

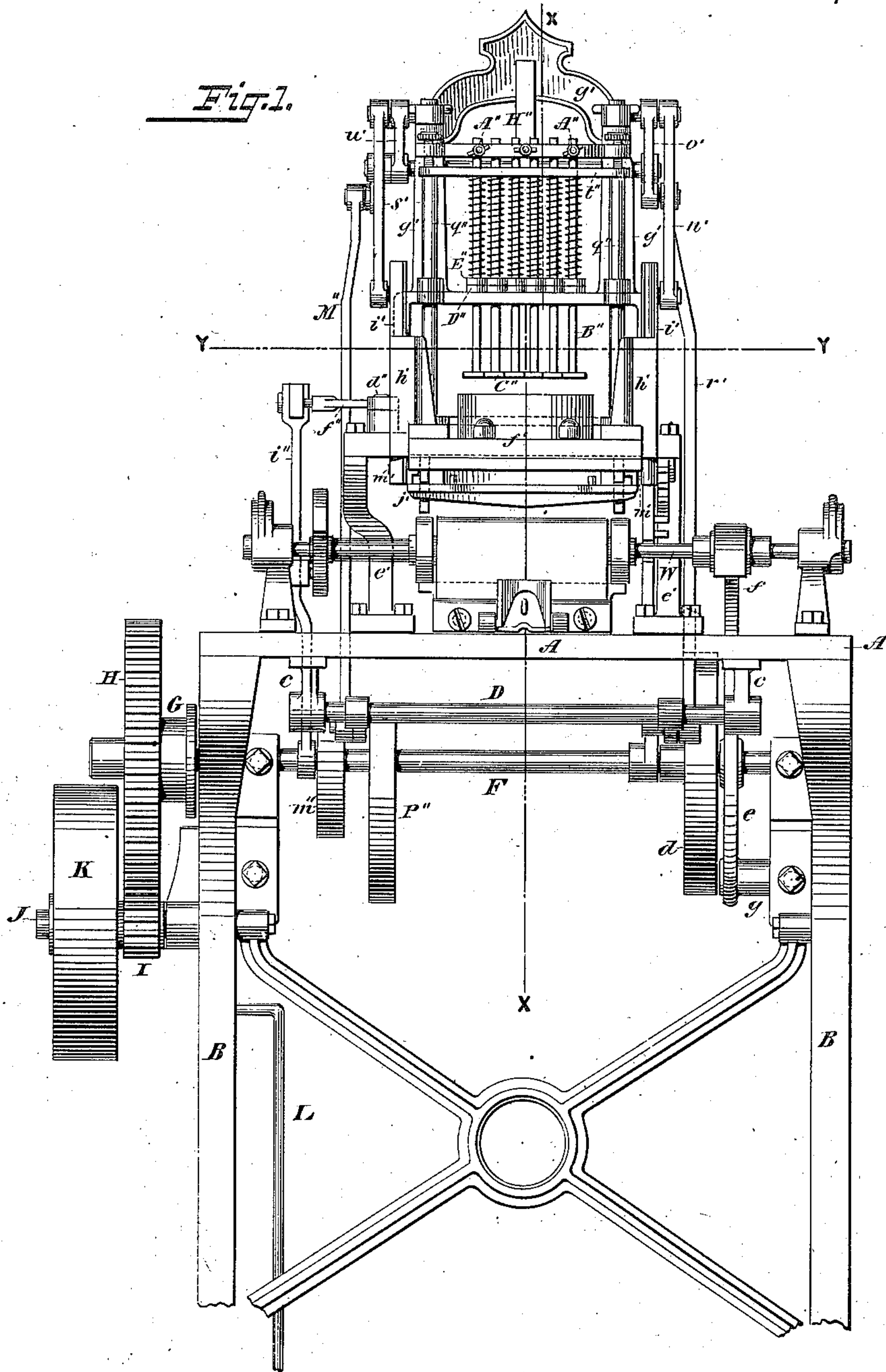
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8 Sheets—Sheet 1.

J. R. WILLIAMS.
CIGAR BUNCHING MACHINE.

No. 422,000.

Patented Feb. 25, 1890.



WITNESSES:

Gustave Dietrich
William Goebel

INVENTOR

John R. Williams,

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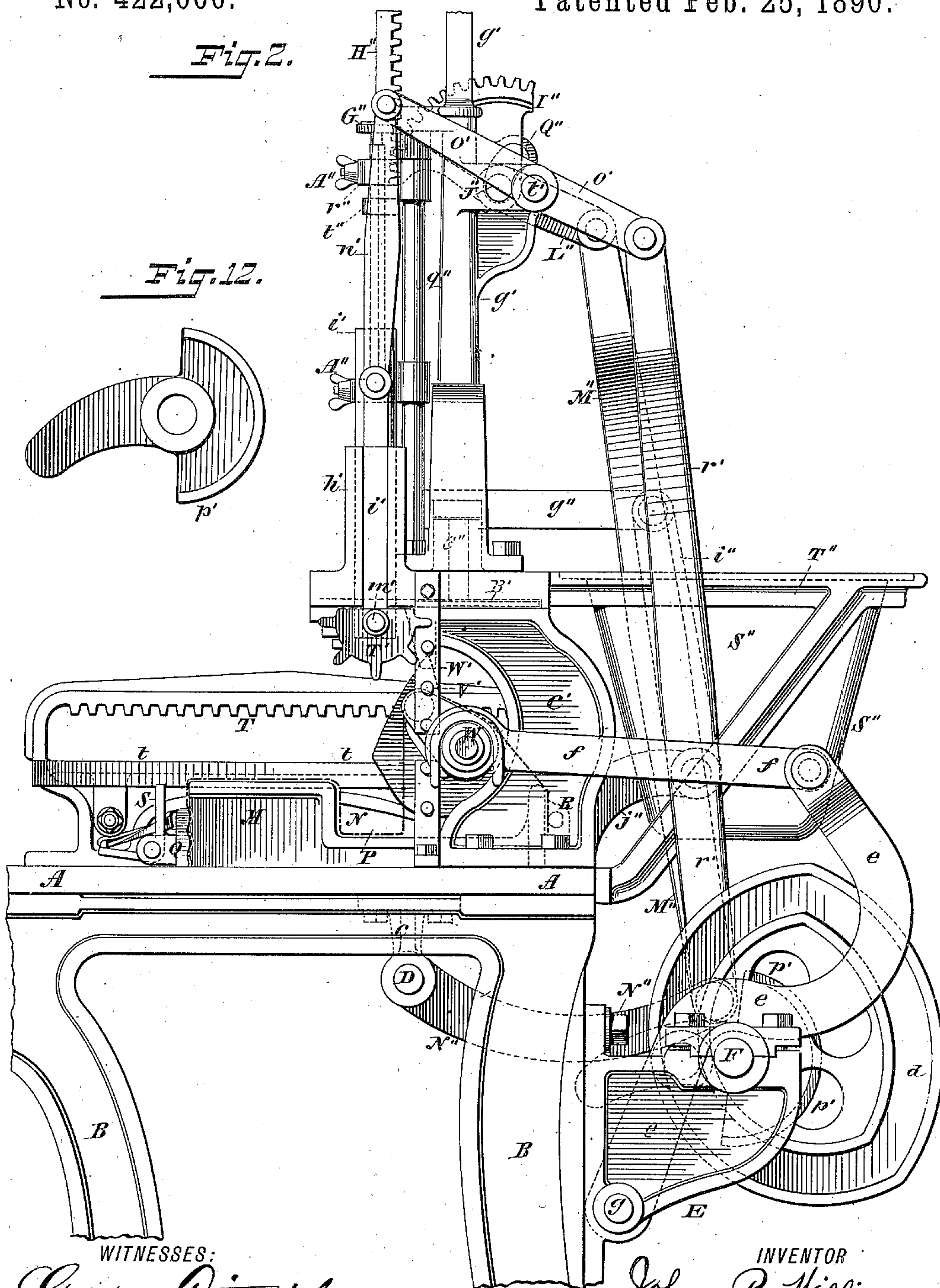
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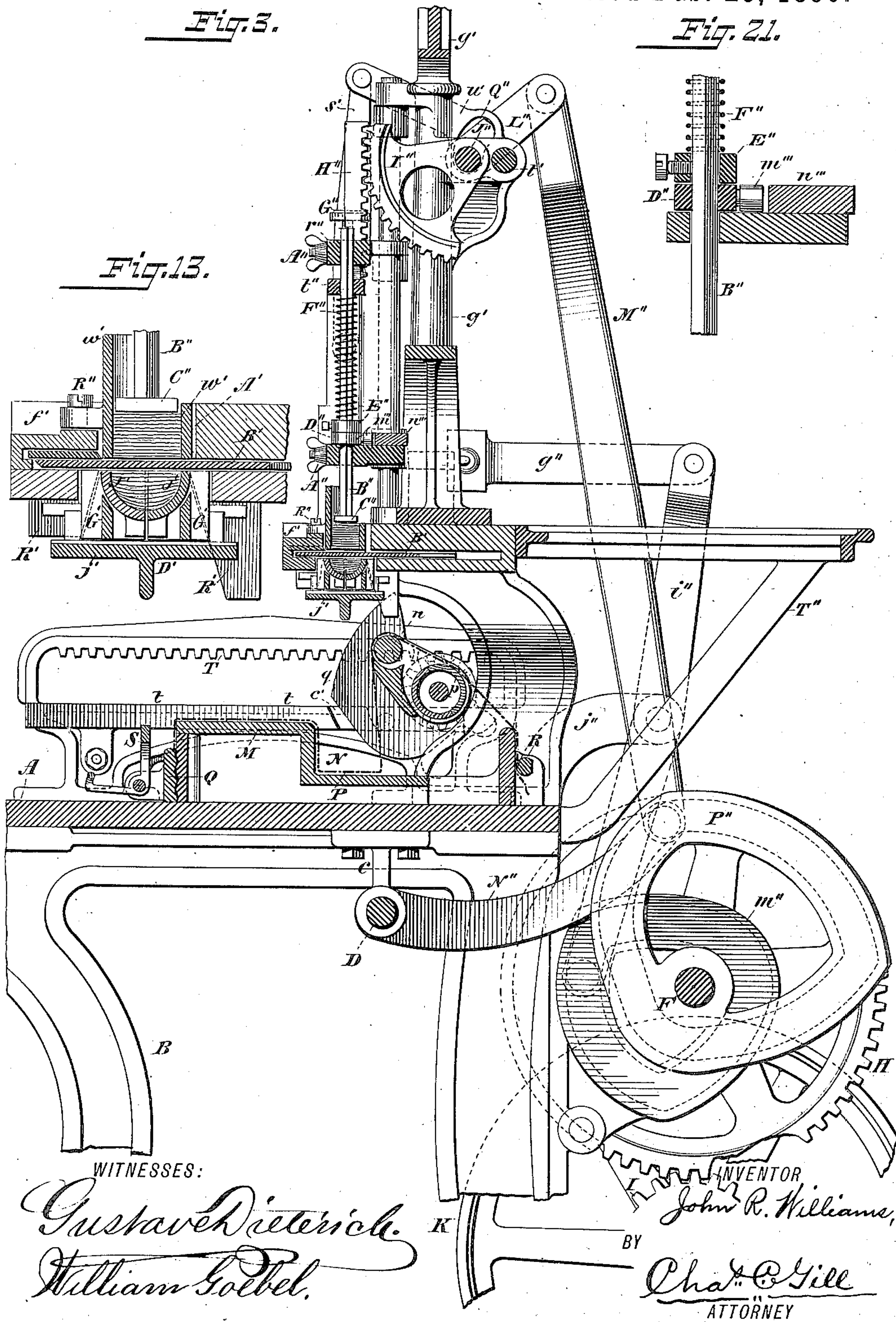
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Fig. 3.

