

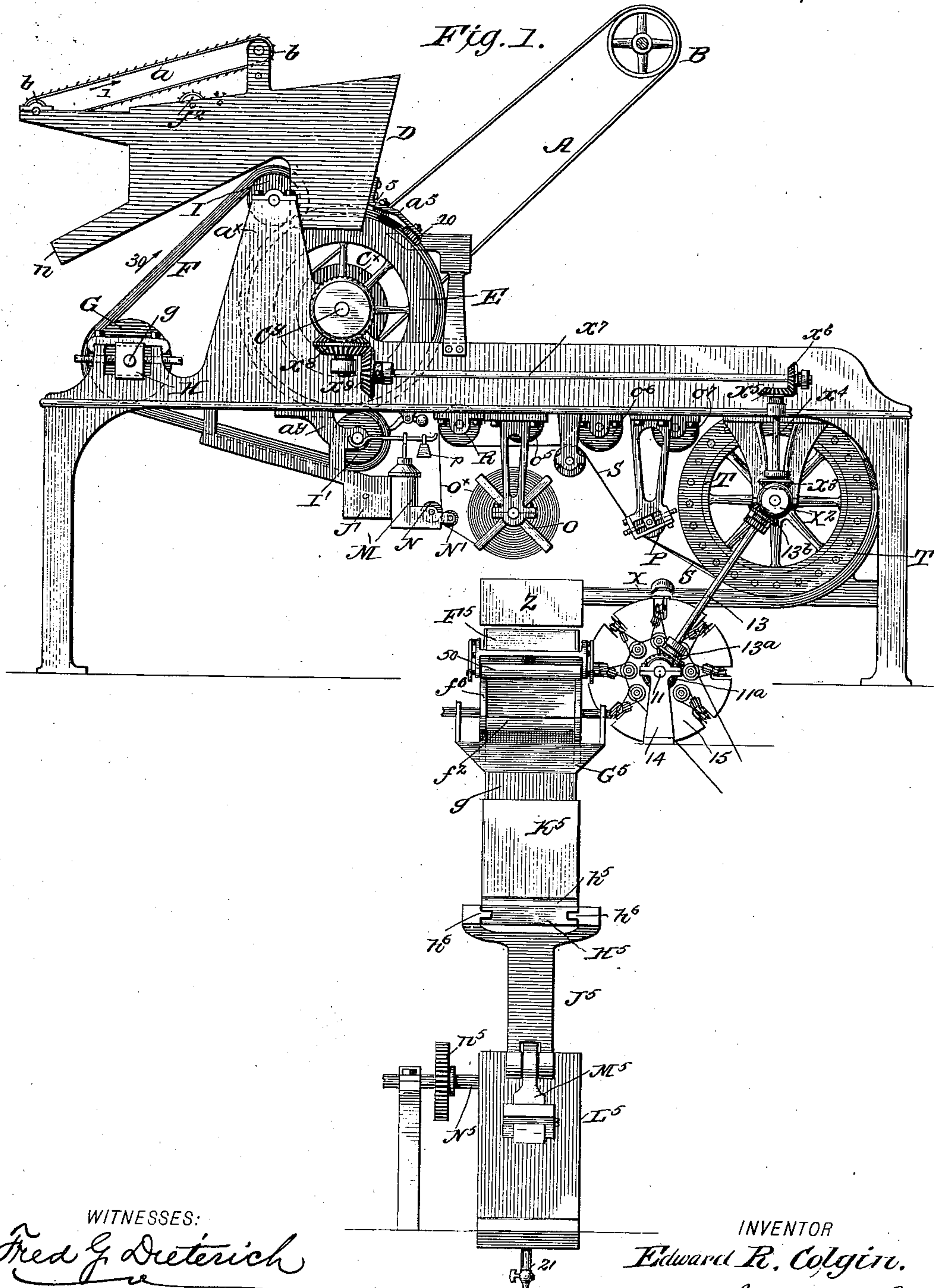
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7 Sheets—Sheet 1.

E. R. COLGIN.  
CONTINUOUS CIGARETTE MACHINE.

No. 540,723.

Patented June 11, 1895.



WITNESSES:  
*Fred G. Dietrich*  
*M. D. Bloude*

INVENTOR  
*Edward R. Colgin.*  
BY *Munn & Co.*  
ATTORNEYS.

