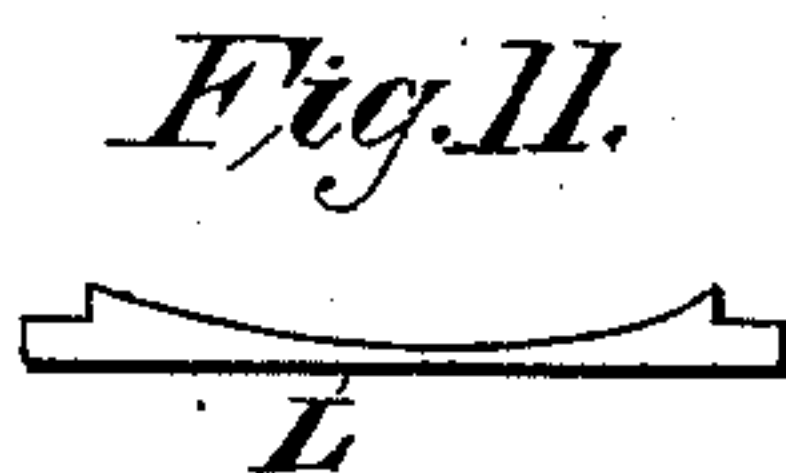
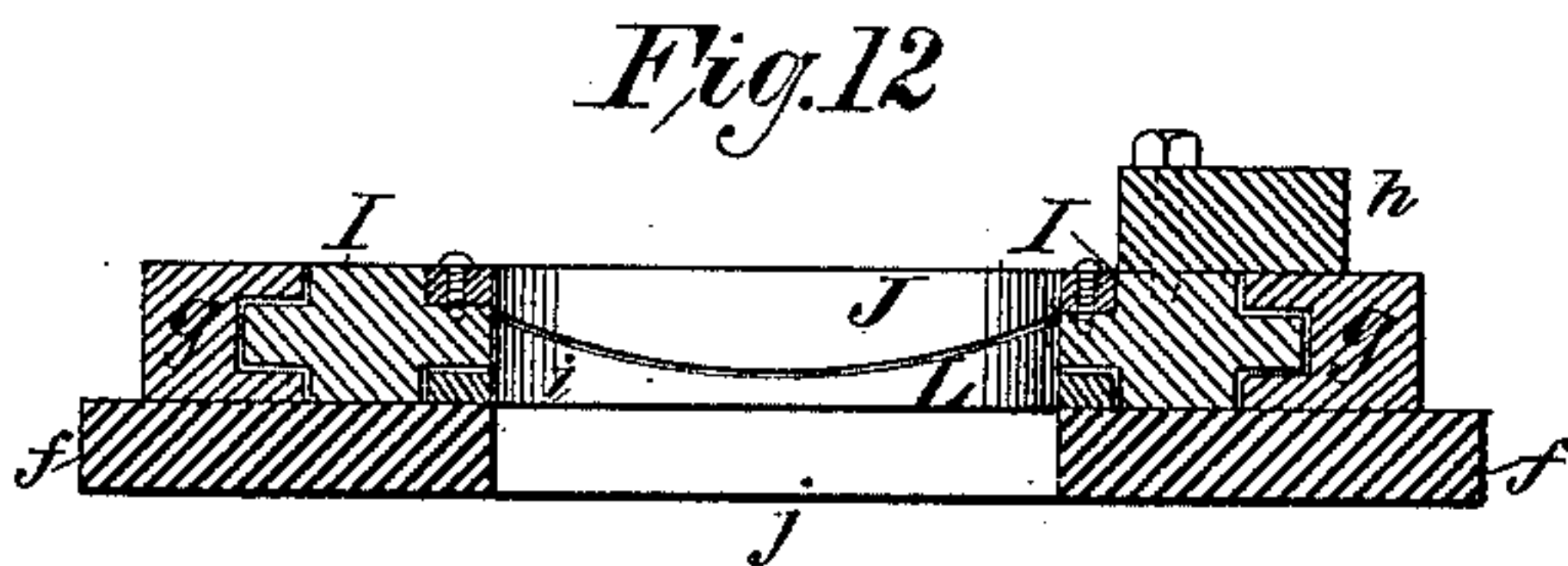
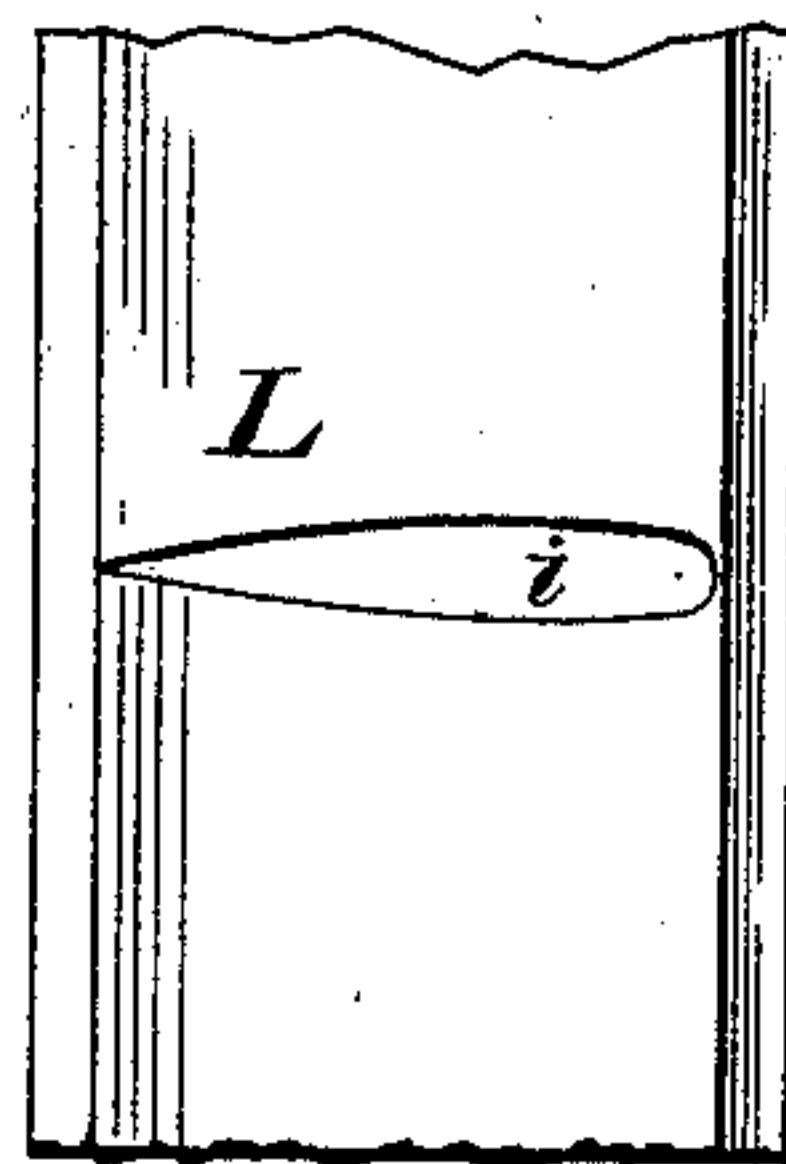