Fig. 21.



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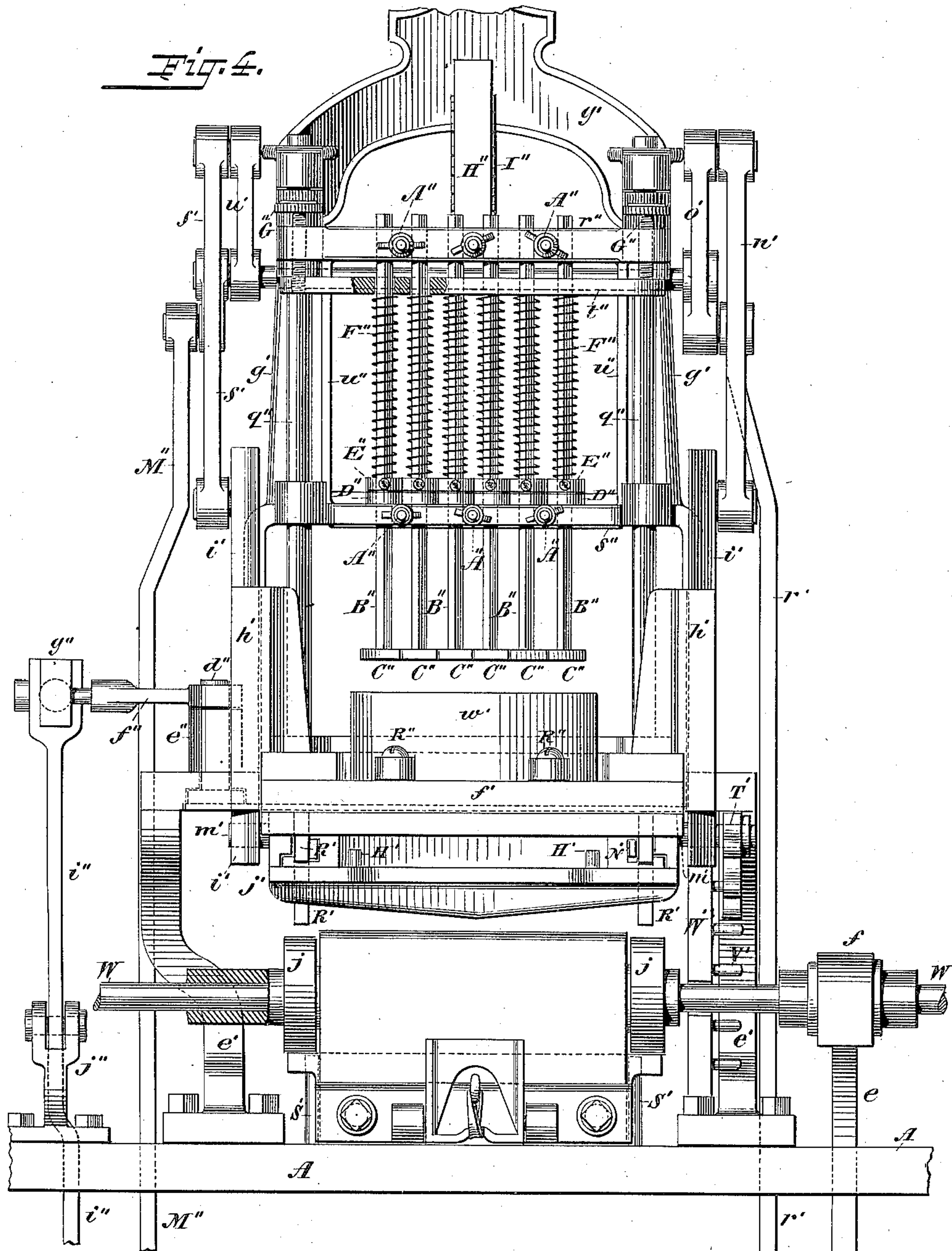
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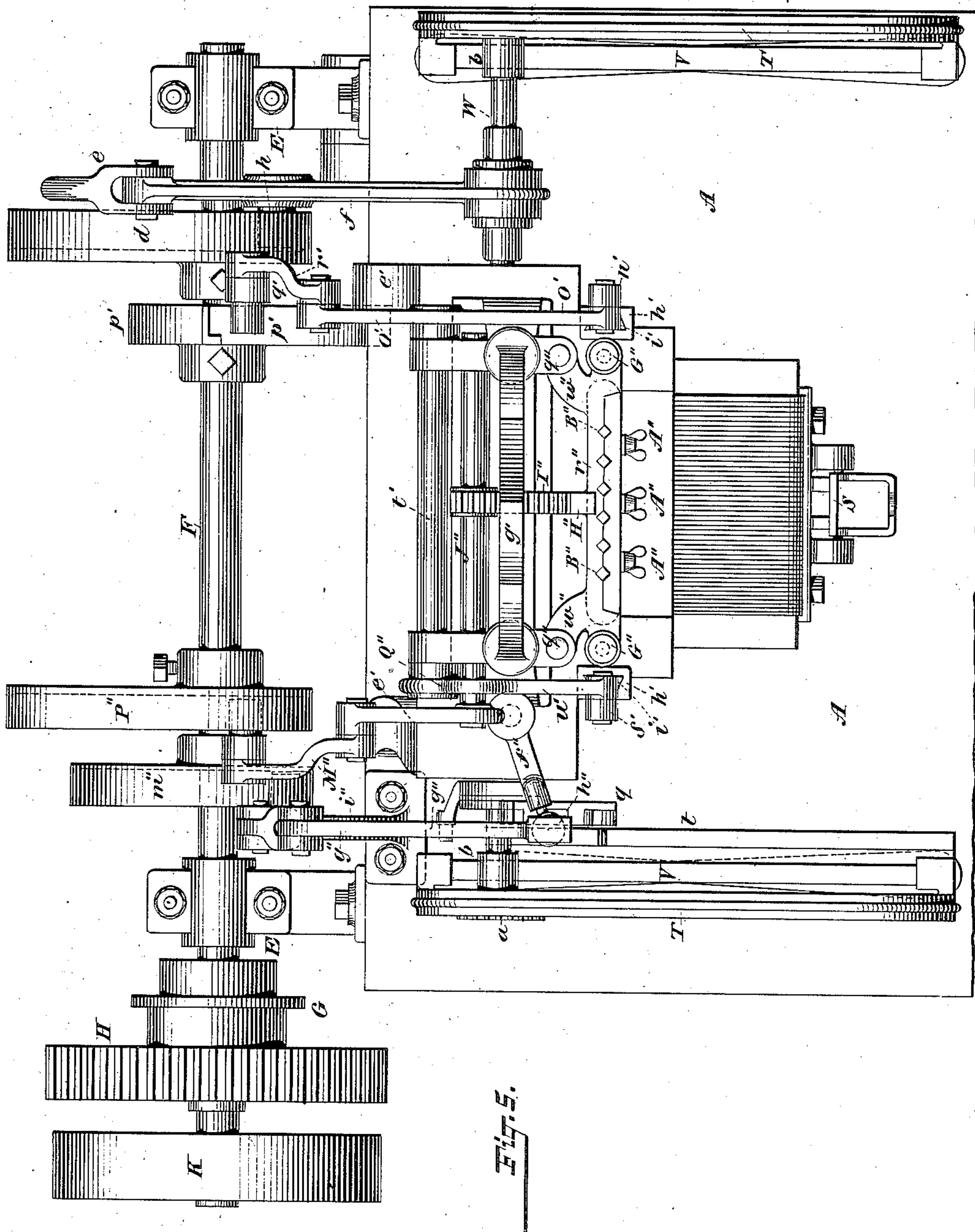


Fig. 5.

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Fig. 6.

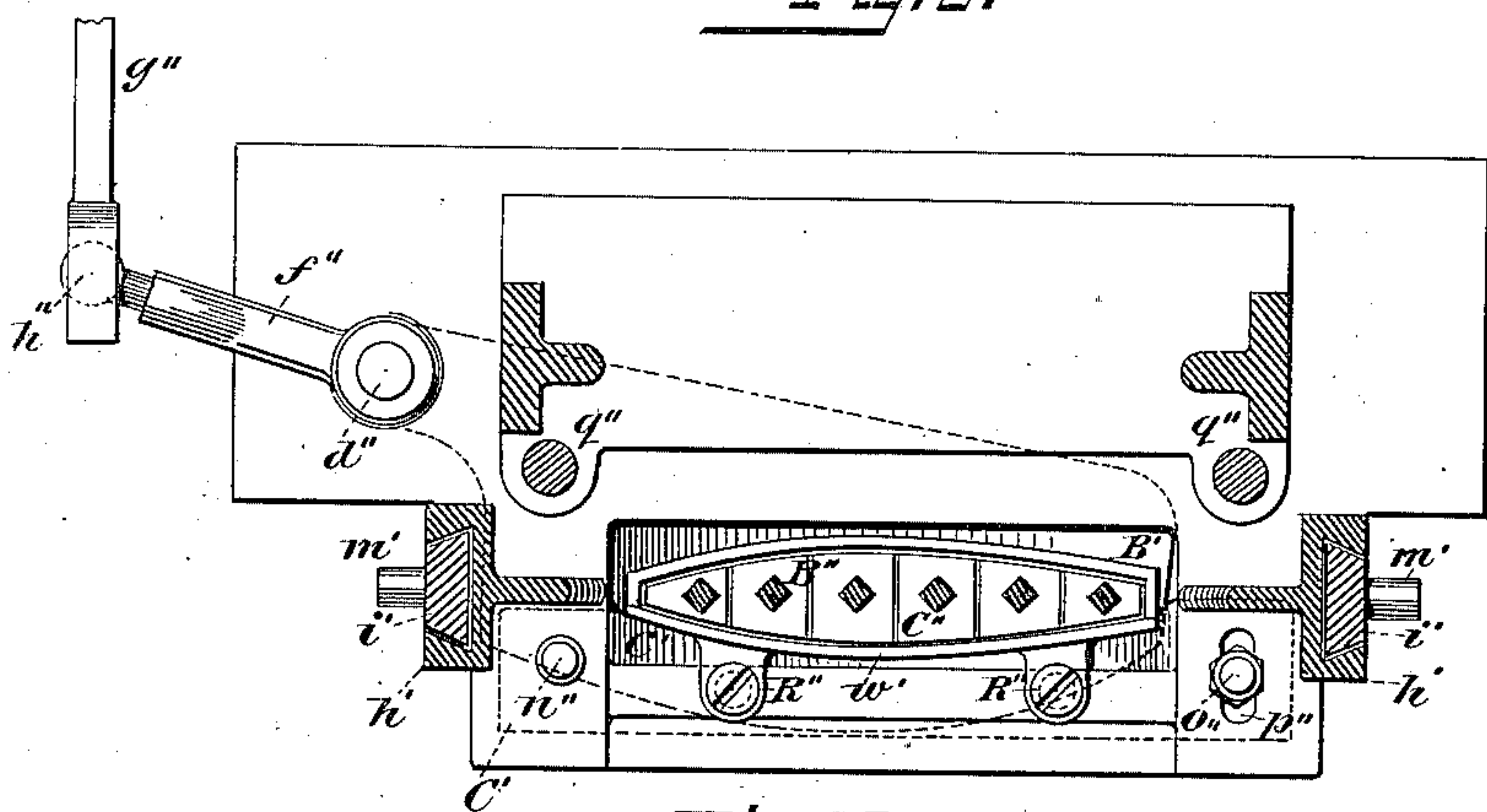


Fig. 10.