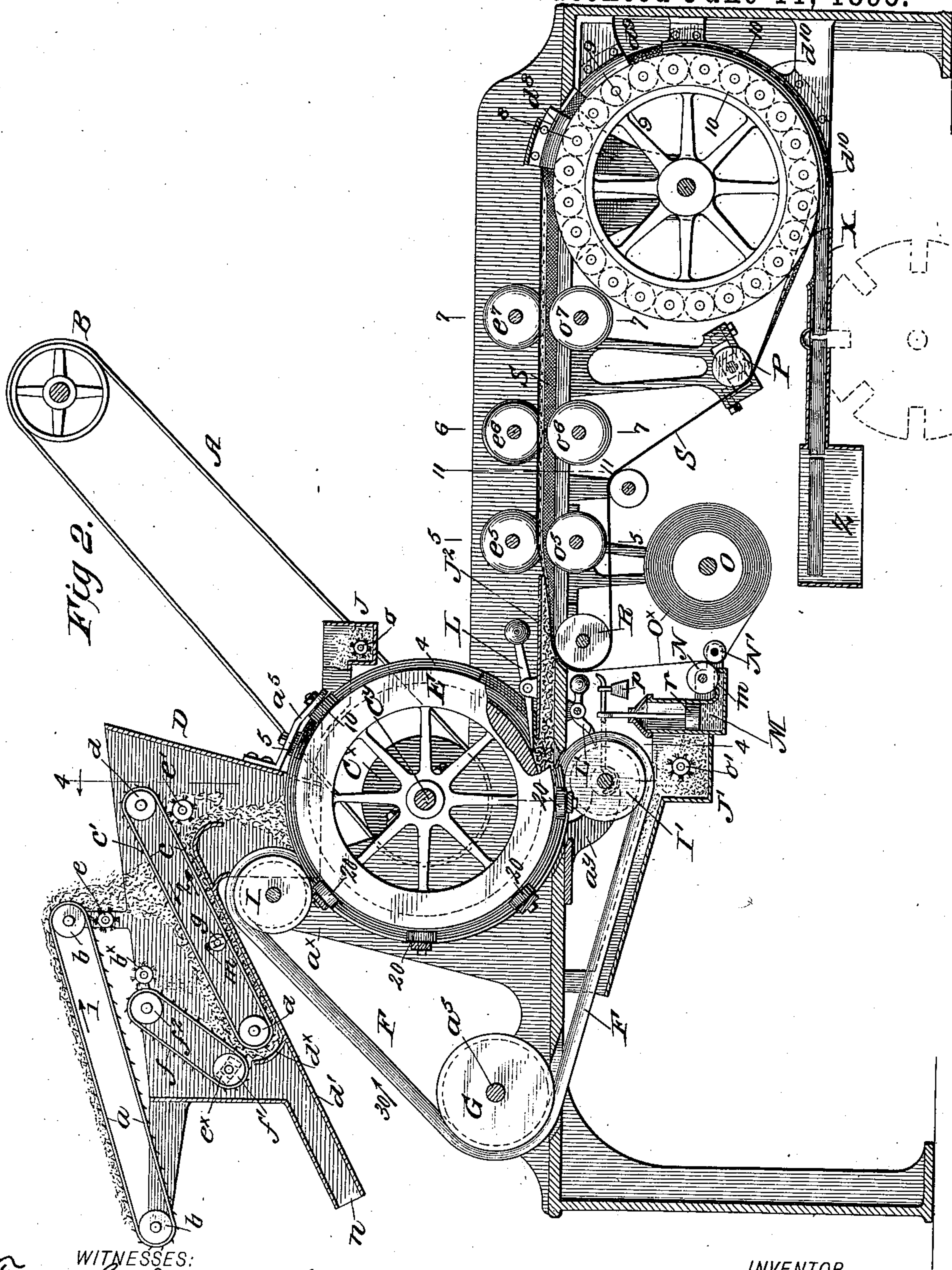
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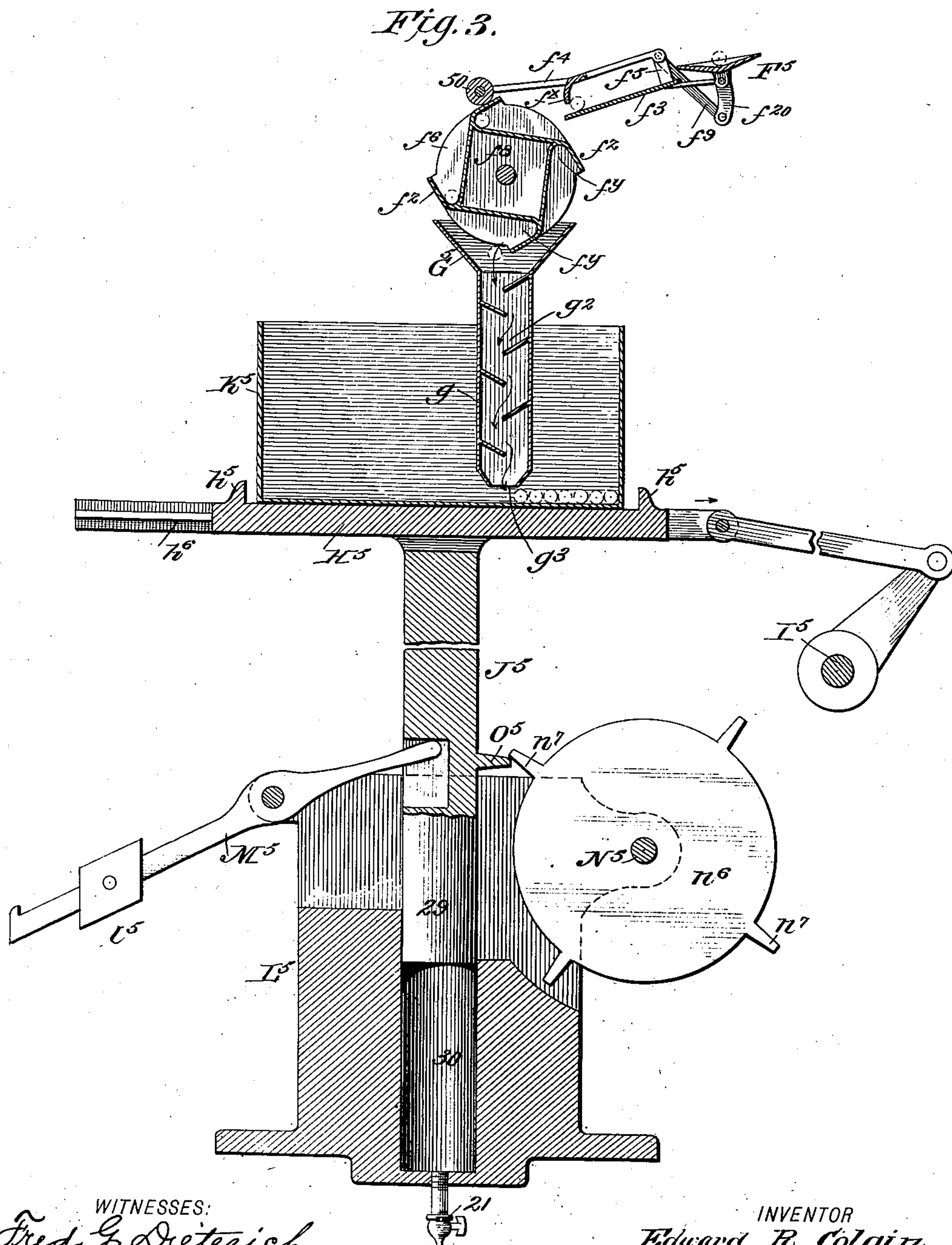
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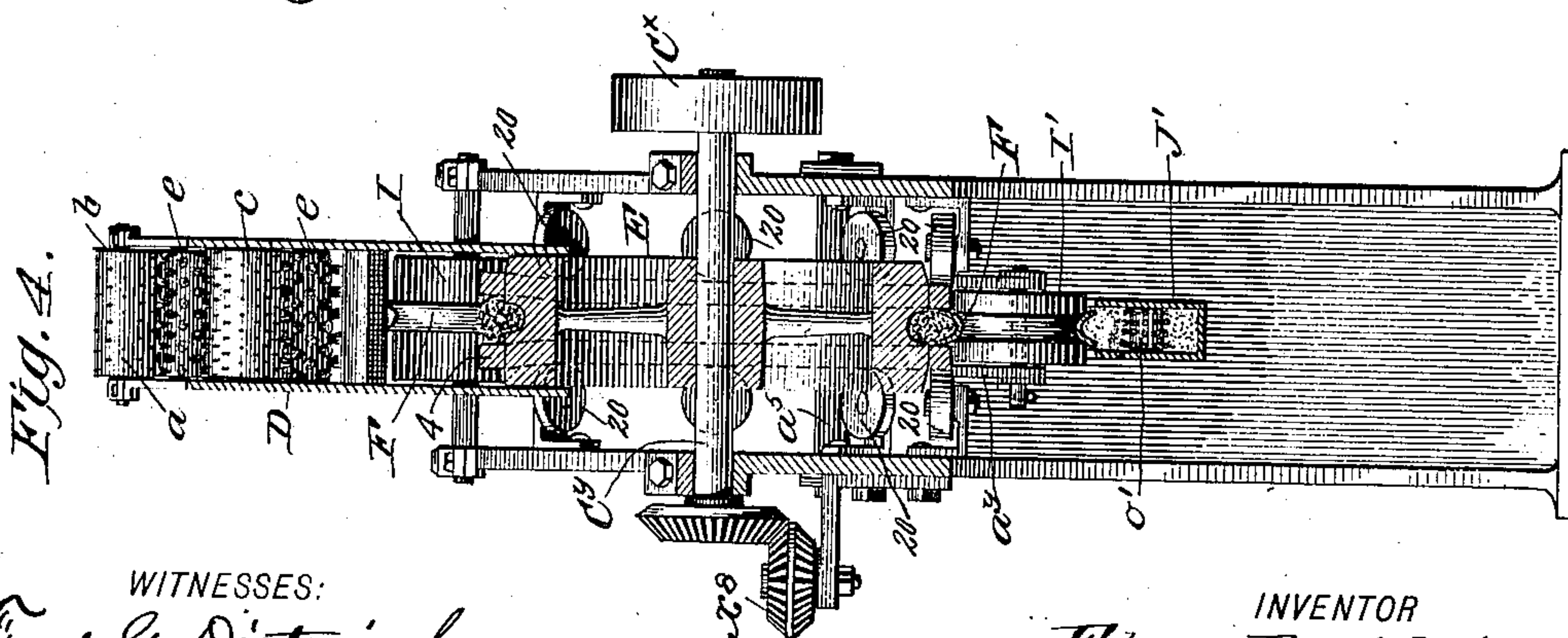
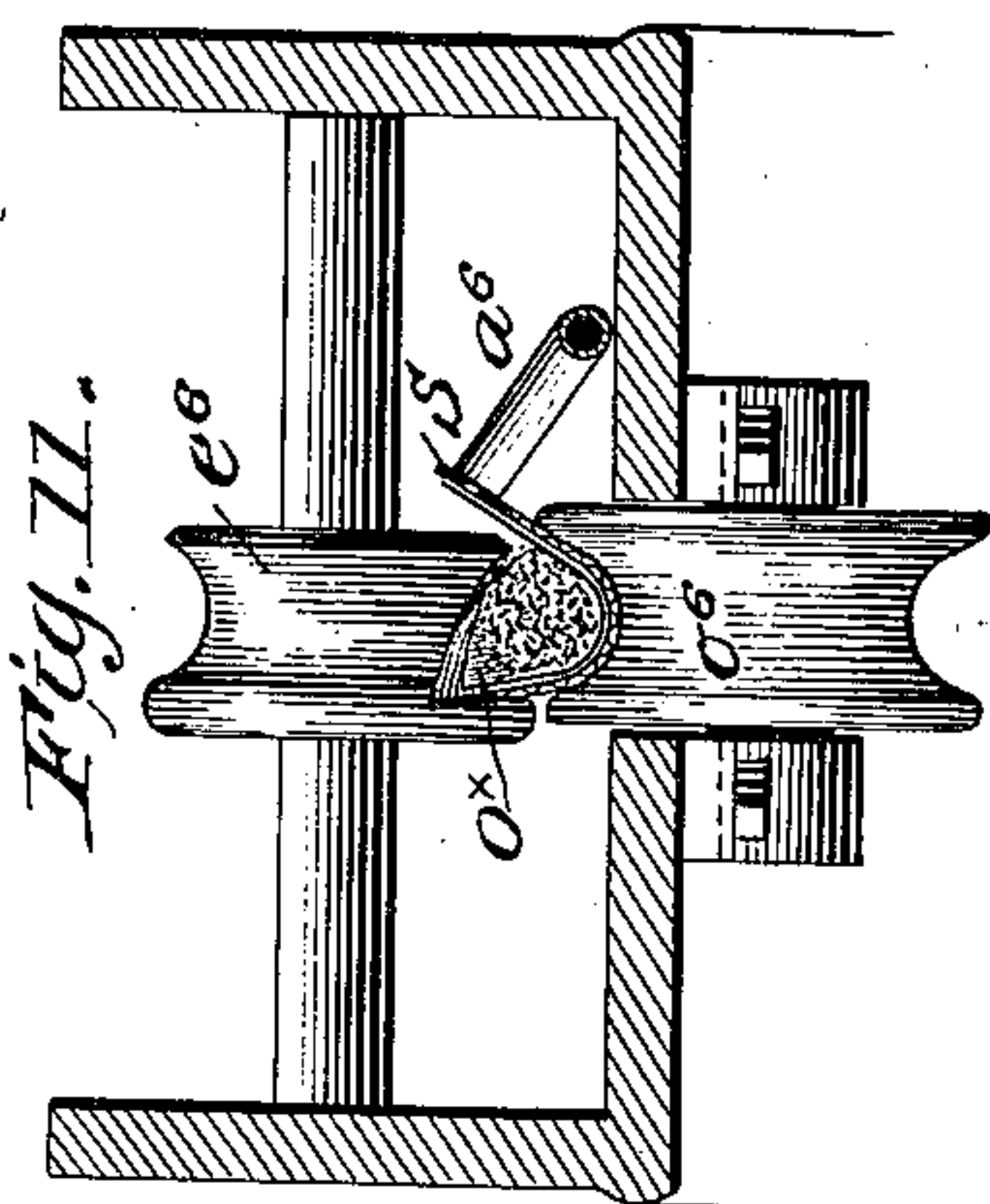
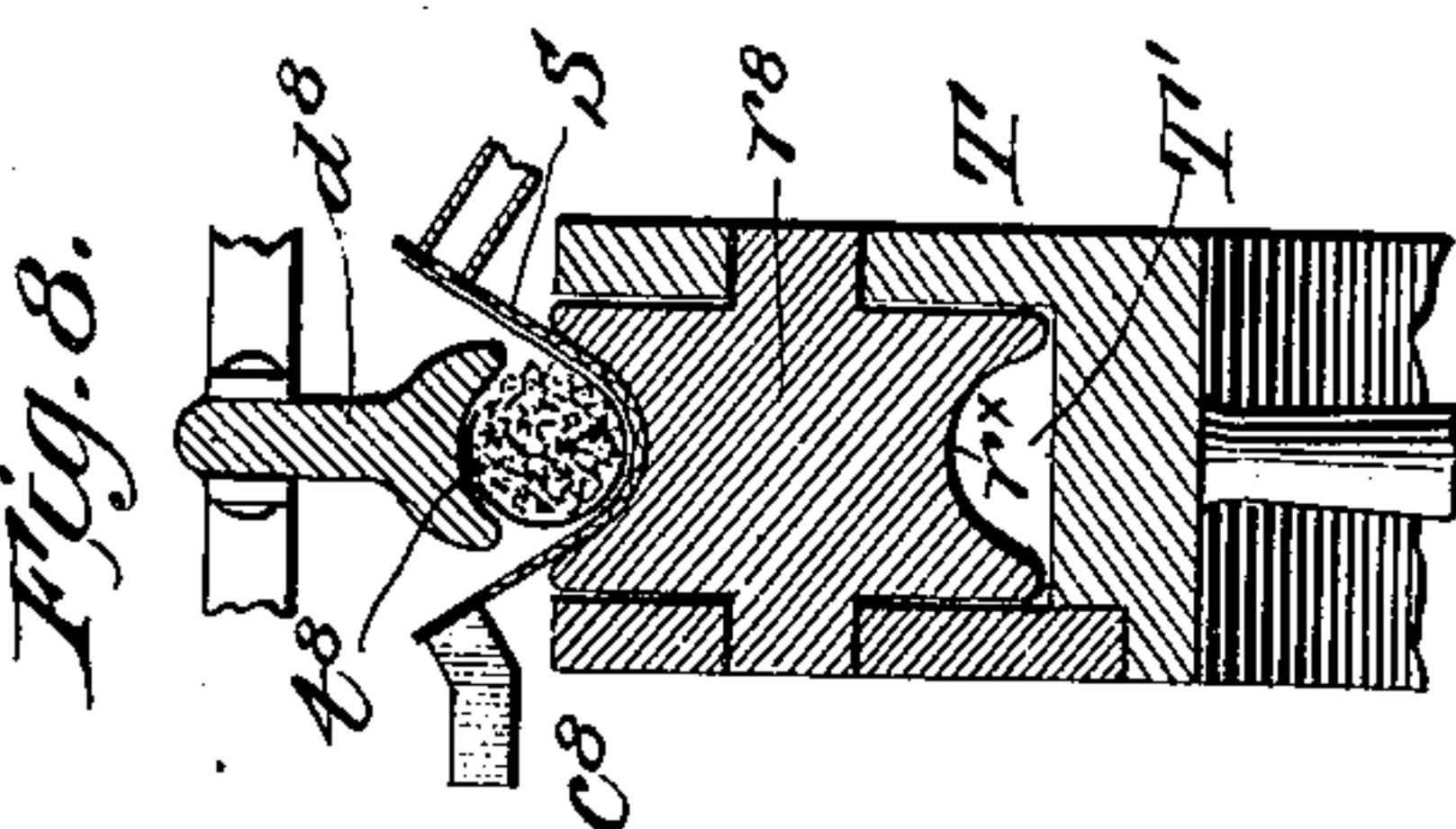