Fig. 13.

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(No Model.)

5 Sheets—Sheet 5.

J. E. SMITH.
CIGAR BUNCHING MACHINE.

No. 392,076.

Patented Oct. 30, 1888.

Fig. 14

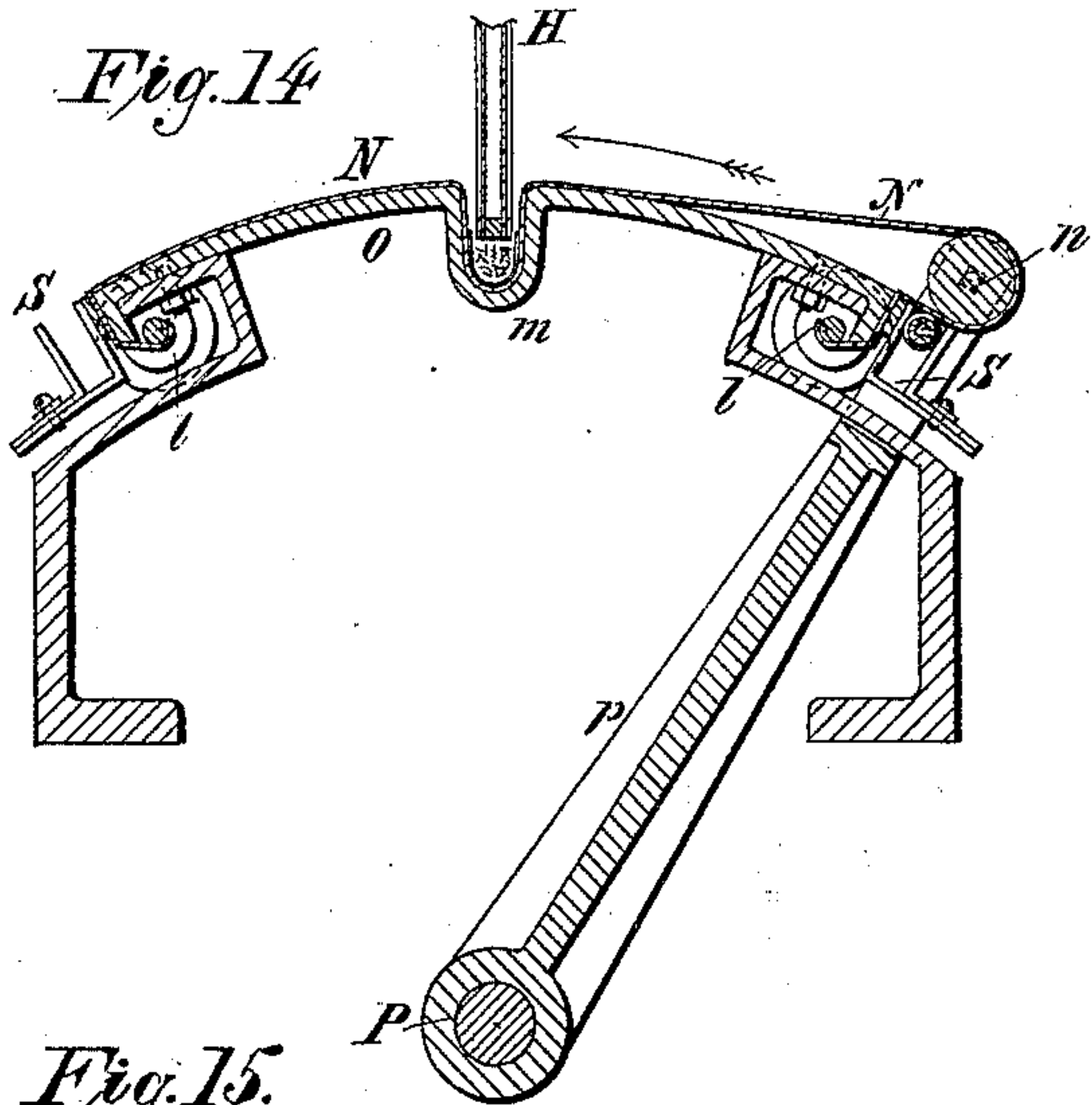


Fig. 17

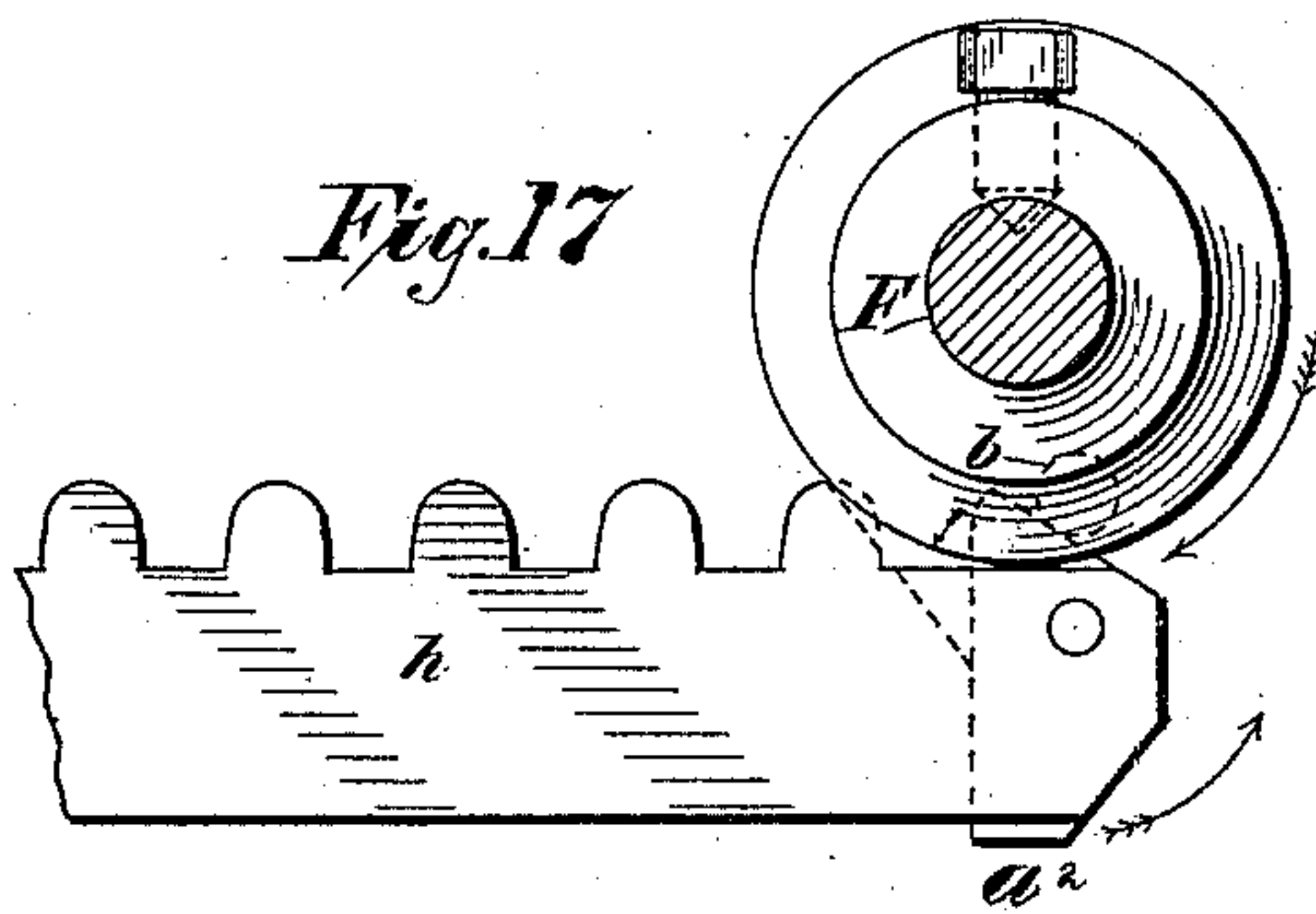


Fig. 15

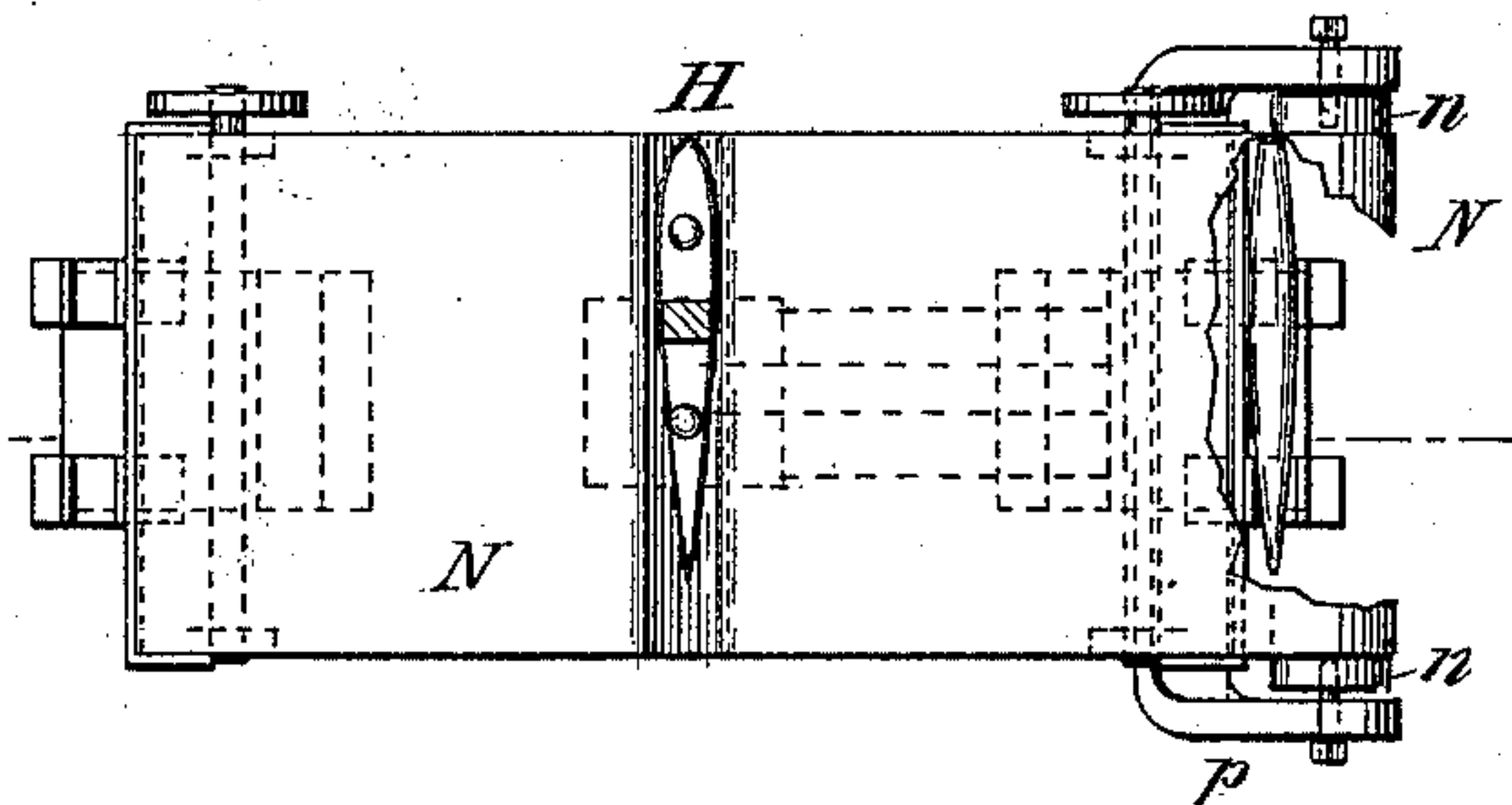