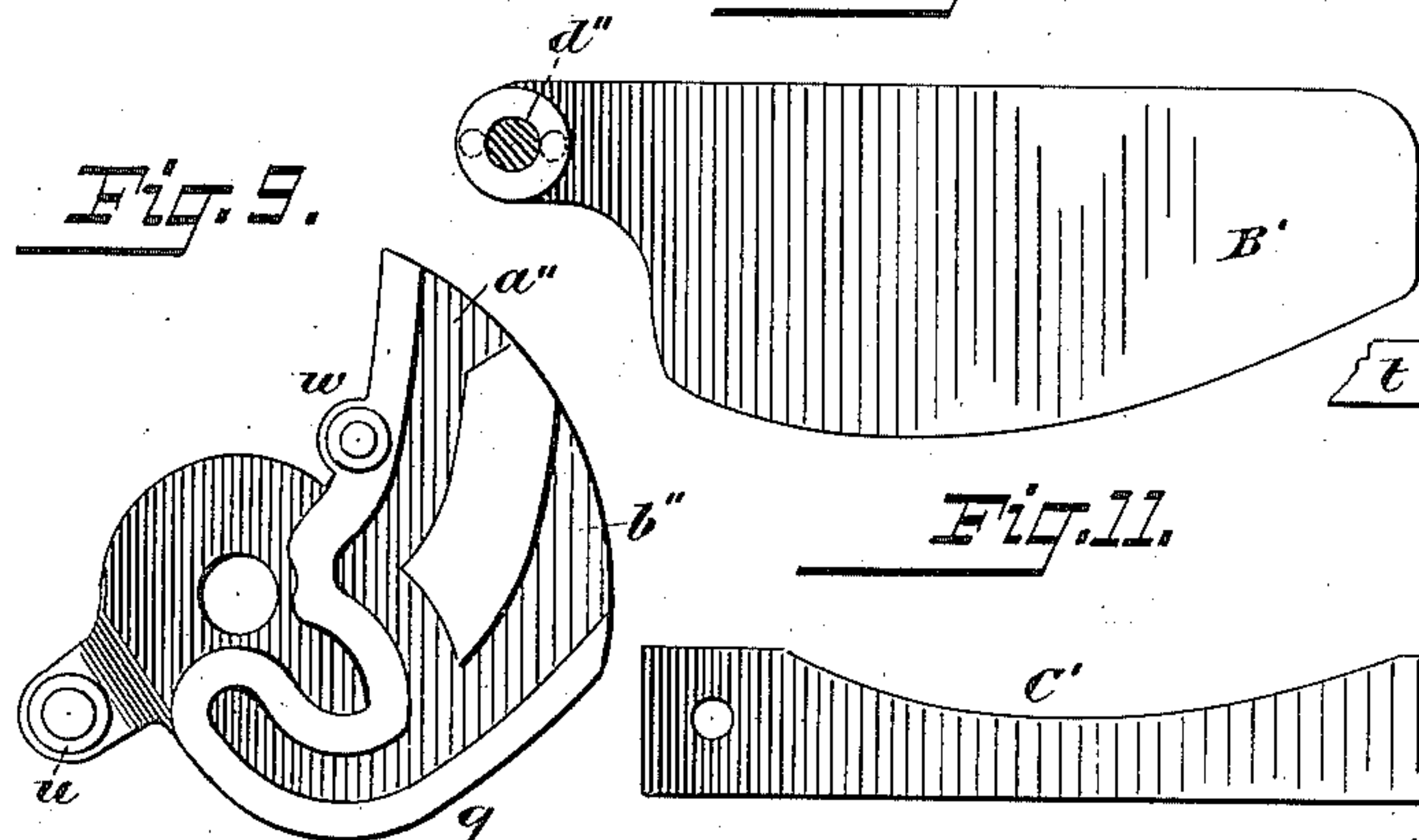


Fig. 8.

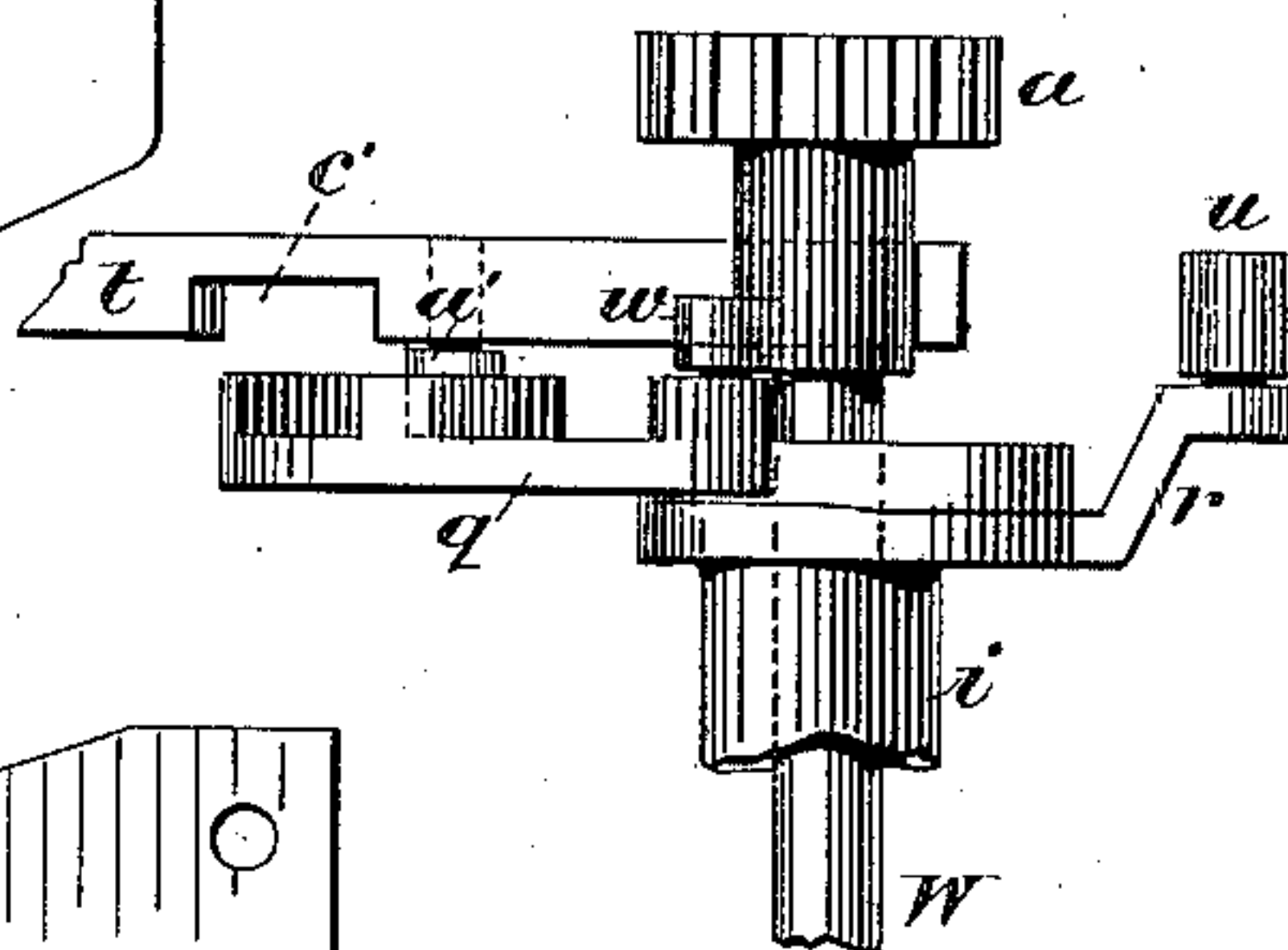
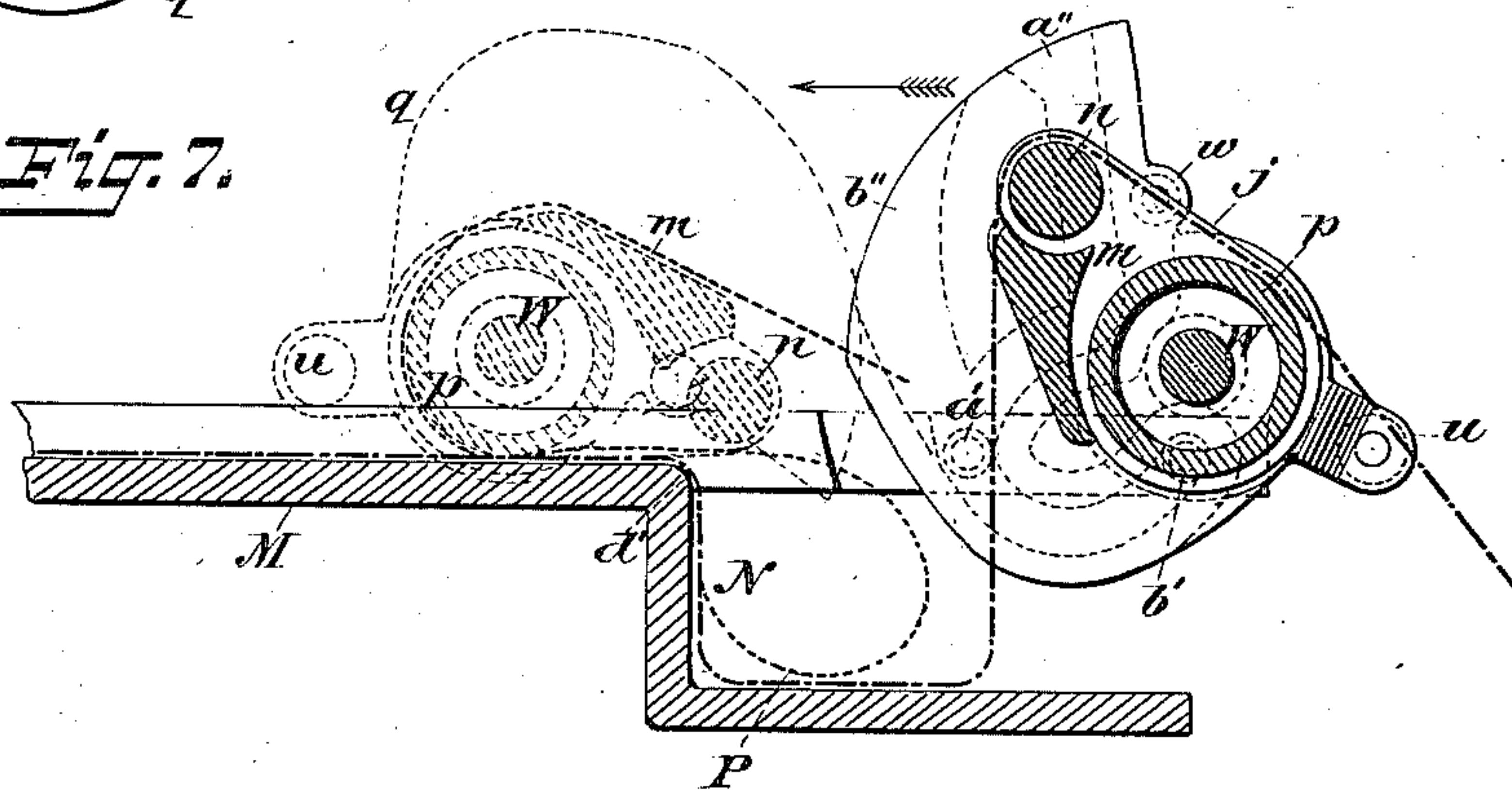


Fig. 7.