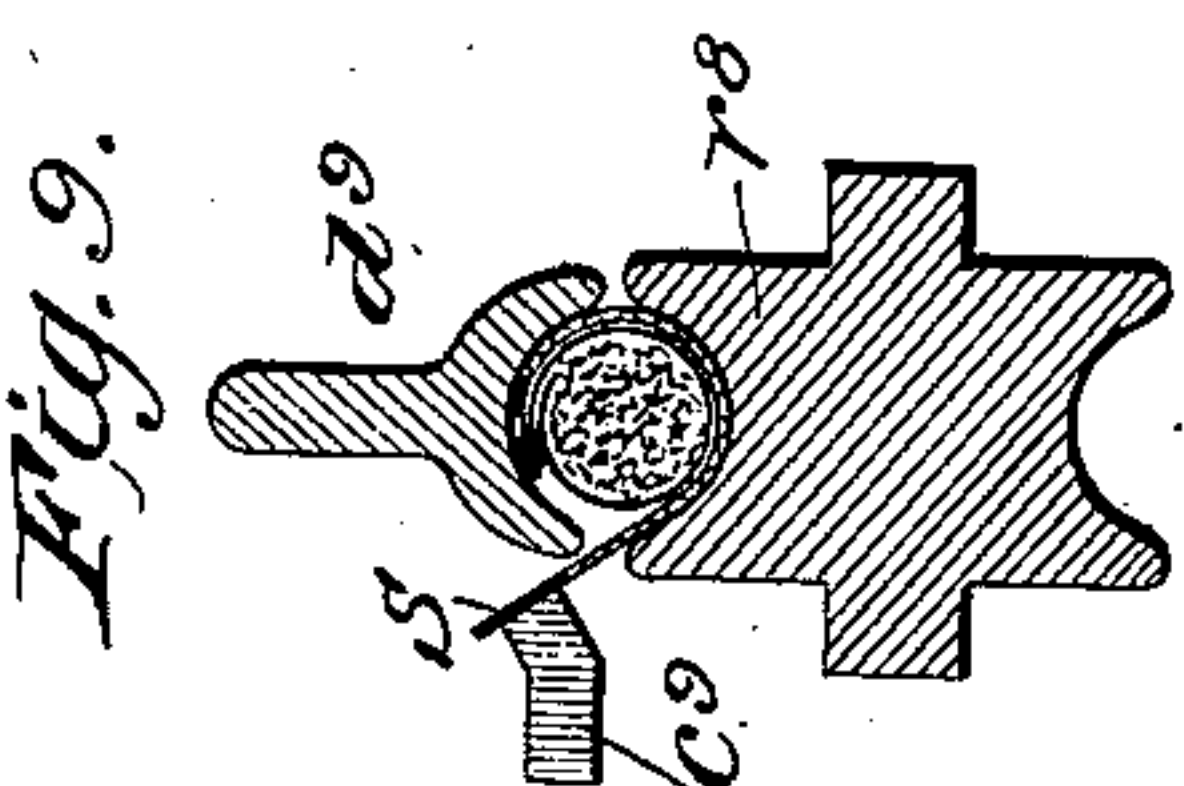
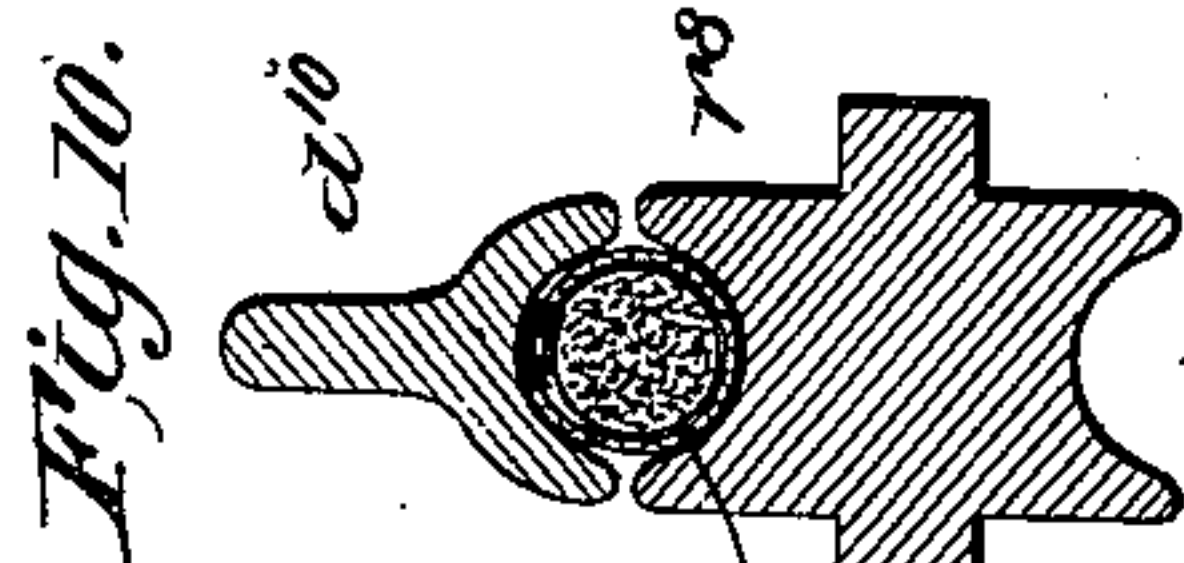
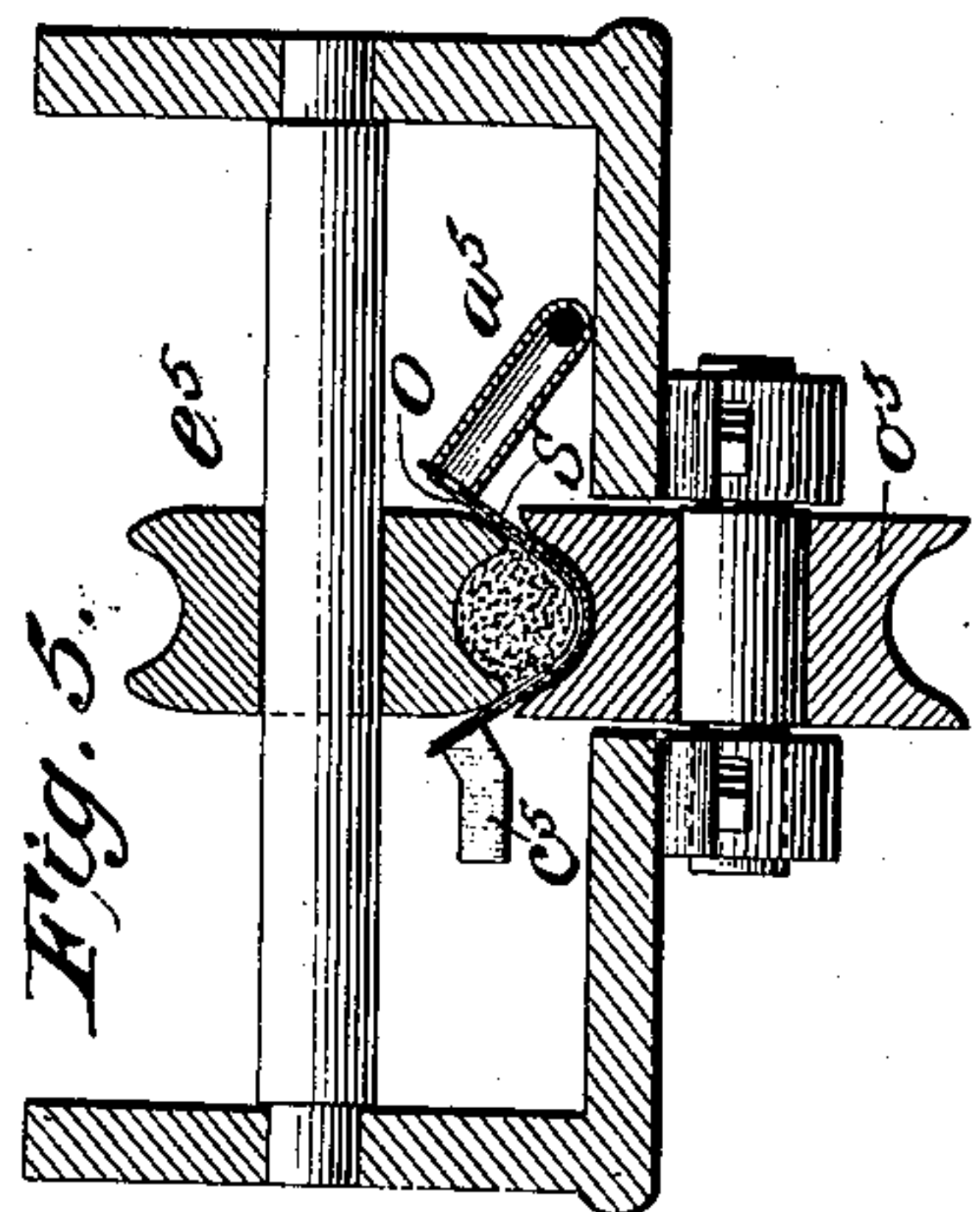
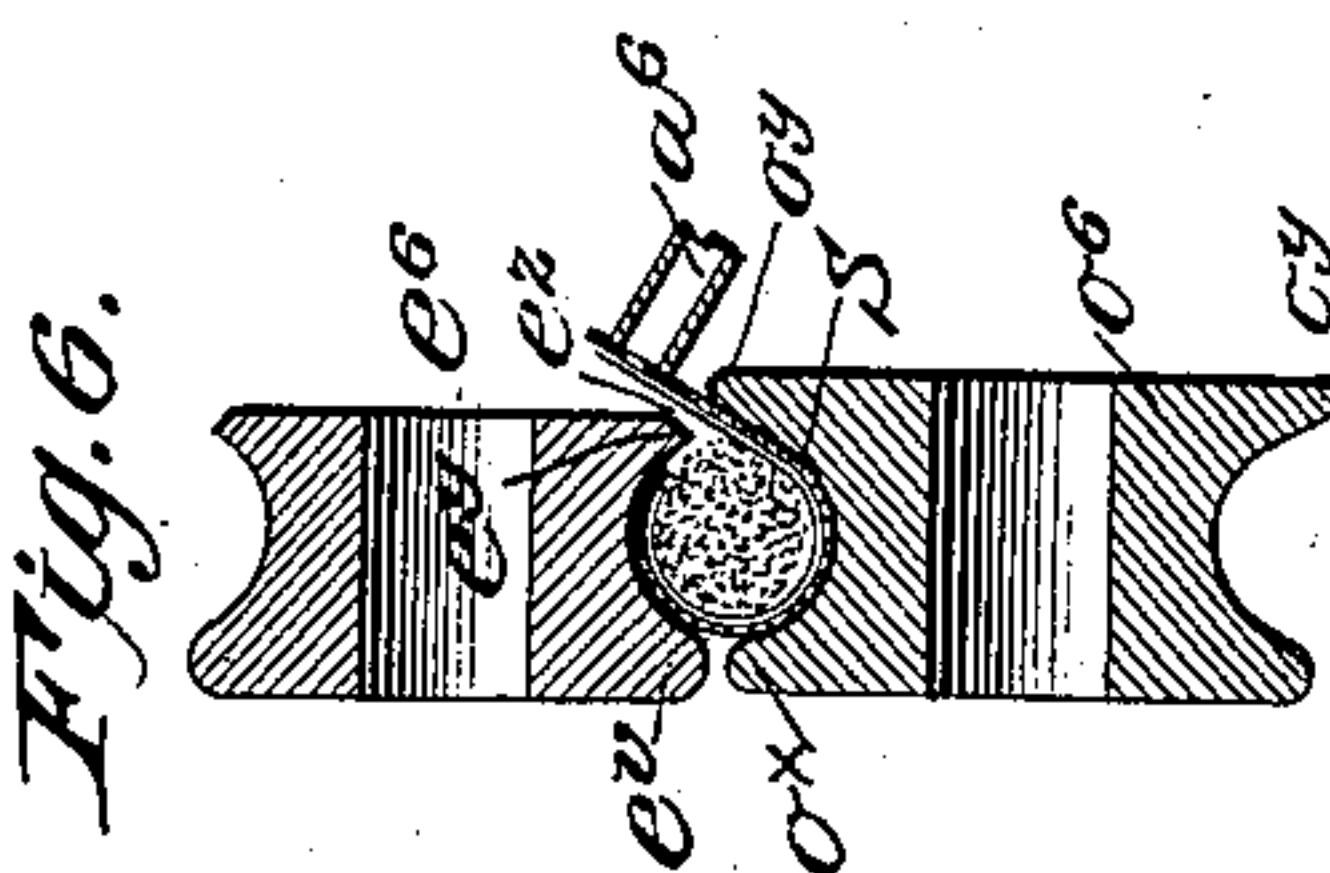
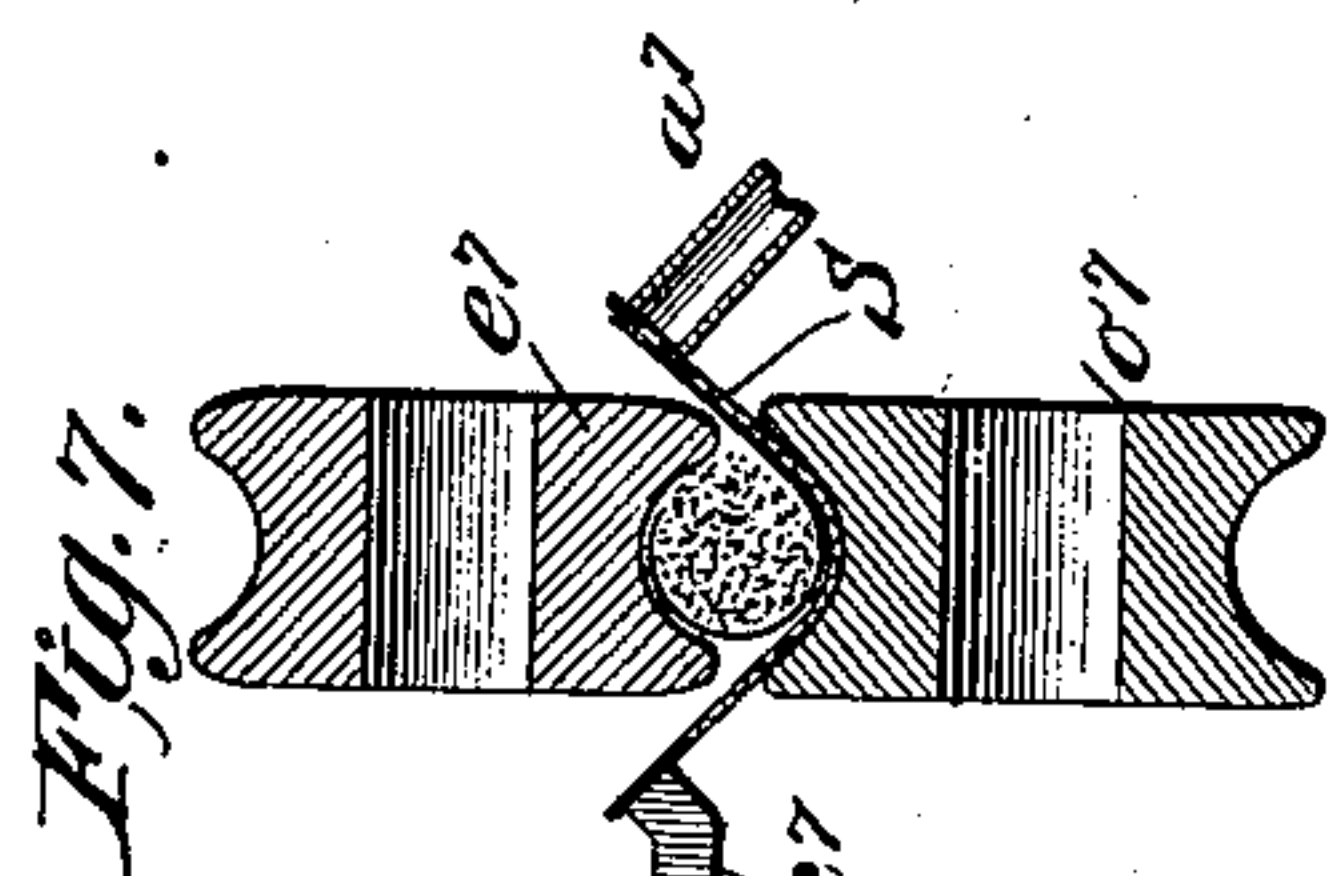
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(No Model.)