Fig. 18

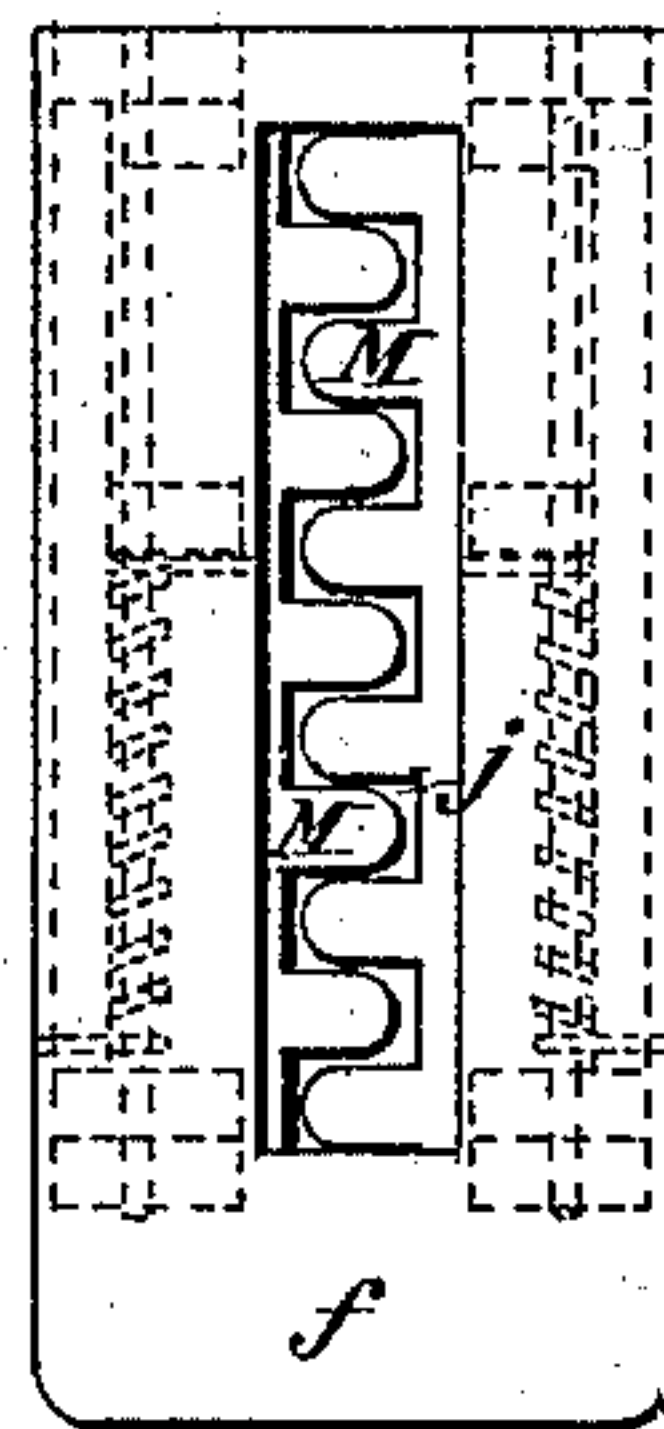


Fig. 19



Fig. 16

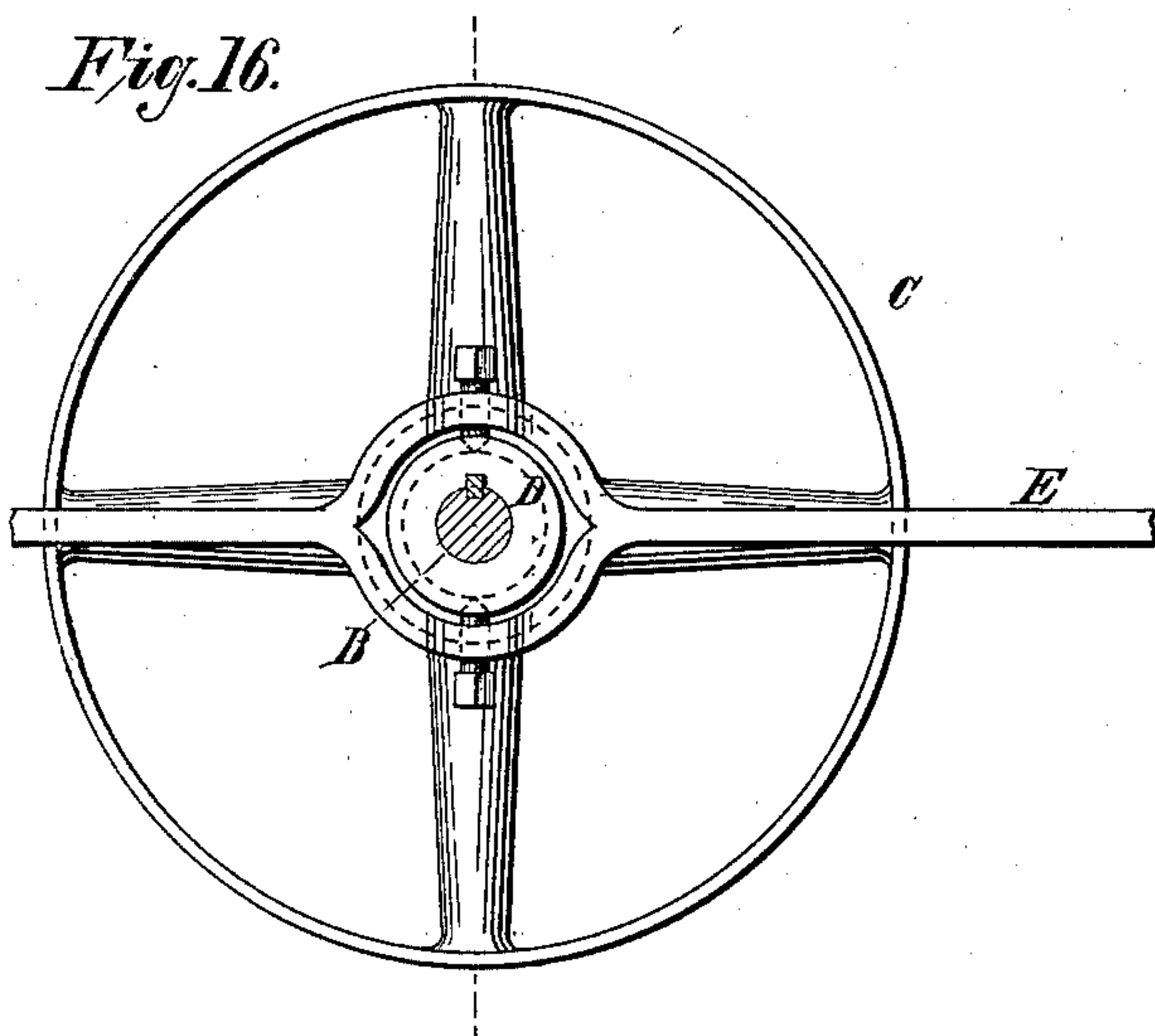
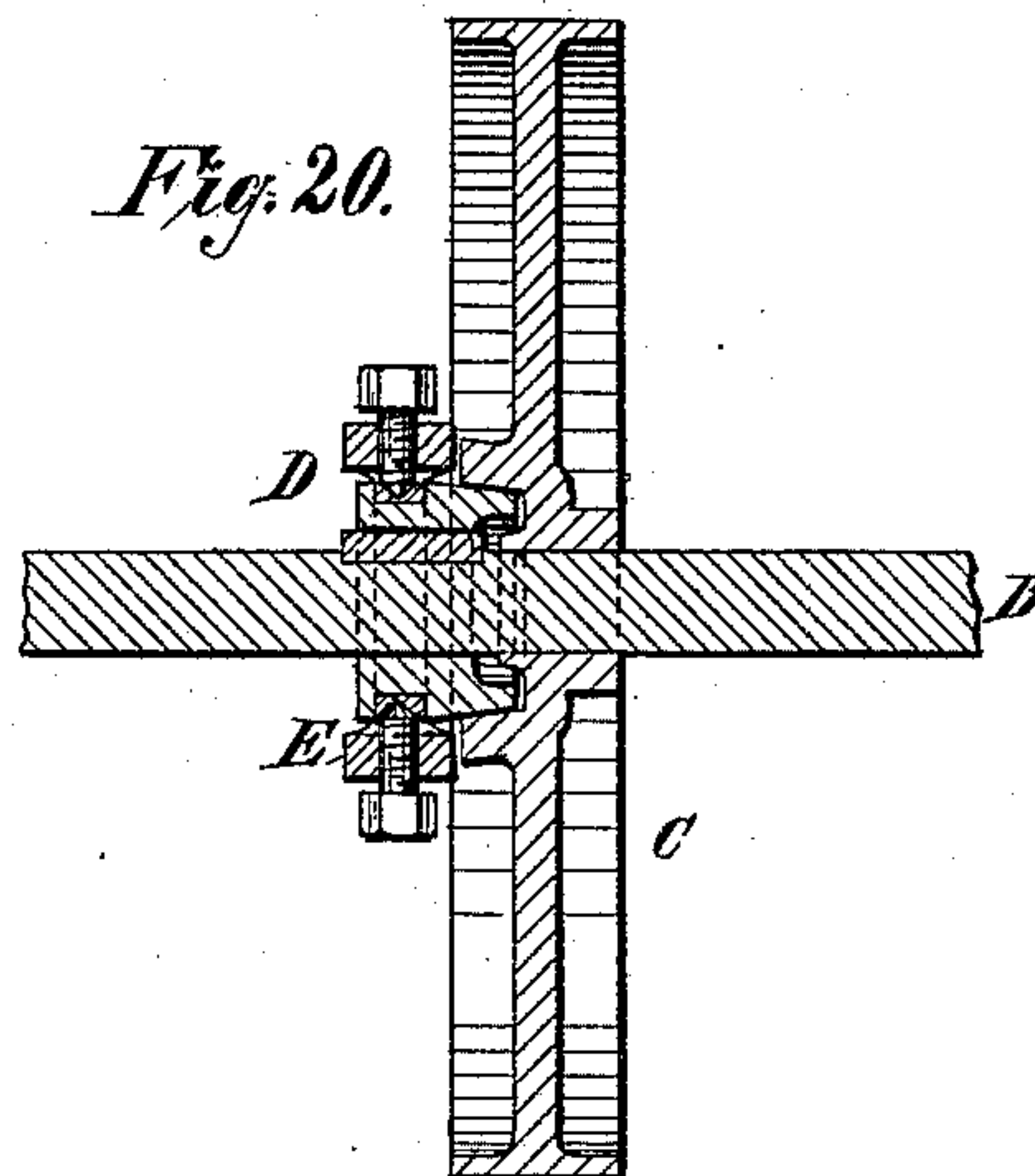


Fig. 20



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES EDWARD SMITH, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO ADOLPH MOONELIS AND BENJAMIN LICHTENSTEIN, OF SAME PLACE.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 392,076, dated October 30, 1888.

Application filed July 20, 1887. Serial No. 244,805. (No model.)