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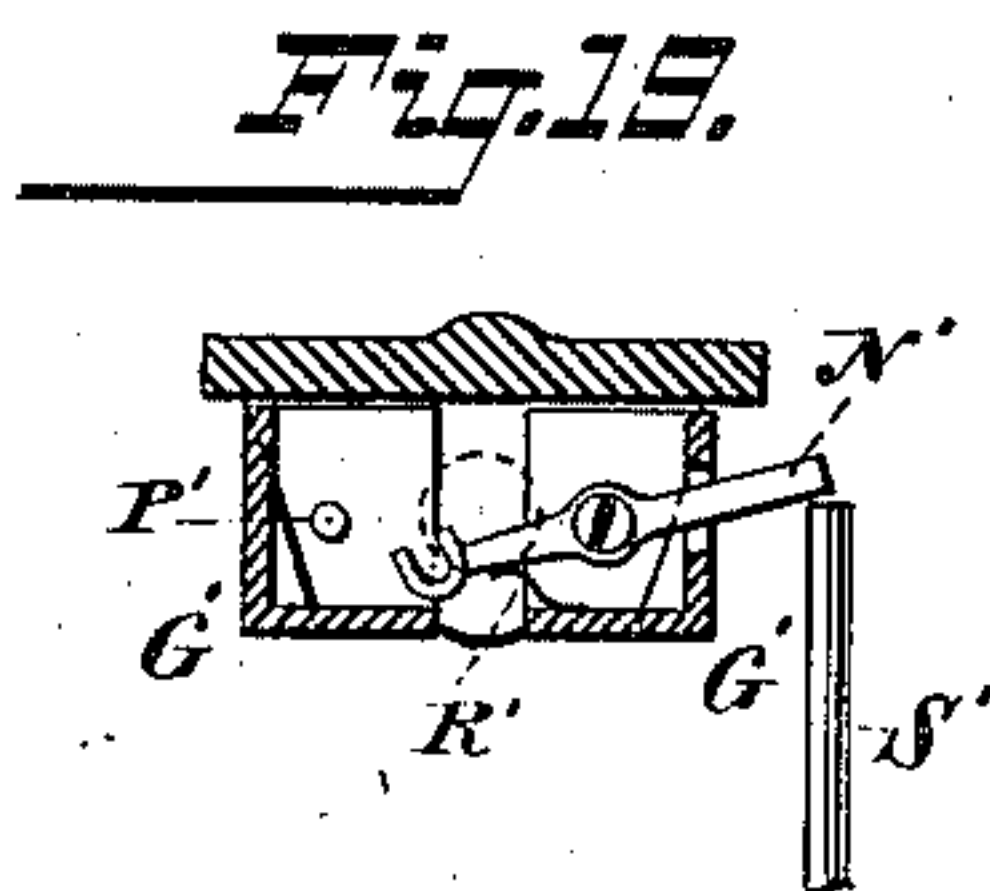
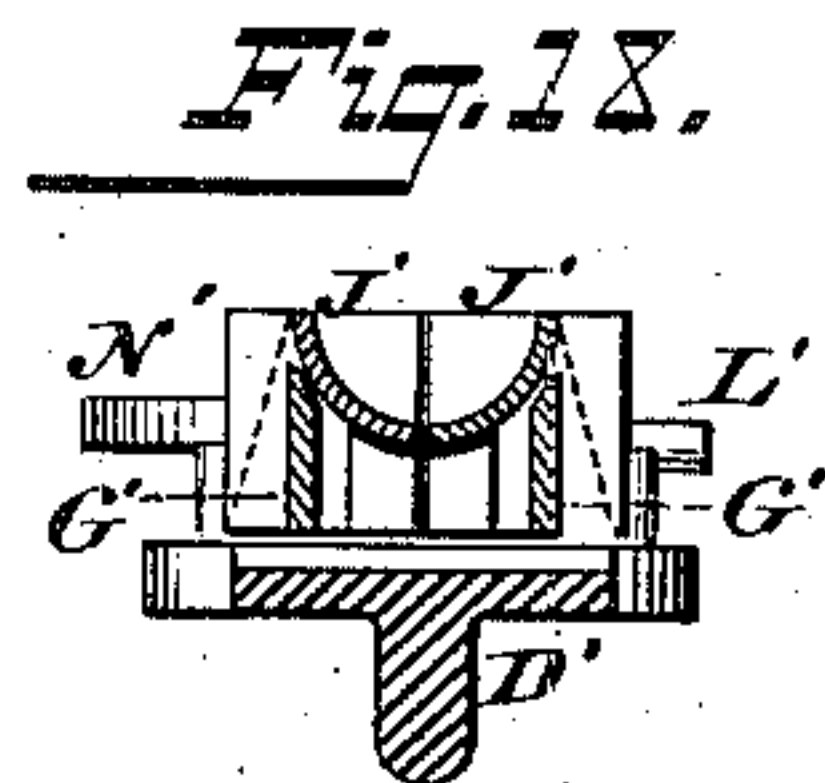
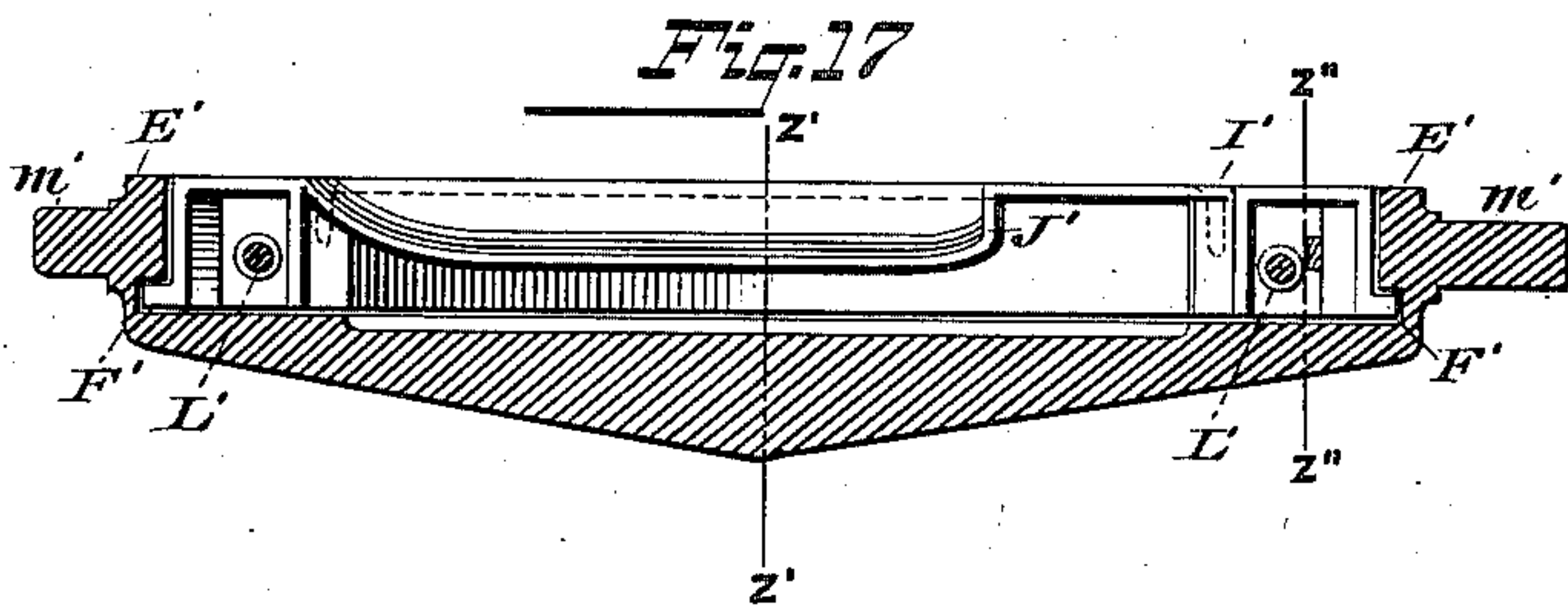
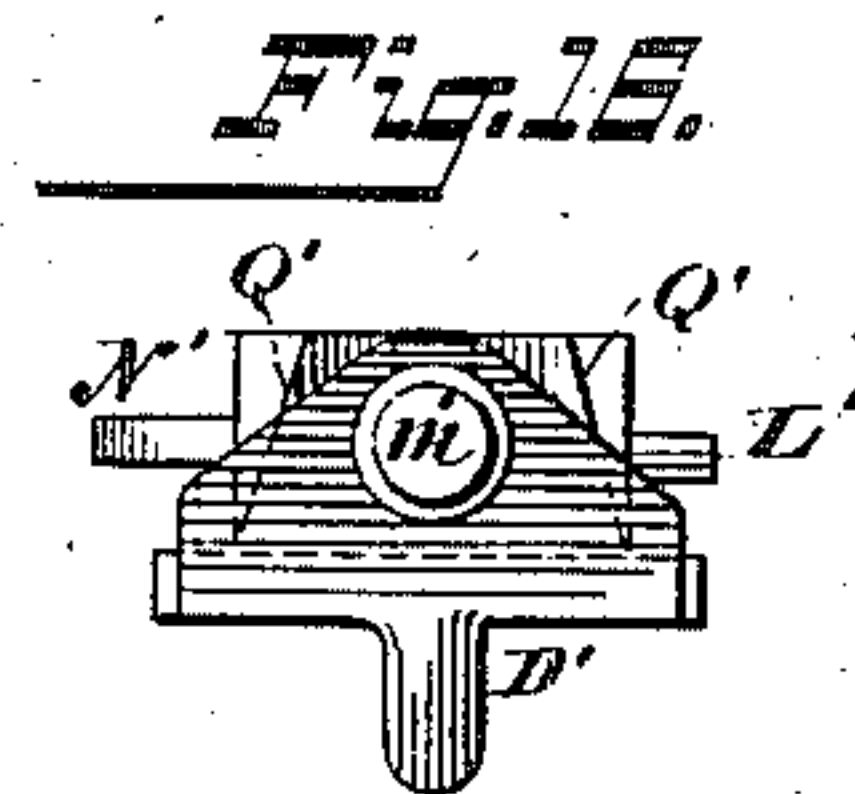
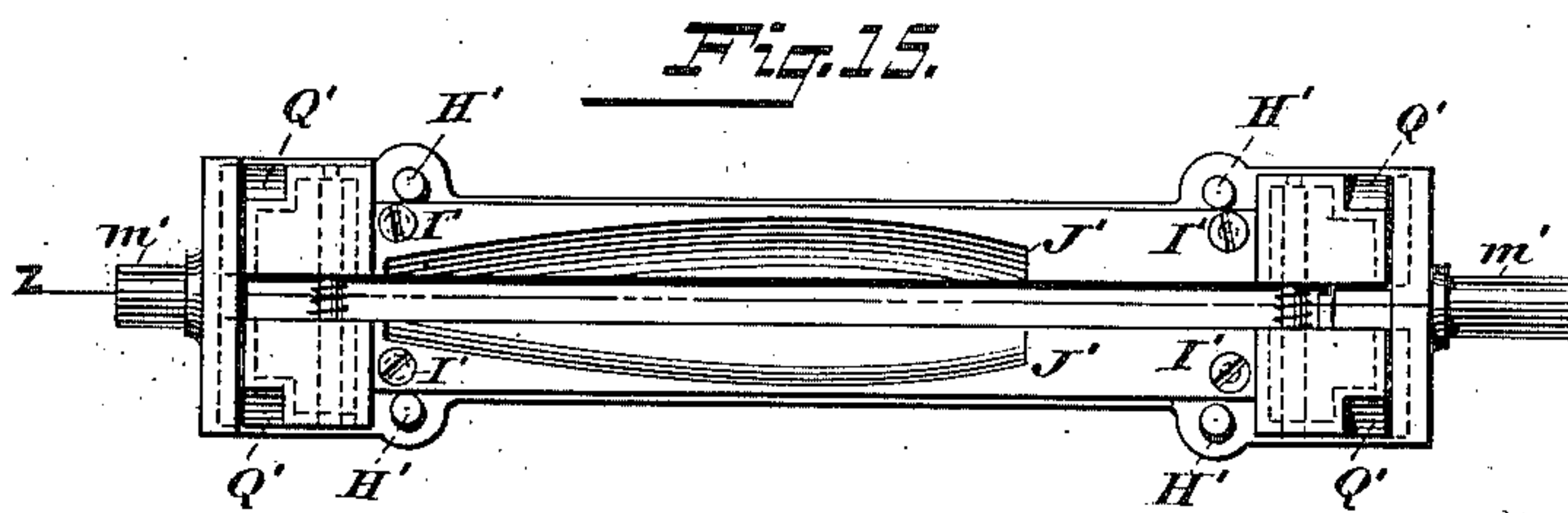