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Fig. 12.

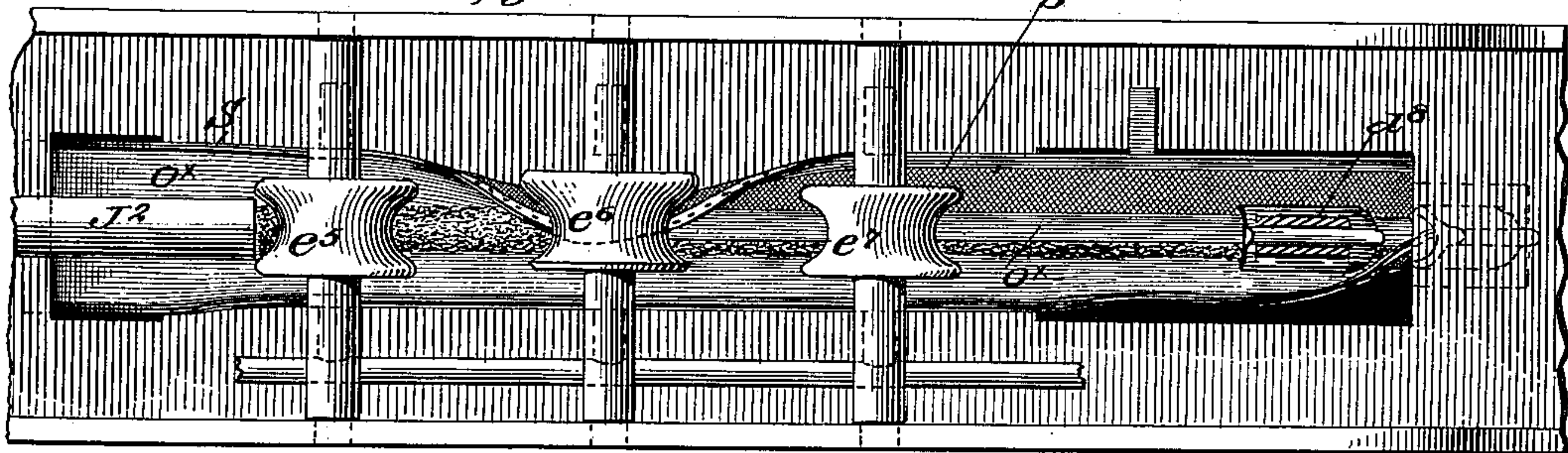


Fig. 13.

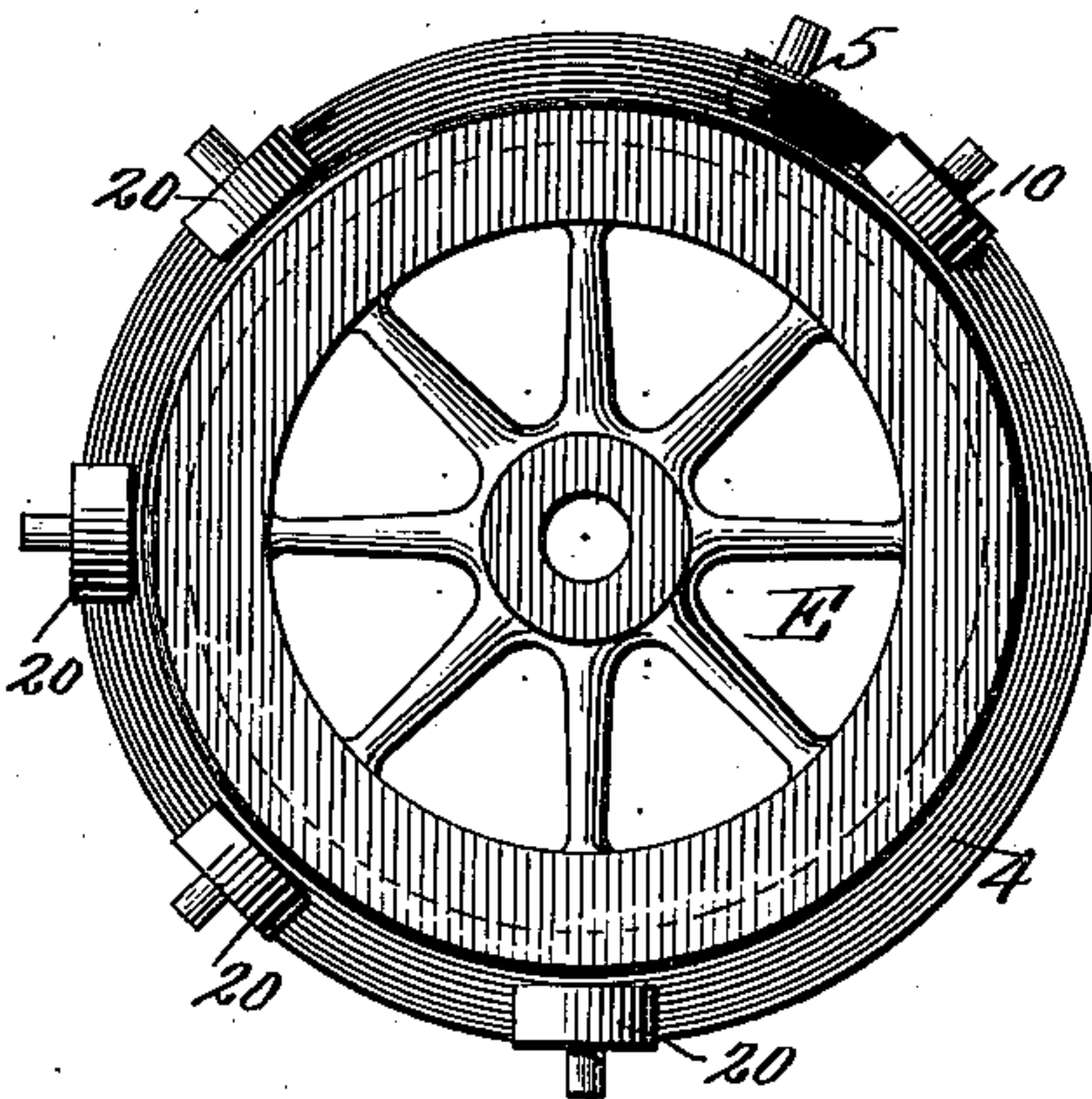


Fig. 14.