To all whom it may concern:

Be it known that I, JAMES EDWARD SMITH, residing in the city of New York, in the county of New York and State of New York, have

invented a new and useful Improvement in Cigar-Bunching Machines, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings, in which—

Figure 1 represents a side elevation of my cigar-bunching machine; Fig. 2, a front elevation of the same; Fig. 3, a detailed vertical section through the bunch-rolling part of the machine; Fig. 4, a plan or top view of the machine; Fig. 5, a vertical longitudinal central section of the plunger for conveying the bunch from the mold-cavity to the rolling-apron. Fig. 6 is an edge view of said plunger; Fig. 7, a horizontal section of the same; Fig. 8, a top view of one of the mold portions in the carriage; Fig. 9, an edge view of the same; Fig. 10, a top view of the plate which is beneath the molds; Fig. 11, an edge view of the same; Fig. 12, a detailed cross-section through the carriage and one of the molds and parts connecting therewith. Fig. 13 is a rear elevation of part of the machine. Figs. 14, 15, 16, 17, 18, 19, and 20 are detailed views, hereinafter more fully explained.

This invention relates to a new machine for forming cigar-bunches—that is to say, for combining the filler and binder of the cigar.

The invention consists in the several details of improvement and combinations of parts that are hereinafter more fully specified.

The general disposition of the machine is to receive the bunches of filler by hand in series of molds or cavities that are carried by a carriage to which intermittent motion is imparted. Whenever any of these molds arrive below a certain plunger, that plunger descends and pushes the contents of the mold out upon an apron that carries the binder, upon which the bunch is then rolled, so as to wind the binder around the filler.

The invention involves novelty in the construction of the plunger, novel devices for reciprocating the roller that actuates the winding-apron, and other details to be further specified.

In the accompanying drawings, the letter A represents the frame of my machine. In this frame are the bearings of a driving-shaft, B, that carries a loose pulley, C. This pulley is the driving-pulley and has rotary motion imparted to it by suitable means. Whenever the shaft B is to be revolved, a clutch, D, (see Fig. 20,) is thrown into action, so as to connect the pulley C with the shaft B. The clutch D is moved by a lever, E, which is more clearly shown in Fig. 16 of the drawings, and also in Fig. 1. The shaft B being thus revolved whenever desired, conveys the rotary motion imparted to it by beveled gear-wheels *a* to a shaft, F, (see Fig. 1,) which carries a cam, G, and single pin-driving gear *b*. The cam G has a cam-groove, *d*, or is otherwise constructed in a well-known manner to impart reciprocating motion to the plunger H, which plunger is carried by a rod or shank, *e*. The said plunger, when raised, is clear of the traveling molds, hereinafter to be described; but when lowered, as in Figs. 1, 2, and 14, it extends through the molds into the cavity of an apron, hereinafter to be more fully referred to.

The frame A has a table, *f*, which supports between fixed rails *g* (see Fig. 12) a sliding open frame, I, in which are placed the molds J J above a stationary plate, L. One of the molds J is shown by top and side views in Figs. 8 and 9. Part of the plate L is shown by top and end views in Figs. 10 and 11.

The movable frame I has attached to it a toothed bar or rack, *h*, which is adapted to receive the prong *b* of the shaft F, so that as the shaft F is revolved it will feed the sliding frame I and its appurtenances along the distance of one tooth of the rack during each revolution of the shaft. This feed brings a new mold under the plunger H during each revolution of the shaft F. Before a mold arrives beneath the plunger its contents are prevented from falling out by the solid part of the plate L, which is beneath the mold-cavities; but whenever a mold arrives beneath the plunger H it is also above an opening, *i*, in the plate L and above an opening, *j*, in the table *f*, Fig. 12. The opening last referred to in said table is closed by two swinging gates, M M, that preferably have interlocking fingers, as repre-

sented in Fig. 18, which is a top view of so much of the table as shows the opening *j* and the interlocking-gates *M M* beneath the same, Fig. 19 showing the same parts in side view.

5 These interlocking gates *M* are thrown up by springs, which are indicated by dotted lines in Figs. 18 and 19, to normally keep the aperture *j* closed; but the said gates are so hinged that when the plunger *H* comes down they will
10 yield to its descent, as in Fig. 2. But if one gate were used to close said aperture the same effect would be produced. Beneath this plunger, and beneath the table *f*, is the rolling-apron *N*, placed over a thick platform, *O*, and
15 having its ends attached, as in Fig. 14, to shafts or rods *l*, that can be turned in their bearings, so as to tighten or loosen the apron *N*. That part of the table *O* which is directly beneath the plunger *H* is depressed to form a cavity,
20 as at *m* in Fig. 14. The apron passes around a roller or rod, *n*, which is carried by a crank, *p*, on a rock-shaft, *P*. The motion of the rock-shaft *P* is such that the roller or rod *n* will be carried from the position shown in Fig. 14 to
25 that shown in Fig. 3, and then still farther along in the same direction until the end of the table *O* is reached, whereupon the roller *n*, with its carrying-crank *p*, is carried back again to the position shown in Figs. 2 and 14.