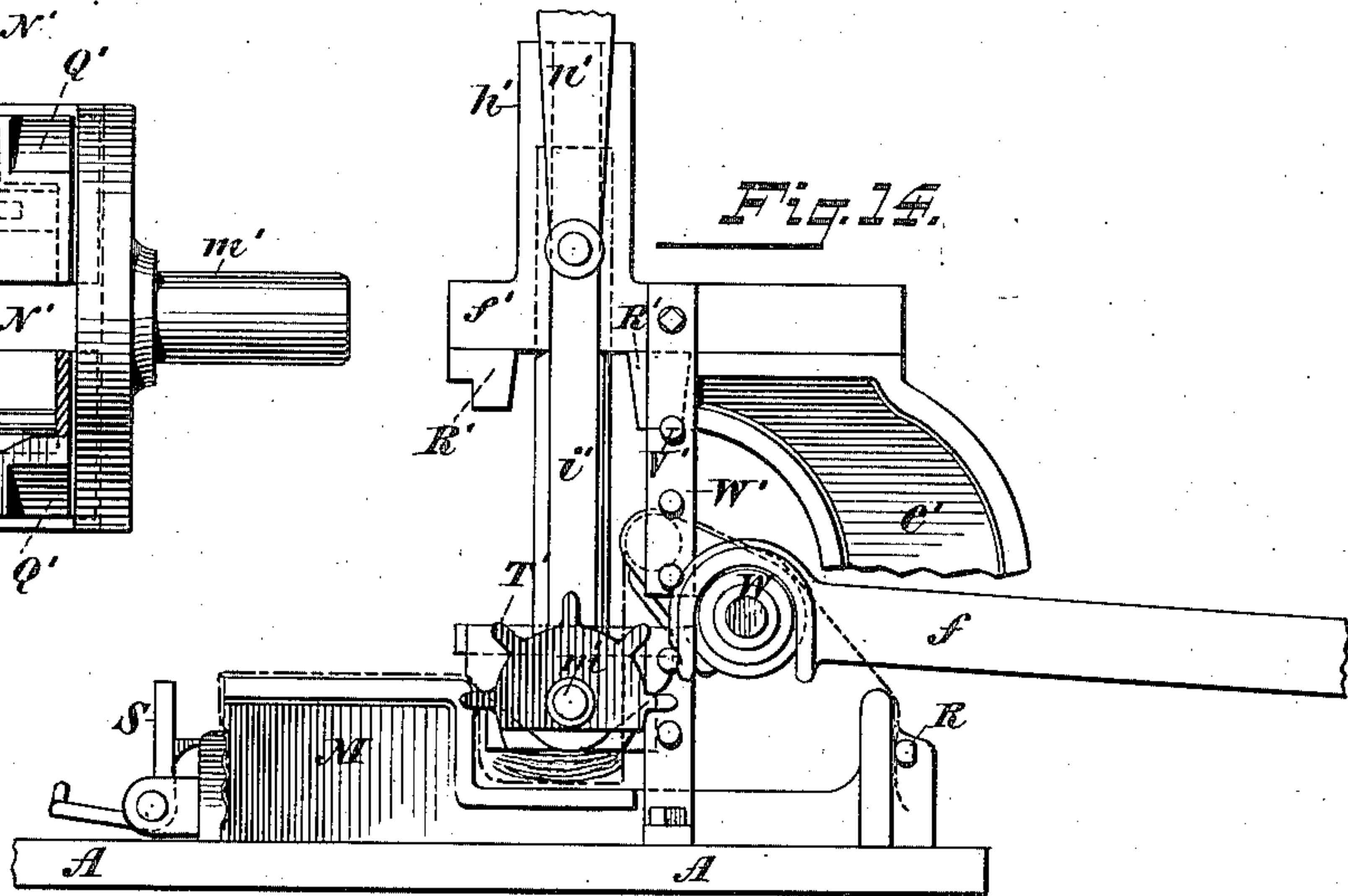
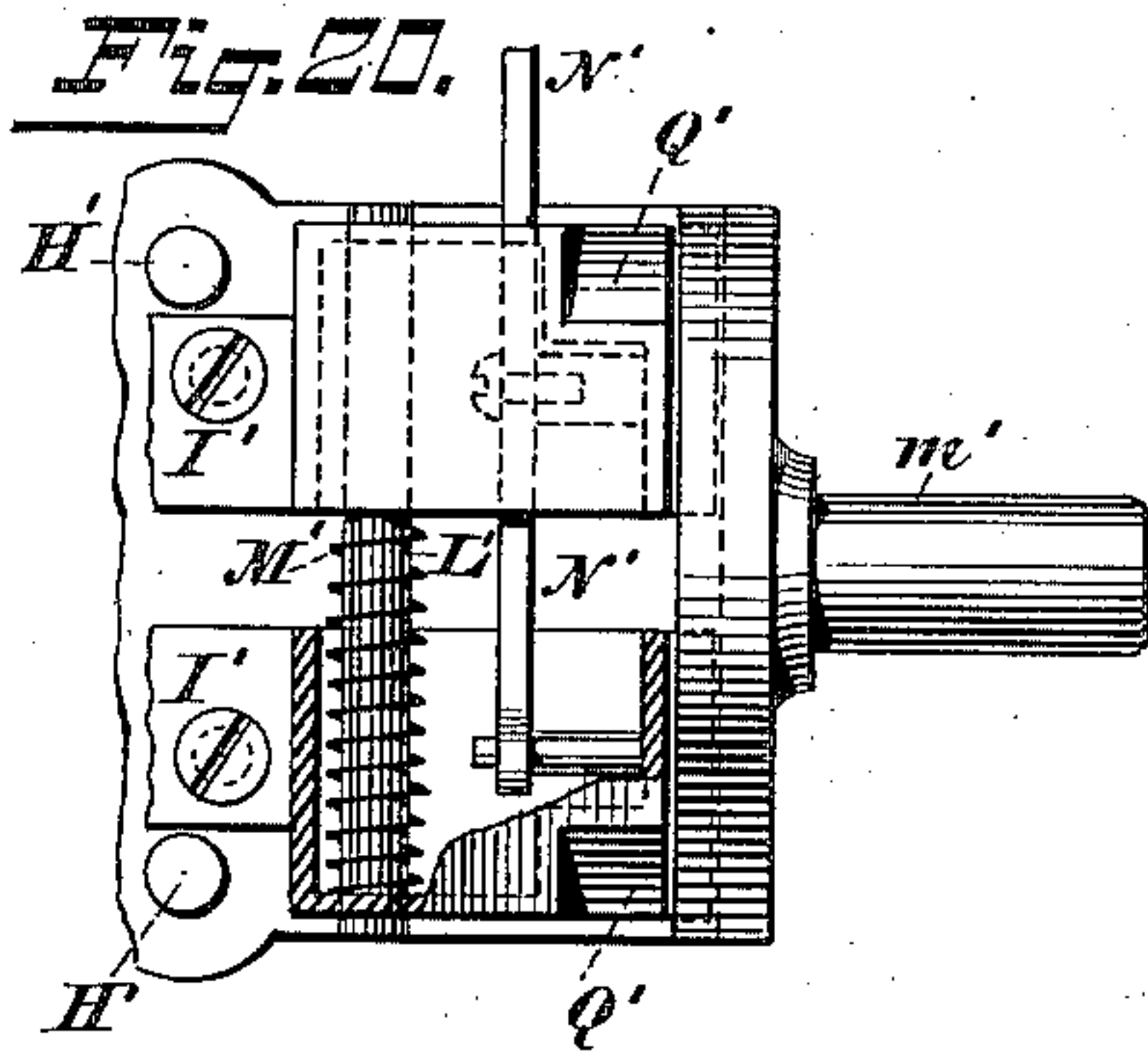
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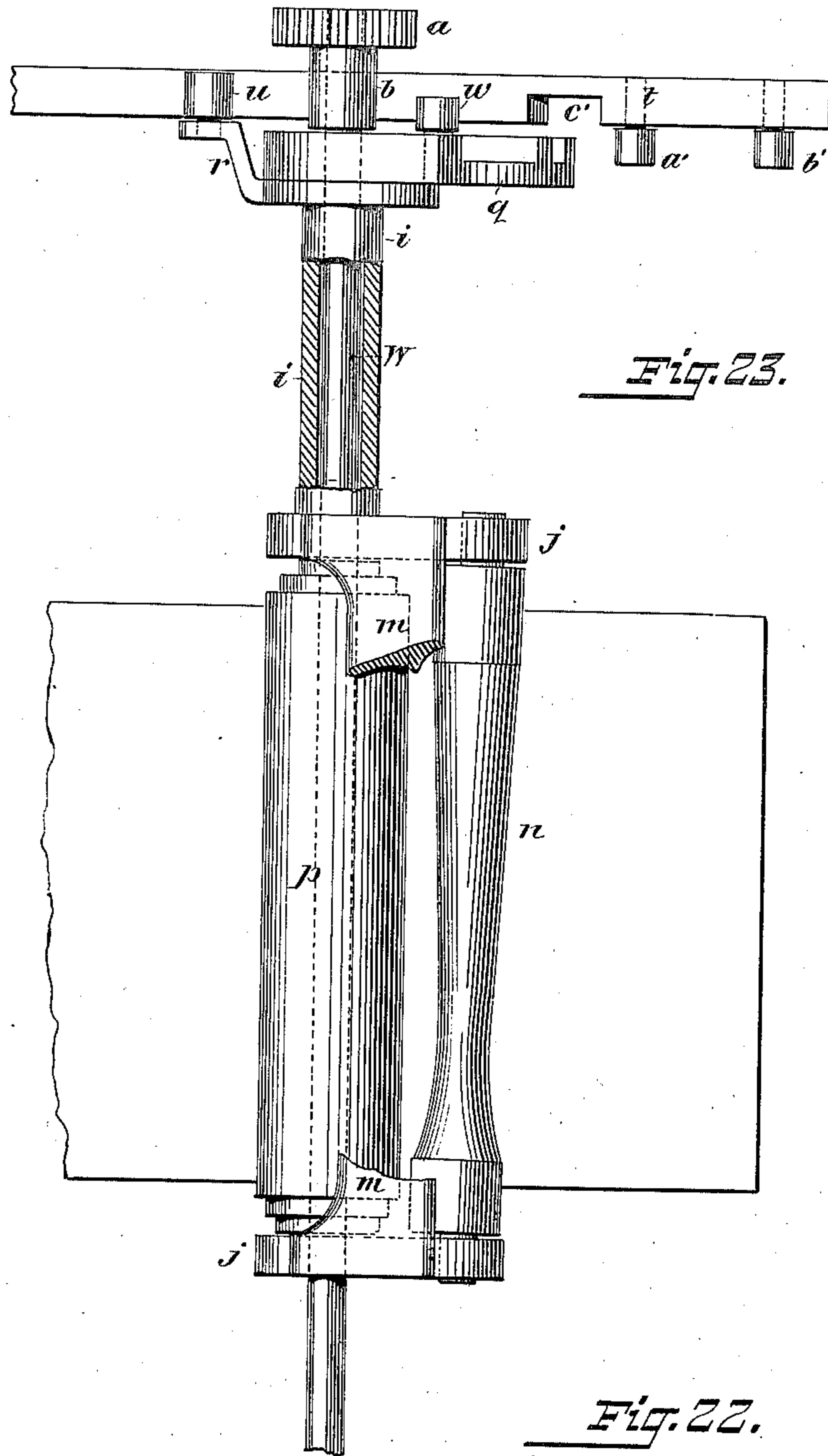
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UNITED STATES PATENT OFFICE.