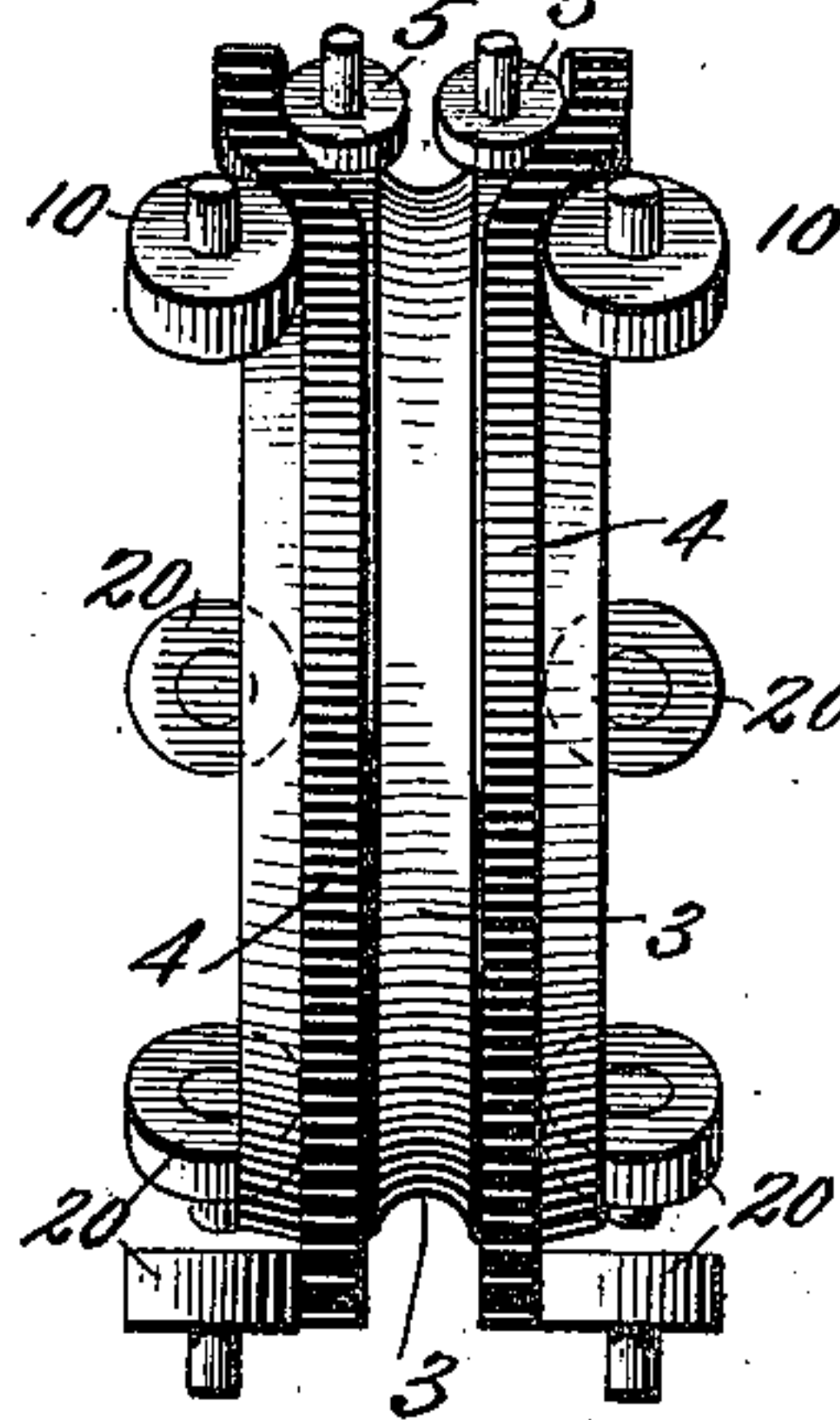


Fig. 16.

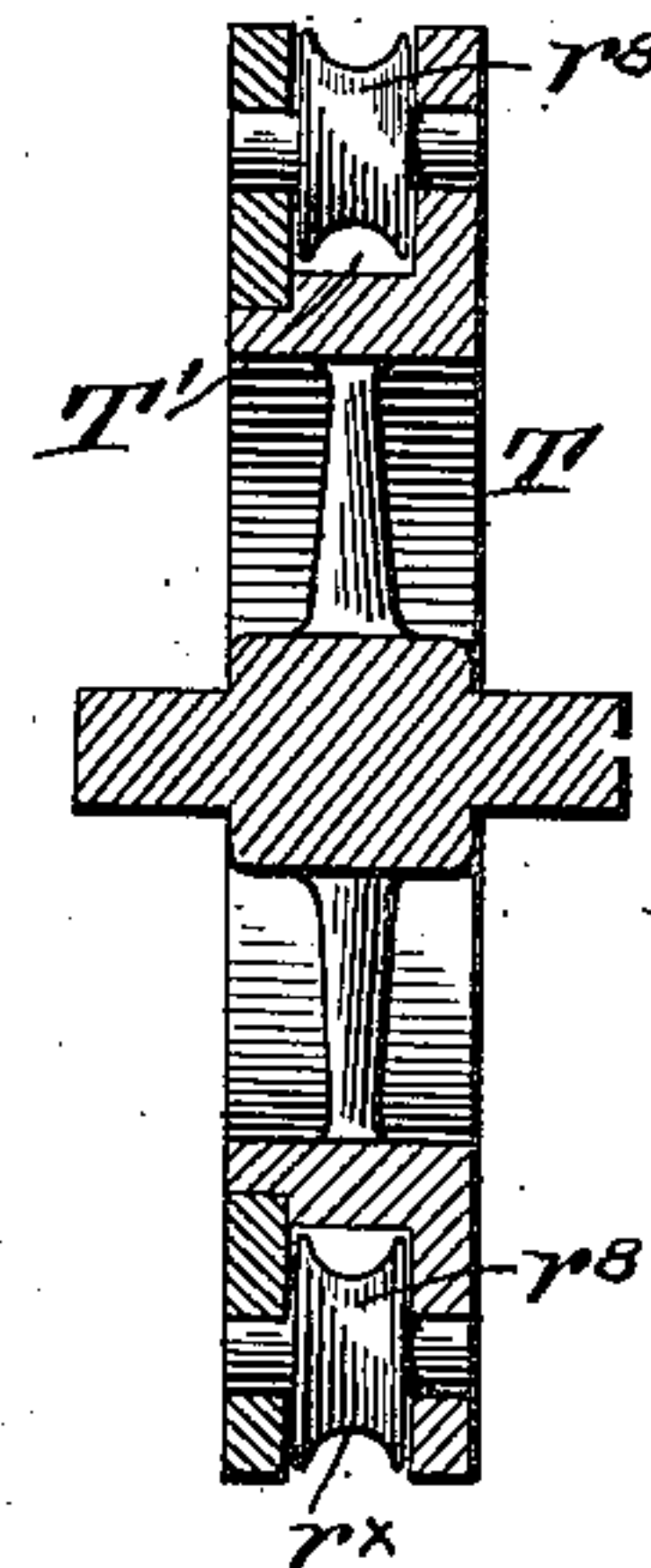


Fig. 15.