30 I will now describe how the shaft *P* is oscillated. The mechanism for doing this is best shown in Fig. 13 of the drawings. The driving-shaft *B*, which is revolved, carries a crank, *q*, which revolves with it, and which at its end
35 connects by a rod, *r*, with two links, *s* and *t*, respectively. The link *s* has its lower end pivoted to a bracket, *u*, on the supporting-frame *A*. The link *t* is pivoted to a crank, *p*², on the shaft *P*. The crank *p*² is by preference
40 parallel and of equal length with the crank *p* on the same shaft.

An inspection of Fig. 13 will satisfy the reader that when the crank *q* is below or above the shaft *B* the cranks *p* and *p*² will be substantially vertical, as in Fig. 13; but when the
45 crank *q* extends to the right or to the left of the shaft *B* the cranks *p p*² will be inclined in corresponding manner on and together with their shaft *P*.

50 It remains to refer to the construction of the plunger *H*, which is more clearly shown in Figs. 5, 6, and 7. This plunger is a hollow body of the cross-section of one of the molds *J*, so that in descending it may just fill such a mold. The bottom *v* of this hollow plunger is vertically movable, being held down ordinarily by springs *w* on guide-rods *x*. When the
plunger thus constructed enters a mold-cavity, into which the operator has first put the tobacco for a filler of a cigar, the bottom *v* will
at once yield to the pressure, (the springs *w* being quite light,) and thus the lower part of the plunger will receive the filler of the cigar within its surrounding walls and beneath its
65 upwardly-receding bottom. The plunger, carrying the filler with it, in its downward motion pushes open the gates *M* and carries the

filler into the depression or pocket *m* of the apron *N* and table *O*, the springs *w* ejecting
the filler into this pocket. The plunger then
70 ascends and the roller *n* is moved so as to cause the binder previously placed on the apron to be rolled around the filler. The completed cigar-bunch is ejected from the apron into a
75 pocket or receiver at the end of the table *O*, each end of the table *O* having such a pocket or receiver, as shown in Fig. 14. The last tooth of the rack *h* is pivoted, as shown at *a*² in Figs. 4 and 17, so that after the carriage *I*
80 has been moved to bring the last mold beneath the plunger the revolving prong *b* on the shaft *F* will not move the mold-carriage any farther in the same direction. For this purpose the pivoted tooth *a*² will yield, as indicated in
85 Fig. 17, to the action of the pin *b* if it comes in the same direction in which it moved the rack to the position indicated; but if the rotation of the shaft *F* should be reversed, then the
tooth *a*², by resting against a shoulder of the rack, will not yield, but will allow the reverse
90 motion of the carriage *I* to instantly take place.

Having thus described all the important parts of the improved cigar-bunching machine from which its operation will appear with sufficient
clearness to those skilled in the art, it
95 remains to state that the machine is particularly well adapted to the production of long bunches. One attendant puts the fillers into the different molds *J J*, while another attendant
100 put the binder in place on the apron, watches the progress of the apron *N*, and removes the finished bunches from the pocket *S*.

So far as the rolling or winding apron *N* is concerned, its connection with the crank *p* and table *O* is such that a bunch may be formed
105 by the operation during each motion of the crank *p*. Ordinarily every alternate motion of the said crank will be utilized; but for winding right and left binders the winding motion must be started from opposite ends of the table
110 *O*. This I am enabled to do with my machine, and is, I believe, a very important advantage of the same over any previously-existing contrivance.

What I claim as my invention, and desire to
115 have covered by Letters Patent, is—

1. The intermittingly-moving molds *J J*, open at top and bottom, and means to prevent tobacco falling from the molds until the tobacco is in line with the plunger *H*, combined
120 with the carriage *I*, table *f*, having aperture *j*, door for closing said aperture, plunger *H*, and winding-apron *N* on table *O*, said molds *J J* being arranged between the plunger *H* and the apron, the plunger being adapted to
125 pass through the mold beneath it, as specified.

2. The combination of the open molds *J J*, mechanism, substantially as described, for moving them intermittingly, and means to prevent tobacco falling from the mold until it
130 comes in line with the plunger *H*, with the supporting-table *f*, having aperture *j*, gate *M*, adapted to close the aperture *j*, and plunger *H*, adapted to pass through a mold when in

line with the aperture *j*, substantially as and for the purpose specified.

3. The plunger *H*, constructed with the movable bottom *v*, guides *x*, and springs *w*, in combination with the open molds *J*, through which molds the plunger is to be pushed for receiving and carrying away the fillers therein contained, supporting-table *f*, having aperture *j*, and gate *M*, for closing said aperture, as specified.

4. The combination of the table *f*, having aperture *j*, with the spring-pressed gates *M M*, supported by the table *f* and constructed with

interlocking fingers, and with the plunger *H*, adapted to open the gates *M*, substantially as specified.

5. The combination of the shaft *B* and its crank *q* with the rod *r*, links *s t*, crank *p*² on shaft *P*, crank *p*, and roller *n*, with the apron *N* and table *O*, as and for the purpose described.

JAMES EDWARD SMITH.

Witnesses:

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HARRY M. TURK.