JOHN R. WILLIAMS, OF NEWARK, NEW JERSEY.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 422,000, dated February 25, 1890.

Application filed August 17, 1889. Serial No. 321,101. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. WILLIAMS, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

The invention relates to improvements in cigar-bunching machines; and it consists, essentially, in novel sectional and independently-adjustable pressers for preparing the charges of tobacco for the filler of the bunches, a charge-box which is changeable to adapt it for the various forms or styles of cigars and which conveys the separate charges of tobacco, after being acted on by the aforesaid pressers, to the rolling-apron, and rollers for rolling the bunch, together with special features of construction and combinations of operative mechanism, the whole being constructed and arranged as hereinafter fully described.

Referring to the accompanying drawings, Figure 1 is a front elevation of a cigar-bunching machine constructed in accordance with the invention; Fig. 2, a side elevation of same, this view being the right-hand side of the machine as it is presented in Fig. 1; Fig. 3, a central vertical longitudinal section of the machine, the section being on the dotted line X X of Fig. 1, and illustrating the yielding pressers in their lower position upon the filler-tobacco and the knife in the position it assumes after having severed a charge of tobacco preparatory to the same being conveyed downward to the rolling-apron by the charge-box; Fig. 4, an enlarged front elevation of all that portion of the machine above the supporting-table; Fig. 5, a top plan view of the machine; Fig. 6, a detached sectional view illustrating the series of sectional pressers, the knife for cutting the tobacco, and adjacent parts, the section being on the dotted line Y Y of Fig. 1 and looking downward; Fig. 7, an enlarged central longitudinal section of a detached portion of the rolling-table and the rollers and apron for forming the bunch, one position of the rollers being illustrated by full lines and another position by dotted lines and the apron being shown in its normal position to receive the charge of filler

and also the position it is caused to assume after the reciprocating rollers have started on their line of travel along the rolling-table; Fig. 8, a detached top plan view of the cam hereinafter referred to with the adjacent connections for imparting the desired movement to the reciprocating rollers during the first portion of their action in the rolling of the bunch; Fig. 9, a face view of the cam shown in Fig. 8 and hereinafter specifically referred to; Fig. 10, a plan view of the knife by which the charges of tobacco are severed preparatory to their being conveyed to the rolling mechanism; Fig. 11, a like view of the plate against which said knife moves; Fig. 12, a detached view of one of the cams illustrated by dotted lines in Fig. 2, and hereinafter specifically described; Fig. 13, an enlarged detached sectional view illustrating the charge-box, knife, pressers, and filler-tobacco, the section being on the dotted line X X of Fig. 1, and being the same as the like devices in Fig. 3, only on an enlarged scale for clearness of illustration; Fig. 14, a detached side elevation, partly broken away, of the rolling-table, and illustrating the charge-box in its lower position, in which it is shown with its open side downward, depositing the charge of tobacco in the pocket of the rolling-apron; Fig. 15, a top view of the charge-box, which receives the charge of filler-tobacco and conveys it downward to the rolling-apron; Fig. 16, an end view of the same; Fig. 17, a central vertical section of same on the dotted line Z Z of Fig. 15; Fig. 18, a vertical section of same on the dotted line Z' Z' of Fig. 17; Fig. 19, a vertical section on the dotted line Z'' Z'' of Fig. 17; Fig. 20, an enlarged plan view, partly in section, of the end of said charge-box; Fig. 21, a detached view of the devices constituting a tell-tale by which the attendant may be informed whenever an insufficient quantity of tobacco is being fed for the charges; Fig. 22, a detached side view of a portion of one of the tramways for the reciprocating shaft carrying the bunching-rollers; and Fig. 23, a detached plan view, partly in section, of the bunching-rollers with the frame supporting them, a portion of said frame being broken away.

In the drawings, A designates the bed-plate or supporting-table of the machine, mounted

upon legs B of suitable form and construction. Below the bed-plate A is suspended in hangers C the fulcrum-shaft D, and at the rear of the bed-plate A is journaled in suitable bearings E the driving-shaft F, which has upon its end the clutch-box G, of ordinary form, and the gear-wheel H, engaging the pinion I, mounted upon the short shaft J, with the belt or power wheel K, as shown in Figs. 1 and 5. The clutch-box G is in connection with the pitman L, which is operated by an ordinary foot-treadle (not shown) to cut off the power at any desired time from the driving-shaft F. When power is applied to the wheel K, the rotation of the latter will be communicated through the pinion I and gear-wheel H to the driving-shaft F during such time as the clutch-box G is in engagement with the wheel H. The driving-shaft F will thus be in motion, and through the cams secured upon it, as hereinafter described, the operative parts of the machine may be actuated to perform their functions.

In the present application it is not sought to claim the mechanism for applying power to the driving-shaft F, since such mechanism is well known in this class of machines and is in common use.

Upon the bed-plate A is arranged the rolling-table M, having the recess N at its rear end, in which the slack of the apron is placed to receive the charge of filler-tobacco which is to be rolled into the bunch.

Upon the table M is secured the apron P, one end of the apron being held between the plate Q and the front end of the table M, as clearly illustrated in Fig. 3, while the other end of the apron P is held against the rear end of the table by the rod R.

At the front end of the table M is provided the pivotally-secured bunch-receiver S, of usual form.

At the sides of the bed-plate A are secured the inverted racks T and the tramways V, said tracks and tramways being also of well-known construction, and utilized for the purpose of guiding the movement of the reciprocating shaft W, which carries the rollers for rolling the bunch. The ends of the shaft W are provided with pinion-wheels *a*, which engage said racks T, and the hubs *b* of which move upon the tramways V. The reciprocating motion of the shaft W is imparted to it from the driving-shaft F through the cam *d* and jointed rods *e f*, the latter engaging the shaft W and the former being pivoted to the frame of the machine at *g*, (see Fig. 2,) and carrying the roller *h*, which travels in the groove of the cam *d*, as illustrated in Figs. 5 and 12.

Upon the reciprocating shaft W is mounted the sleeve *i*, (see Figs. 8 and 23,) which is formed in one piece with the frame *j*, which consists of the two end pieces in the outline substantially of a cone, as illustrated in Fig. 7, said end pieces being connected by the plate *m*. The frame *j* has pivoted between

its outer portions the forming-roller *n*, and between the larger portions of said frame and on the shaft W is mounted the roller *p*. The apron P passes over the rollers *n p*, as illustrated by the dotted lines in Fig. 7, and during the use of the machine the frame *j* makes a partial revolution around the shaft W, in order that the roller *n* may first close the pocket in the apron P upon the charge of filler-tobacco in the recess N, and then during the further movement of the shaft W effect the rolling of the bunch. The first or normal position of the roller *n* is illustrated by full lines in Fig. 7, and its position, after having made a partial revolution, is illustrated by dotted lines in said figure. The partial revolution of the roller *n* around the shaft W is accomplished by the cam *q* and arm *r*, formed in one piece with the sleeve *i*, and carrying rollers to engage the supplemental tramway *t*, as hereinafter explained. The cam *q* carries the roller *w*, and the arm *r* carries the roller *u*, as shown more clearly in Figs. 8 and 9, while upon the side of the supplemental tramway *t* are secured the rollers *a' b'*, as shown by dotted lines in Fig. 7. When the shaft W is moved toward the front end of the machine in the operation of forming the bunch, the roller *w* enters the recess *c'*, formed in the tramway *t*, while the rollers *a' b'* travel against the cam-surfaces, emerging at *a''* and *b''*, respectively, and cause the cam to make a revolution, the roller *r* at the end of said revolution coming upon the tramway *t*, as illustrated in Fig. 7, and the roller *w* emerging upward from the recess *c'* and following along the tramway *t*, as indicated by dotted lines in Fig. 7.

The purpose of the cam *q*, with the rollers *w u* and rollers *a' b'*, is to effect the revolution of the sleeve *i*, frame *j*, and rollers *n p*, so that after the charge of filler-tobacco has been deposited upon the slack or pocket of the apron in the recess N the roller *n* may turn forward and downward upon it, closing the pocket and properly pressing the tobacco and then roll the bunch, the roller *p* during this latter operation preceding the roller *n*, as illustrated by dotted lines in Fig. 7, the rollers *w u* during the reciprocation of the shaft W and frame *j* serving to preserve said frame and rollers *n p* in position, being that illustrated by dotted lines in Fig. 7.