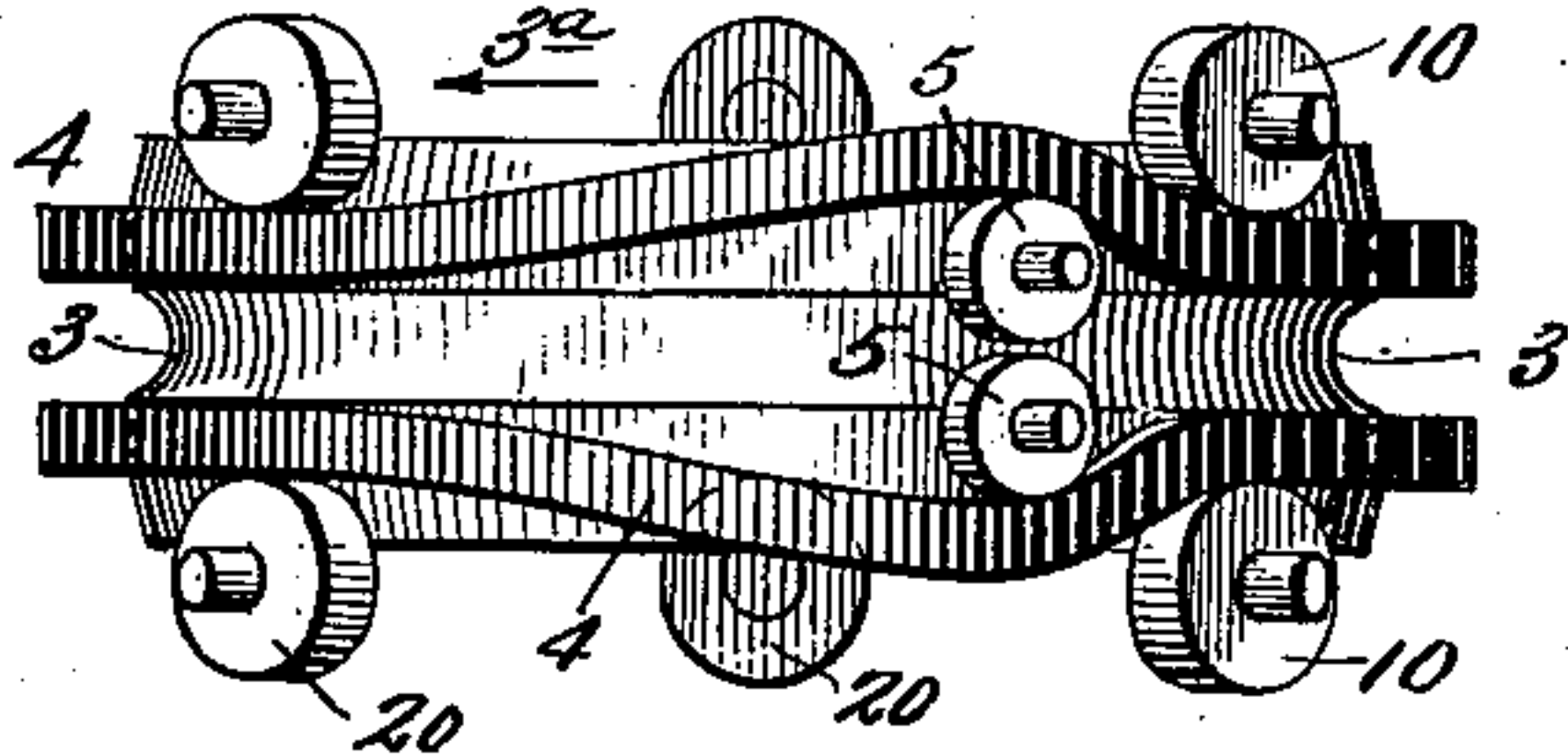
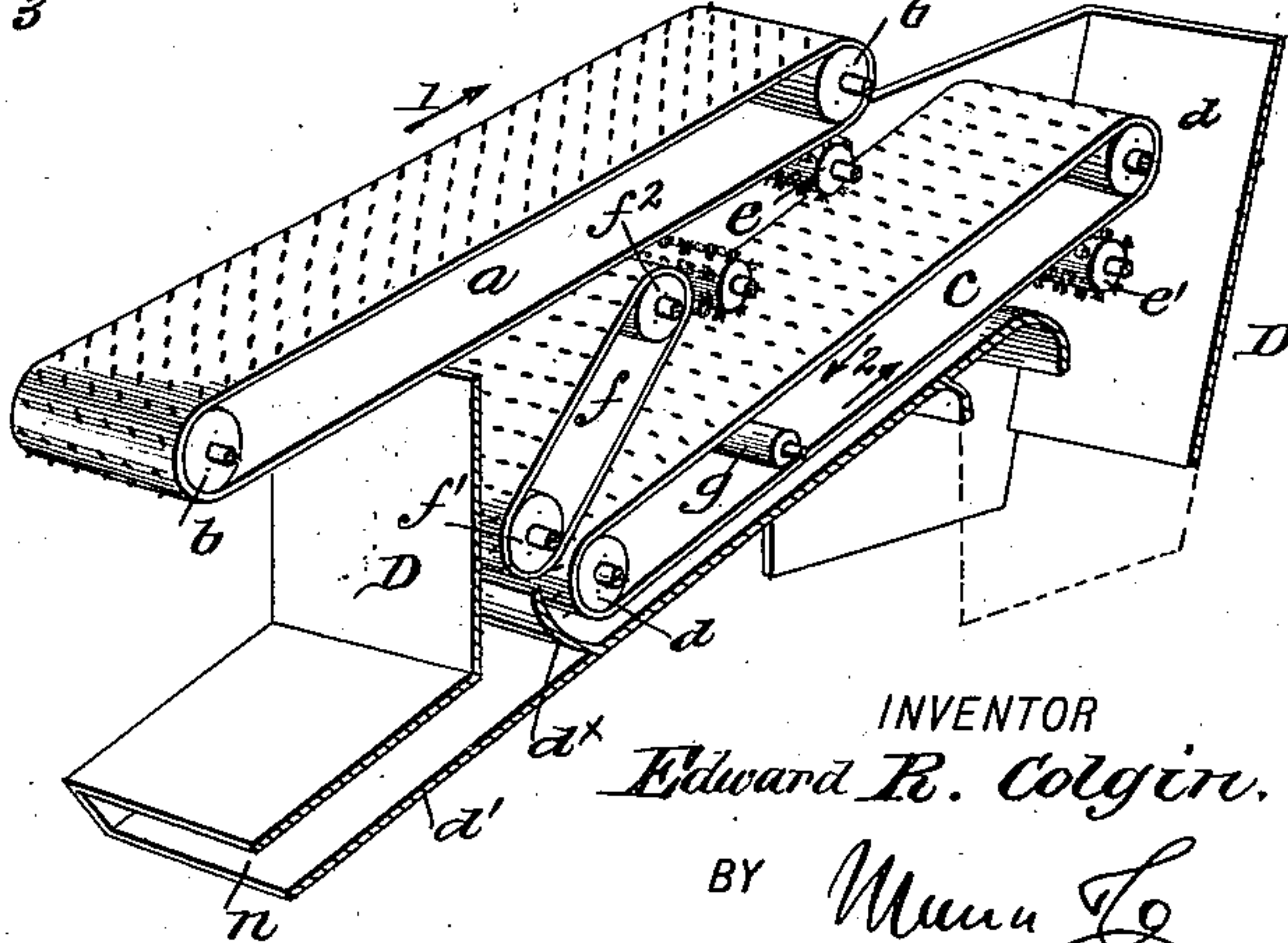


Fig. 17.