In the formation of bunches the charge of filler-tobacco is deposited at the rear end of the rolling-table M, and the rollers *n p* moved toward the front of said table, rolling the bunch and moving it into the bunch-receiver S. The roller *n* is in the outline of a cigar, and it is secured in the frame *j* at an angle to the roller *p*, instead of the axes of said rollers being parallel with each other, and this position of the roller *n* effects an important result. The roller *n* being in the position stated, one end of said roller during its revolution around the shaft W will press the charge of tobacco at one end more firmly than at the

other end, and after the complete revolution of the roller *n* around the shaft *W* the other end of said roller will press the tobacco more firmly than the end which first effected the compression. The shoulder *d'* of the rolling-table *M* being parallel with the shaft *W*, that end of the roller *n* which is farthest from said shaft comes nearer the said shoulder than the other end thereof during the revolution of the cam *q* and sleeve *i*, and thus said end of the roller *n* is caused to first press the tobacco, and then when the revolution of the cam *q* and sleeve *i* has been completed said end of the roller *n* which first pressed the tobacco will be removed farthest from it, leaving the other end thereof in nearer proximity to the charge of tobacco and effecting the proper compression at the other end of the bunch. By first pressing one end of the charge of tobacco the latter at the said end is given the proper form and compression for the head of the cigar, and then when the other end of the roller *n* effects its compression during the forward reciprocation of the rollers the tuck of the bunch is properly pressed. This movement of the roller *n*, first pressing one end of the bunch and then the other end thereof, prevents the twisting of the filler-tobacco in the binder during the reciprocation of the rollers to complete the bunch.

Upon the bed-plate *A* are secured the standards *e'*, which support the plate *f'*, and this in turn supports the frame *g'*, having upon its opposite sides the vertical guides *h'* for the sliding bars *i'*. (Shown in Figs. 2 and 4.) The sliding bars *i'* receive their vertical movement from the driving-shaft *F* through the levers hereinafter described and carry in their lower ends the charge-box *j'*, said box having trunnions *m'* at its ends, which enter apertures in the lower ends of said bars *i'* and permit the revolution of said charge-box, as hereinafter described. One of the sliding bars *i'* is connected, as shown in Fig. 2, through the link *n'* with the walking-beam *o'*, said walking-beam being mounted upon the rock-shaft *t'* and oscillated therewith from the driving-shaft *F* through the cam *p'* and jointed rods *q'* and *r'*, while the other sliding bar *i'* is actuated from the rock-shaft *t'* through the lever *u'* and link *s'*, both bars *i'* thus receiving a simultaneous motion. The charge-box *j'* is beneath the holder *w'*, set in the opening *A'* of the table *f'*, and between the plates *B'* and stationary cutter *C'*. (Shown detached in Figs. 10 and 11.)

The filler-tobacco is placed in the holder *w'* and charge-box *j'*, as illustrated in Figs. 3 and 13, and the knife *B'* then severs that portion thereof in the charge-box *j'* from the remaining portion which is in the holder *w'* after the said tobacco has been suitably pressed by the series of pressers hereinafter particularly described and claimed, whereupon the charge-box descends and deposits the tobacco therein

upon the rolling-apron *P* in the recess *N* of the table *M*.

The charge-box is illustrated in its upper position in Figs. 3 and 13 and in its lower position in Fig. 14, this latter figure illustrating the deposit of the charge of tobacco upon the rolling-apron. The charge-box *j'* has a solid bottom *D'* and ends *E'*, upon which ends the trunnions *m'* are formed, as illustrated clearly in Figs. 15 and 17. In the ends *E'* of the charge-box *j'* are formed the transverse guiding-grooves *F'*, which receive the flanged ends of the sides *G'* of the box, said sides being adapted to have a sliding movement toward and from each other in the grooves *F'*. The sides *G'* of the charge-box are limited in their movement from each other by the pins *H'*, and said sides have secured upon them by screws *I'* the two sections *J'*, which form the matrix and compose the holding portion of the charge-box.

In one of the sides of the charge-box are secured the pins *L'*, which pass through openings in the opposite side *G'* of said charge-box, and are encompassed by the coiled spring *M'* between said sides, the purpose of the springs being to create a tension against said sides *G'*, which, when they are released, will force them from each other into the position illustrated in Figs. 15 and 20, which occurs only when the charge-box is in its lower position, with its upper side turned downward in proximity to the rolling-apron *P*, as illustrated in Fig. 14.

The sides *G'* of the charge-box *j'* are held together against the resistance of the spring *M'* by the pivoted catches *N'*, secured to one of the said sides and engaging the pins *P'*, secured to the other of said sides, as illustrated in Fig. 19. When the catches *N'* are in engagement with the pins *P'*, the two sides *G'* of the charge-box will be held together in the position illustrated in Figs. 3, 13, and 18; but upon the release of the catches *N'* from the pins *P'* the springs *M'* will force said sides *G'* apart until their movement from each other is checked by the pins *H'*. The sides *G'* of the charge-box have at opposite ends the inclines *Q'*, as shown in Figs. 15 and 20 by full lines and by dotted lines in Figs. 3 and 13, which upon the elevation of the charge-box to its upward position come into contact with the corresponding inclines *R'*, (shown by full lines in Fig. 14 and by dotted lines in Figs. 3 and 13,) and thereby effect the pressing together of said sides *G'* until the springs *R'* move the catches *N'* to engage the pins *P'* and secure said sides in their original position, which is that shown in Figs. 3 and 13. The sides *G'* of the charge-box *j'* will retain their closed position against each other until, during the subsequent downward movement of the said charge-box, the catches *N'* come into contact with the pins *S'* and are turned to release the pins *P'*, (see Fig. 19,) when the springs *M'* will again force

the sides G' apart and permit the escape of the charge of tobacco upon the apron P in the recess N . The vertical movement of the charge-box j' is, as aforesaid, effected by the vertical movement of the sliding bars i' , which carry said box, and during this vertical movement the said box is caused to revolve upon its trunnions m' , so that during its downward movement it will deposit the charge of tobacco upon the rolling-apron P , and upon its upward movement will regain its former position in order to receive the subsequent charge of tobacco for a bunch.

The revolution of the charge-box j' during its vertical movements between the table f' and the rolling-apron is accomplished by the sprocket-wheel T' engaging the pins V' , secured to the vertical bar W' , which extends from the table f' to the bed-plate A , as shown in Fig. 14, said bar being in two sections separated from each other at a point in line with the reciprocating shaft W , for the purpose of leaving an opening through which said shaft may pass during the operation of rolling the bunch and returning to its normal position at the rear end of the rolling-table M . The sprocket-wheel T' is secured upon one of the trunnions m' , and hence its engagement with the pins V' of the bar W' operates to rotate it with the box j' .

The sections J' , composing the matrix or holding portion of the charge-box j' , will have a concavity adapting the matrix for cigars of the shape it is desired to produce, and since said sections are secured in position by means of the screws I' , they may be readily removed and others having a concavity of different outline substituted for them. The drawings illustrate the sections J' with a concavity adapted for the smallest size of cigar it will probably be desired to make, and at the right-hand end of Figs. 15 and 17 it will be seen that sufficient space is left between said concavity and the screws I' to permit the formation of a matrix to receive larger charges of tobacco when it is desired to produce a larger cigar. The sections J' being of thin metal, no difficulty will be experienced in supplying a series of them with varying forms of concavities adapted to be secured upon the charge-box by means of the screws I' , thus adapting said box to the formation of cigars differing in length or shape. I do not therefore limit the invention to a charge-box having a matrix or holding portion of any particular size or shape, the essential consideration being that said matrix or holding portion shall be capable of containing enough tobacco for the filler of a cigar.

The knife B' is secured on the lower end of the rod d'' , which is mounted in the sleeve c'' , Fig. 4, and oscillated therein to actuate the knife by means of the arm f'' , the link g'' , connected to said arm by a ball-joint h'' , and the rocking arm i'' , which is pivoted to the bracket j'' and has its upper end pivoted to the link g'' , while its lower end is provided

with a roller which travels in the groove of the cam m'' , Fig. 3, mounted on the driving-shaft F . The rotation of the shaft F and cam m'' causes the arm i'' to have a rocking movement on its pivotal bearing, and this is imparted through the link g'' , arm f'' , and rod d'' to the knife B' for the purpose of causing the said knife to sever the charges of tobacco.

The stationary cutter C' is held at each end by pins n'' and o'' , (see Figs. 6 and 11,) which enter apertures at the ends of said cutter. The cutter C' is rendered adjustable, however, by reason of the slot p'' , Fig. 6, in the table f' and the nut on the upper end of the pin o'' , said slot allowing said pin to be adjusted back and forth therein, and the said nut serving to secure the pin in a fixed position after adjustment. When the pin o'' is moved in the slot p'' , the cutter C' will move toward or from the cutter B' , (the pin n'' at such time serving as a pivot,) and thus be adapted to aid in severing the charges of tobacco under the varying conditions of the leaf.

At the front of the frame g' are the vertical guide-rods q'' , on which are mounted the transverse bars r'' , s'' , and t'' , the bars r'' s'' being connected by the arms u'' , and with said arms forming a rectangular frame, which has a vertical reciprocating motion on said guide-rods q'' . The bars r'' and s'' are furnished with the arms w'' , Figs. 4 and 5, which contain apertures through which the rods q'' pass, and which permit the bars to have a vertical movement, when actuated with that end in view, and support said bars on a vertical plane forward of the rods q'' . The bars r'' s'' are made in two longitudinal parts, as shown in Figs. 3 and 5, held together by set-screws A'' , and said parts are recessed to loosely receive the vertical rods B'' , carrying on their lower ends the series of plates C'' , which form an outline corresponding substantially with that of a cigar, and which, with the rods B'' , constitute a series of pressers for pressing the charges of tobacco, as hereinafter more fully described. The rods B'' are rectangular in cross-section, and the recesses to receive them in the bars r'' , s'' , and t'' have a similar outline.

Upon the rods B'' are pinned the collars D'' , which normally rest upon the bar s'' , as shown in Fig. 4, and preserve the plates C'' on an even horizontal plane while the rods B'' are in their upward position, which is that shown in Fig. 4.

Above the collars D'' on the rods B'' are the collars E'' , having set-screws by which their position on said rods may be regulated at will, and between the collars E'' and the bar t'' the rods B'' are encompassed by the coiled springs F'' , which exert a downward tension on collars and rods, thus rendering the series of pressers independently yielding, while the collars E'' render them independently adjustable with respect to the

pressure they shall exert on the tobacco. The bar t'' contains apertures through which the rods B'' pass, and may be adjusted vertically by means of the set-screws G'' , which pass downward through the ends of the bar r'' . The purpose of the bar t'' and set-screws G'' is to regulate the tension of the springs F'' as a whole; while the force of any one or more of said springs may be adjusted by the collars E'' , so as to more or less compress the tobacco at given points, according to the condition of the leaf in the holder w' , the form of cigar to be produced, and other circumstances.

The rectangular frame composed of the bars $r''s''$ and connecting-arms u'' is given its vertical movement on the rods q'' by means of the rack H'' , secured to it, and the engaging segmental gear I'' , mounted on the rock-shaft J'' , which is actuated from the driving-shaft F by means of the arm L'' , jointed rods $M''N''$, and cam P'' , as shown in Fig. 3. The rock-shaft L'' passes through the elongated opening Q'' in the arm u'' , (see Fig. 3,) and hence does not interfere with the operation of said arm.

The holder w' is of metal in the substantial outline of a cigar, and is secured to the table f' by screws R'' (see Fig. 6) directly over the charge-box j' .