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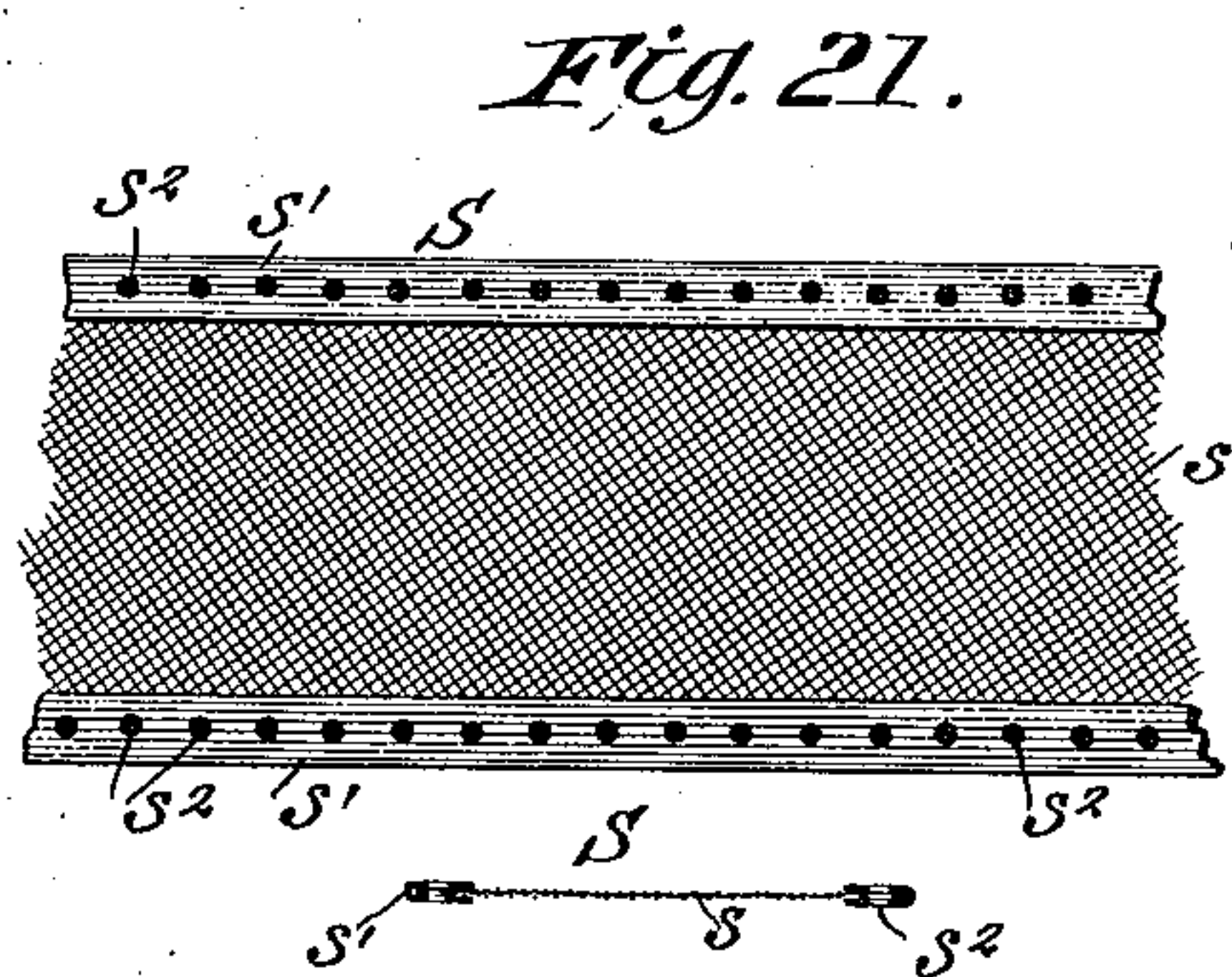
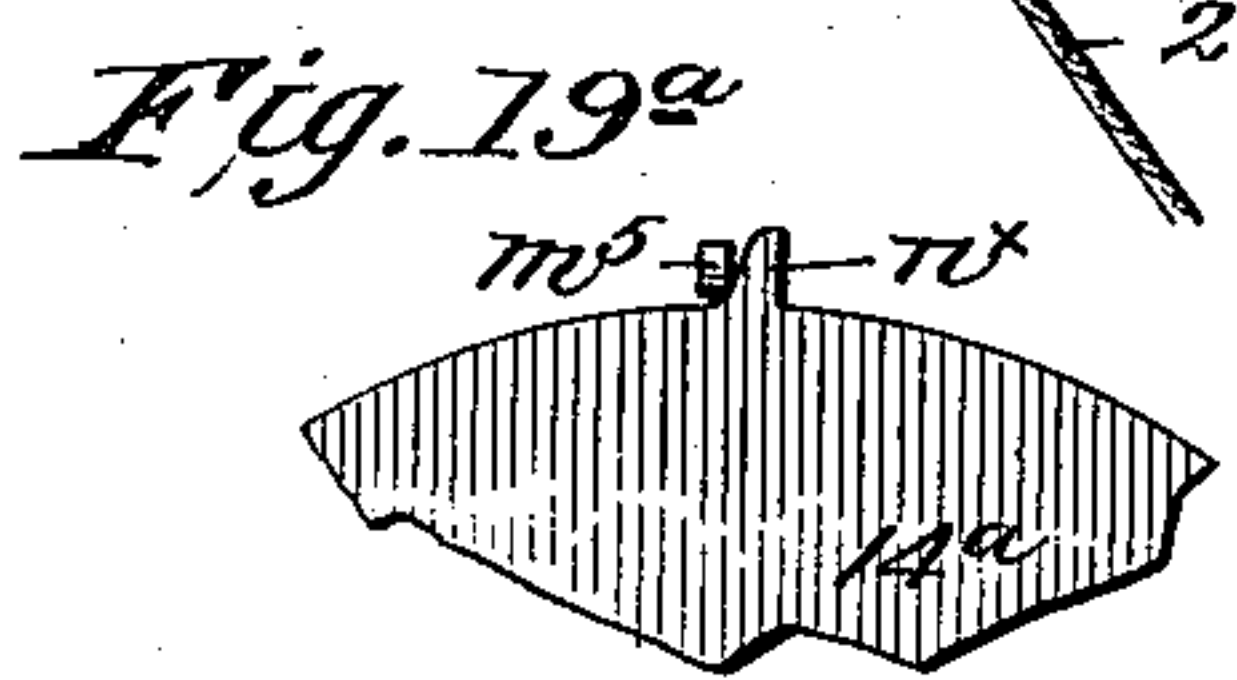
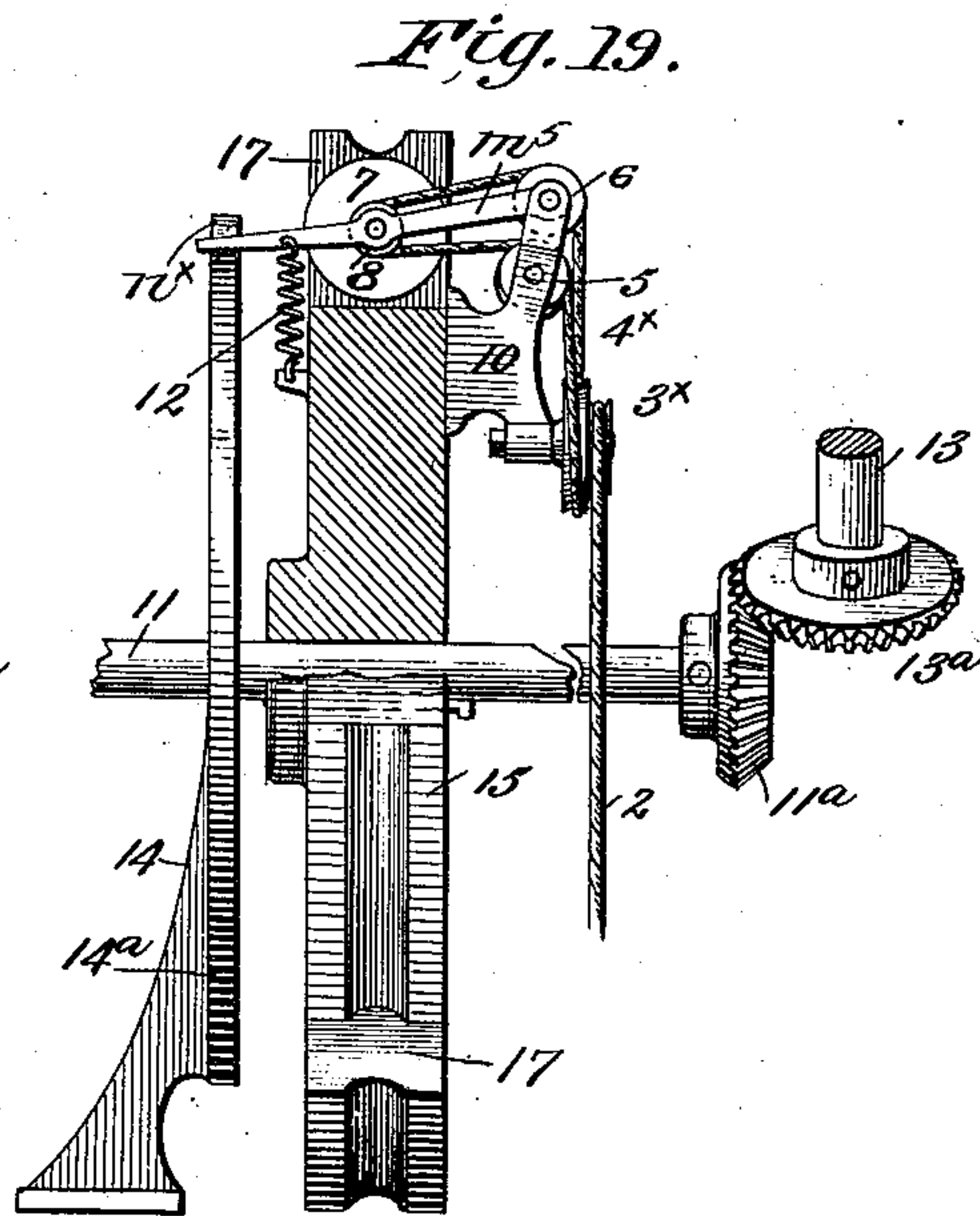
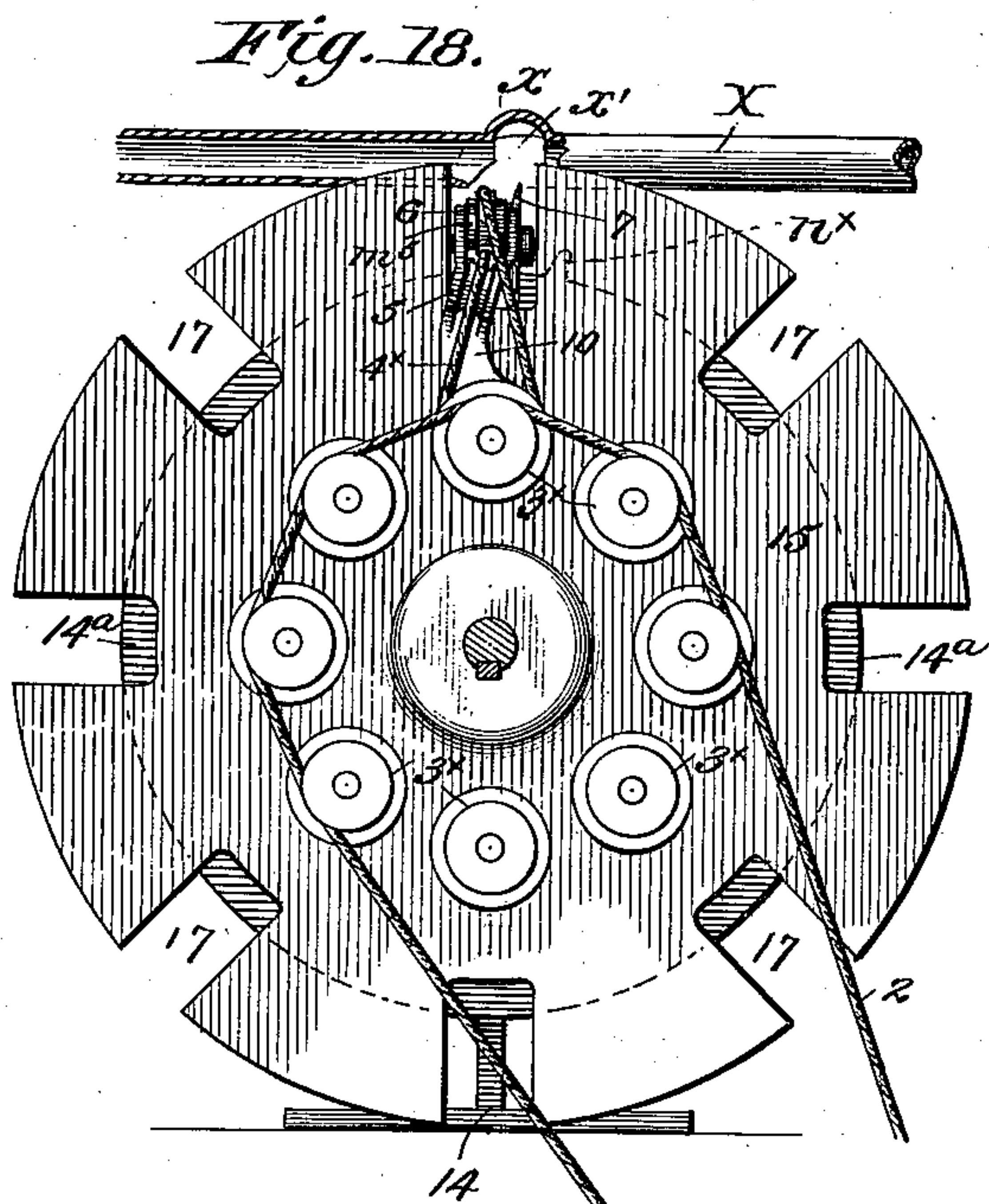
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No. 540,723.

Patented June 11, 1895.



WITNESSES:  
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(No Model.)

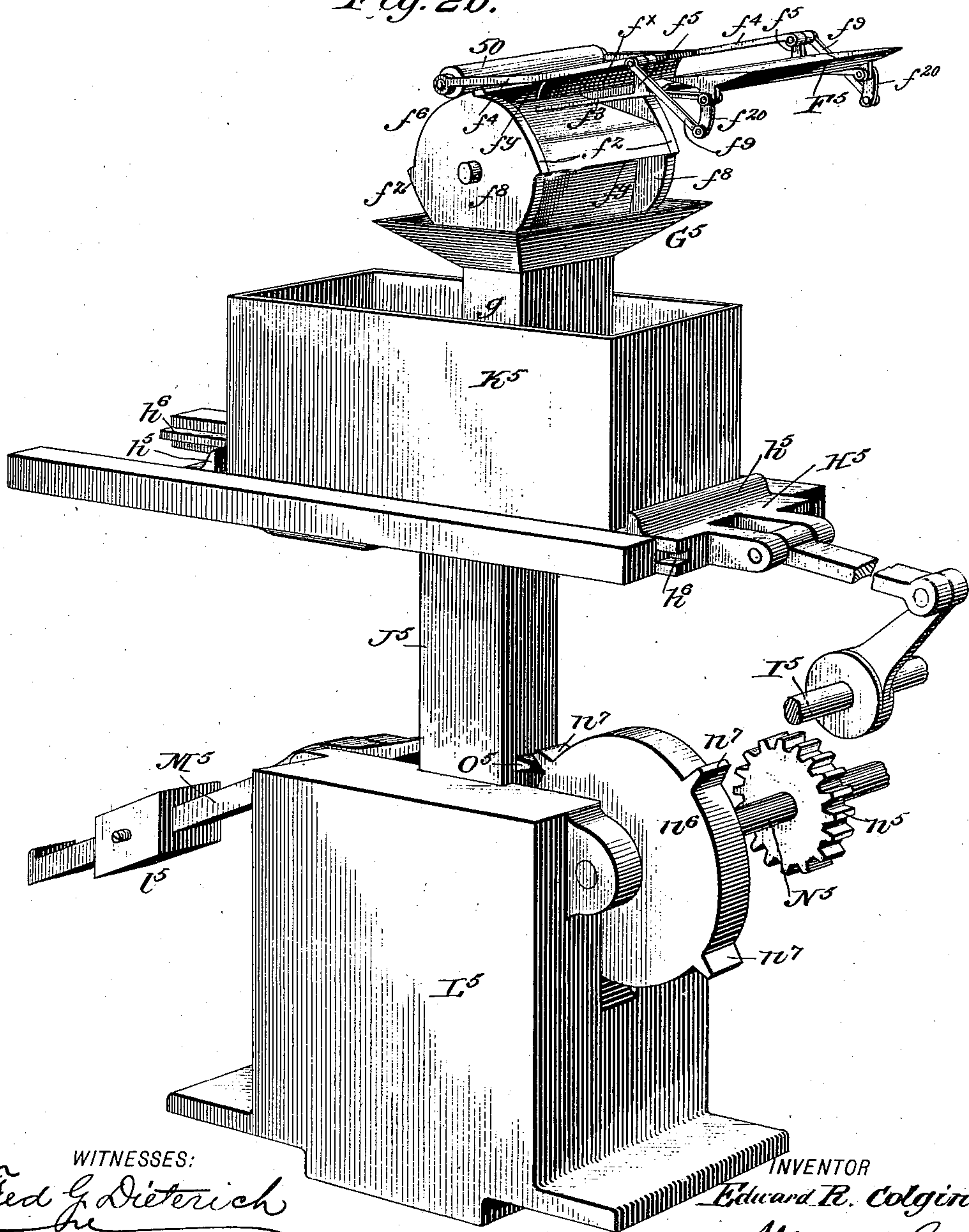
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Patented June 11, 1895.