For convenience the filler-tobacco in bulk, either long-filler, "shorts," or scrap tobacco, may be placed in the box S'' , supported at the rear of the machine in the frame T'' , (see Figs. 2 and 3,) and is thence fed into the holder w' by the hand of the attendant, one attendant sitting at the rear of the machine to feed the tobacco to the holder w' and another attendant sitting at the front of the machine to remove the finished bunches from the receiver S and place them in the usual wooden molds preparatory to their receiving the final wrapper. The front wall of the holder w' extends upward a greater distance than the rear wall of same, in order to facilitate the introduction of the tobacco into the holder by hand.

In the operation of the machine the tobacco is fed from the box S'' into the holder w' and through it into the box j' by hand, whereupon, the driving-shaft F being set in motion, the cam P'' , rods $M''N''$, arm L'' , and shaft J'' will actuate the segment I'' to depress the rack H'' and the frame carrying the rods B'' , the effect being that the series of plates C'' are pressed upon the tobacco, as shown in Figs. 3 and 13, compressing its lower portion firmly and uniformly into the matrix of the charge-box j' , after which, and while the presser-plates C'' are still on the tobacco, the knife B'' is actuated by the cam m'' and intermediate connections to sever that portion of the tobacco in the charge-box j' from the remaining portion in the holder w' , the knife B' moving forward against the stationary cutter C' into the position illustrated in Figs. 3 and 13. The severing of the charge of to-

bacco having been accomplished, the binder is placed on the slack of the apron P , the series of pressers C'' carried upward, and the charge-box j' moved downward toward the apron by the sliding bars i' and the connections between them and the driving-shaft F , the said box during its downward movement having its position reversed by the sprocket-wheel T' and rack-bar W' , and when reversed and in proximity to the binder having its sides G' spread apart by the springs M' upon the release of the catches N' , whereupon the charge of tobacco in the matrix of said box will be deposited on the binder in the recess N of the rolling-table M . The conveying of the charge of tobacco to the binder by the box j' is accomplished gently and without unduly disturbing its consistency or shape. The charge of tobacco having been deposited on the binder which rests on the apron P , the sliding bars i' reconvey the box j' to its original position beneath the holder w' , and the sides G' of said box are closed by the inclines Q' and R' , the cutter B' then moving to its original position and the attendant feeding an additional quantity of tobacco to the holder w' , while in the meantime the reciprocating shaft W is, through the rods e f and cam d , moved forward toward the front end of the rolling-table, carrying the rollers n p , which in the manner hereinbefore described roll the bunch and move it into the bunch-receiver S , from which it is taken by the attendant sitting at the front of the machine. The shaft W then returns to its normal position at the rear end of the rolling-table, another binder is placed on the apron, the tobacco in the holder w' compressed by the series of plates C'' , and a charge cut off by the knife B' , which charge is thereupon carried downward and deposited on the binder and the rolling proceeded with as before. The independently-yielding pressers for pressing the charge of tobacco in the matrix preparatory to its being rolled into the bunch are of special value in cigar-bunching machines. They render the filler of the cigar uniform throughout in the most positive and accurate manner, and this is a great desideratum in the manufacture of cigars. The body of tobacco is pressed into the matrix by the pressers, and, since they are independently yielding, whatever irregularities there may be in the tobacco will appear along its upper surface and not in that portion thereof within the matrix. If when the tobacco is placed in the holder w' and charge-box j' there are portions at the bottom thereof less dense than others, these portions will be filled by the pressure of the pressers above. The more dense portions, offering greater resistance will, cause the pressers immediately above them to yield. Thus the soft portions of the charge will be added to from the tobacco in the holder, while the compact portions will resist any undue additions. The quantity of tobacco in the matrix is thus

made uniform, and while in this condition the knife B' severs it from that portion of the tobacco in the holder w'. It is not convenient always to evenly distribute the filler-tobacco along the holder w', and it is not necessary to do so when the series of independently-yielding pressers are employed, since at the points where the tobacco is less in quantity the pressure at such points will exert sufficient downward force to fill the matrix, while at the points where the quantity of tobacco is greater the pressers there will be resisted without affecting the other pressers. Upon the series of pressers being brought against the body of tobacco, whatever irregularities there may be in the latter will only appear along its upper surface, the lower portion of the tobacco being even and uniform throughout, and this result is due to the fact that the pressers are independently yielding. It will be proper, however, to use some degree of care in placing the tobacco in the holder w'. The strips or leaves should be broken into the proper length and placed lengthwise in the holder; but if it should happen that more tobacco is placed in one portion of the holder than in another portion thereof no injurious consequences will result. Should there not be enough tobacco in the matrix for a bunch at any time, that fact will be made apparent to the attendant by the buttons m'', Fig. 21, on the collars not appearing above the transverse bar n'' when the series of pressers are lowered upon the tobacco, and thereafter a larger quantity of tobacco should be fed to the holder w'.

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

1. In a cigar-bunching machine, the rolling-table and apron, combined with the reciprocating shaft carrying the revoluble frame j, the end pieces of which are connected by the plate m, the forming-roller n, pivoted between said end pieces, the roller p on said shaft between said end pieces, and means, substantially as described, for turning said frame around said shaft during the reciprocation of the latter, substantially as set forth.

2. In a cigar-bunching-machine, the table and rolling-apron, combined with the reciprocating shaft carrying the frame j and rollers n p, the tramways for the ends of said shaft, the cam q, integral with the arm r and frame j, the rollers u w on said cam and arm, and the tramway t, having opening c' and rollers a' b', substantially as set forth.

3. In a cigar-bunching machine, the rolling-table having the recess N and the apron P secured at its ends to the ends of said table, combined with the reciprocating shaft carrying the revoluble frame j and rollers n p, the axial line of the roller n being at an angle to the edge or shoulder d' of said recess, substantially as and for the purposes set forth.

4. In a cigar-bunching machine, the charge-box having a movement between the point of tobacco-supply and the bunch-rolling mechanism,

said charge-box having a matrix in the outline of a cigar and having its opposite sides separable from each other, combined with the pins I', the springs on said pins for forcing said sides apart, the catches N', and pins P', for holding said sides against the pressure of said springs, mechanism, substantially as described, for reversing the position of said box to deposit the charge of tobacco, and mechanism, substantially as described, for detaching the catches N' from the pins P' when the box is adjacent to the rolling-apron, substantially as set forth.

5. In a cigar-bunching machine, the revoluble and vertically-reciprocating charge-box j', to receive the charges of tobacco from the point of supply, said charge-box being supported on trunnions between the sliding bars i', and mechanism, substantially as described, for imparting a vertical movement to said bars, combined with the sprocket-wheel on the end of said charge-box, and the vertical rack-bar W', engaging said sprocket-wheel, the pressers for pressing the tobacco in the matrix, and the rolling mechanism for forming the bunch, substantially as set forth.

6. In a cigar-bunching machine, the charge-box having a movement between the point of tobacco-supply and the bunch-rolling mechanism, said box consisting of the bottom D', ends E', fitted with grooves F', the separable sides G' at their ends entering said grooves, the sections J', forming the matrix and secured to said sides, the catches for holding said sides together, the springs for forcing said sides apart when said catches are released, mechanism, substantially as described, for reversing the position of the box and releasing said catches, and mechanism, substantially as described, for closing the sides of the box together to receive another charge of tobacco, substantially as set forth.

7. In a cigar-bunching machine, the charge-box having a movement between the point of tobacco-supply and the bunch-rolling mechanism, said box consisting of the bottom D', ends E', fitted with grooves F', the separable sides G' at their ends entering said grooves and having inclines Q', the sections J', forming the matrix, the catches for holding said sides together, the springs for forcing them apart when said catches are released, mechanism, substantially as described, for reversing the position of the box to deposit its charge, and the inclines R', which coact with the said inclines Q' to close said sides of the box together to receive another charge of tobacco, substantially as set forth.

8. In a cigar-bunching machine, the rolling mechanism for forming the bunch, the elevated supply for filler-tobacco, and the revoluble and reciprocating charge-box for conveying the tobacco from the point of supply to the rolling mechanism, combined with means, substantially as described, for pressing the tobacco into the charge-box, and sprocket-wheel and rack mechanism for re-

versing the position of said charge-box, substantially as and for the purposes set forth.

9. In a cigar-bunching machine having a matrix to receive the charge of tobacco for a bunch, the series of independently-yielding pressers for compressing said charge, substantially as and for the purposes set forth.

10. In a cigar-bunching machine having a matrix to receive the charge of tobacco for a bunch, the series of independently-yielding and independently-adjustable pressers for compressing said charge, substantially as set forth.

11. In a cigar-bunching machine having a matrix to receive the charge of tobacco for a bunch, the series of independently-yielding pressers for compressing said charge, the outline of said pressers being that of a cigar, substantially as set forth.

12. In a cigar-bunching machine, the holder for the filler-tobacco, the rolling-table, the apron thereon, and the reciprocating forming-roller, combined with the charge-box having a movement from said holder to the apron, the knife for severing the charge of tobacco, and the series of yielding pressers for compressing the tobacco for the bunch, substantially as set forth.

13. In a cigar-bunching machine, the bunch-rolling mechanism and the matrix to receive the charge of tobacco, combined with the vertically-movable frame carrying the series of pressers for pressing the tobacco, said pressers being independent of each other and having a spring-tension downward, substantially as set forth.

14. In a cigar-bunching machine having bunch-rolling mechanism and a matrix to receive the charge of tobacco, the frame mounted on guide-rods and carrying the series of presser-rods, the plates on the lower ends of said rods, and the springs encompassing said rods between the ends of said frame, combined with the collars for adjusting the tension of said springs, substantially as set forth.

15. In a cigar-bunching machine having

bunch-rolling mechanism and a matrix to receive the charge of tobacco, the frame mounted on guide-rods and carrying the series of presser-rods, the plates on the lower ends of said rods, and the springs encompassing said rods between the ends of the frame, combined with the transverse bar and set-screws for regulating the tension of said springs, substantially as set forth.

16. In a cigar-bunching machine, the series of independently-yielding pressers, the holder for filler-tobacco, the charge-box beneath said holder, and the knife for severing the charge of tobacco, combined with the bunch-rolling mechanism, and mechanism, substantially as described, for moving the said charge-box from the holder to the rolling mechanism and reversing its position to effect the deposit of the charge, substantially as set forth.

17. In a cigar-bunching machine, the holder *w'* in the outline of a cigar, the vertically-movable charge-box beneath said holder, and the knife for severing the charge of tobacco, combined with the bunch-rolling mechanism, the reciprocating frame mounted on guide-rods and carrying the series of presser-rods, the springs encompassing said rods between the ends of said frame, the series of presser-plates in the outline of a cigar on the lower ends of said presser-rods, and mechanism, substantially as described, for actuating said box, knife, and reciprocating frame from the driving-shaft, substantially as set forth.

18. In a cigar-bunching machine, the series of independently-yielding pressers, the holder for filler-tobacco, and the matrix beneath said holder, combined with the knife for severing the tobacco in the matrix from the remaining portion thereof and bunch-rolling mechanism, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 16th day of August, A. D. 1889.

JOHN R. WILLIAMS.

Witnesses:

CHAS. C. GILL,

R. A. PORTEOUS.