Fig. 20.



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# UNITED STATES PATENT OFFICE.

EDWARD RANDOL COLGIN, OF RICHMOND, VIRGINIA, ASSIGNOR TO THE  
COLGIN CIGARETTE MACHINE COMPANY, OF SAME PLACE.

## CONTINUOUS-CIGARETTE MACHINE.

SPECIFICATION forming part of Letters Patent No. 540,723, dated June 11, 1895.

Application filed August 29, 1894. Serial No. 521,621. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD RANDOL COLGIN, residing at Richmond, in the county of Henrico and State of Virginia, have invented  
5 a new and Improved Continuous-Cigarette Machine, of which the following is a specification.

My invention has primarily for its object to provide a cigarette machine of a simple  
10 and compact construction, in which the filler rod-forming devices and the wrapping, the pasting and cutting mechanism are so arranged and connected as to positively and uniformly operate to form the cigarettes and  
15 cut them without reducing or marring the filler at the ends.

It has also for its object to provide a machine of this character which, when in operation, will serve besides forming and cutting  
20 the cigarettes, to deposit them in uniform layers in a receiver or detachable box.

With other objects in view which hereinafter will be particularly referred to, the invention consists in such novel features of construction and peculiar combination of parts  
25 such as will be first described in detail and then specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

30 Figure 1 is a side elevation of my improved machine. Fig. 2 is a central longitudinal section of the filling, wrapping, pasting, and cutting mechanism. Fig. 3 is a longitudinal central section of the cigarette receiving and depositing mechanism hereinafter particularly described. Fig. 4 is a vertical transverse section taken on the line 4 4, Fig. 2, looking in the direction indicated by the arrow. Figs.  
35 5, 6, 7, 8, 9, and 10 are detail sectional views taken, respectively, on the lines 5 5, 6 6, 7 7, 8 8, 9 9, and 10 10 on Fig. 2. Fig. 11 is a detail cross-section taken on the line 11 11, Fig. 2. Fig. 12 is a top plan view of a portion of the wrapping and folding mechanism. Fig.  
40 13 is a detail side view of the filler forming or packing wheel. Fig. 14 is an end view thereof, and Fig. 15 is a top view of the same. Fig. 16 is a transverse section of the wrapping-wheel hereinafter referred to. Fig. 17 is a detail perspective view of the feed or tobacco-conveyer belts. Fig. 18 is a side view, and

Fig. 19 is an end view, partly in section, of the cutting mechanism. Fig. 19<sup>a</sup> is a detail view thereof. Fig. 20 is a perspective view of the depositing devices, the reciprocating carriage, 55 the receiver, and the packing mechanism. Fig. 21 is a detail view of the metallic wrapping or folder band.

In describing my invention I shall, for the sake of clearness, begin at the point where  
60 the loose tobacco is fed to the machine, and describe the construction of the several parts consecutively, following as near as possible the course of the tobacco through the machine.

Referring now more particularly to Figs. 1, 65 2 and 17, *a* indicates the first feed apron, which passes over guide rollers *b*, journaled in suitable framing and driven in the ordinary manner, such apron being held to travel upwardly as indicated by the arrow 1, the upper end being disposed above a second conveyor apron *c*, which passes over guide rollers  
70 *d* journaled in the frame or housing *D*, such apron in practice being driven downwardly as indicated by the arrow 2, toward a check or stop device *d'* projected up from the inclined bottom *d'* of the frame *D*, which bottom stops at a point short of the upper end of the apron *c* for a purpose presently explained. The apron *c* has a series of picker  
75 teeth *c'* which as they pass over the bottom *d'* will serve to carry the material up the incline *d'* to discharge it over the upper end thereof.

*n* indicates the outlet to frame *D* for the overflow of tobacco. 85

*e e'* indicate brushes held under the upper end of the first and second conveyor aprons respectively which serve to clear and clean the said aprons, at points where they discharge the tobacco. 90

*f* indicates a band to regulate the feed of the tobacco under the lower or second conveyor, which band passes over guide pulleys *f' f''* at the lower or upper ends, the lower one of which *f'* is journaled in and adapted to be  
95 adjustably held in a slot *e''*, whereby the lower end of such band may be raised from or lowered toward the lower end of the conveyor apron *c*, according to the quantity of tobacco to be used in a certain number of cigarettes. 100

*b''* indicates a brush which is held to engage the under face of the upper end of the regu-



lating band, and serves to clean and clear such band.

*g* indicates a small roller which is adjustably held in slots *m*, which bears down on the lower portion of the second conveyer apron, and serves to keep it in a steady position, and thereby cause it to lift the tobacco in a uniform manner up over the incline *d'*.

*B* indicates a pulley mounted on the main shaft over which passes the main or power belt *A* which passes over a lower pulley *C*<sup>x</sup> mounted on the shaft *C*<sup>y</sup> journaled on the main frame of the machine.

*E* indicates what I term the filler rod forming wheel, the construction of which is most clearly shown in Figs. 2, 13, 14 and 15 by reference to which it will be seen, such wheel has a central annular groove 3, and at each side of such groove 3 it has annular flanges 4 formed of a flexible material, or if desired the entire wheel may be constructed of such a material.

10, 10 indicate rollers journaled on the frame section *a*<sup>5</sup> in advance of the point where it receives the tobacco from the lower conveyer apron which bears against the outer faces of the flanges 4 and presses the same to a parallel position as shown, and 5, 5 indicate a second set of rollers, which are of a somewhat smaller diameter than the rollers 10 and are held between or inside of the flanges 4, 4 and serve to bulge or distend them outward as shown most clearly in Fig. 14, to form a receiving space, as it were for the tobacco. At the front, that is, the portion facing the conveyer end, the wheel has its flanges held pressed together as it revolves, (see arrow 3<sup>a</sup>) by a series of rollers 20, which serve to keep the tobacco contained in such portion of the wheel tightly pressed together, which in connection with the flexible band *F*, which passes tightly over such front face of the wheel *E*, serves to form such tobacco into a filler rod.

The band *F* in practice is formed of a thin flexible metal sheet. It is supported and guided on a pulley *I* journaled in the upper end of the frame section *a*<sup>x</sup>, passes over a pulley *G* journaled in adjustable bearing boxes *H* mounted on the front end of the main frame and a pulley *I'* journaled in bearings *a*<sup>y</sup> projected down from the bed of the machine, at a point about centrally under the forming wheel *E*. The band *F* it will be noticed is held in frictional contact with the front face of the wheel *E*, and is thereby caused to travel in the direction indicated by the arrow marked 30, such band being held taut by adjusting the boxing *H*.

It will be noticed by reference to Fig. 2 that the wheel *E* projects into the bottom of the housing *D*, the open or spread portion of its flanges being at a point directly under the discharge end of the lower conveyer belt.

*J* indicates a casing having a nose portion projected into the groove 3, of the wheel *E*, at the upper rear face thereof, in which is held a powder or dust, which is agitated and caused

to spread onto such groove 3, by means of a rotary brush *o*, such powder being used to keep the wheel *E* from gumming, a box *J'* and a brush *o'* held under the guide pulley *I'*, being also provided for spreading powder on the band *F* to keep it from gumming.

So far as described it will be seen that as the loose tobacco drops on the forming wheel *E*, the flanges 4 as they engage the several presser rollers 20, and the band *F*, will serve to compress the tobacco into a filler rod, which as it reaches the bed of the machine is forced under a guide *J*<sup>2</sup> into the wrapping mechanism presently referred to.

*L* indicates a weighted scraper, the blade of which engages the face of the groove 3 at a point just above the filler rod and *L'*, a similar scraper which engages the band *F* as shown. The upper scraper also acts as a conductor to guide the filler rod to the guide *J*<sup>2</sup>. After the filler or tobacco rod leaves the wheel *E* it passes under the guide *J*<sup>2</sup>, and enters onto an endless folding band or tape *S* which passes over the bed of the machine and over the final wrapping wheel hereinafter described. This band *S* is somewhat wider than the ribbon of wrapping paper, so that it will when bent up over the tobacco rod encircle and overlap the said rod, and such band at its forward end passes over a guide roller *R* journaled under the machine bed with its upper face projected therethrough at a point under the guide *J*<sup>2</sup>.

The band *S* is formed of a flexible body portion *s* and metallic edges *s'* *s'* having perforations *s*<sup>2</sup> as shown most clearly in Fig. 21. The belt *S* passes through a series of forming rollers or guides mounted on the bed of the machine, and a series of former sections on the periphery of the wrapping wheel, such rollers and sections being most clearly illustrated in Figs. 5 to 10 inclusive.

*O* indicates the paper ribbon reel journaled under the bed of the machine, and *O*<sup>x</sup> the paper ribbon which as it leaves the reel *O* passes under a guide roll *N'* and with one edge against the paste roller *N*, disposed over the discharge nozzle *m* of the paste holder *M*, in which is held a weighted piston *r*, the pressure of which is regulated by the adjustable weight *p*. The ribbon *O* after it receives its paste passes up into the band *S*, and with it through the several entry rollers presently referred to.

Referring now to Fig. 5, the arrangement of the first entry forming rollers will be best understood. *e*<sup>5</sup> denotes the upper grooved pulley, and *o*<sup>5</sup> the lower pulley which is somewhat wider than the pulley *e*<sup>5</sup>, whereby its edges will somewhat lap the adjacent edges of such pulley *e*<sup>5</sup>. At one side of the rollers *e*<sup>5</sup> *o*<sup>5</sup> (at the right in Fig. 5) is arranged a suction device *a*<sup>5</sup>, which in practice is connected with a suitable suction fan, which suction device projects at a point in line with the adjacent perforated metal edge of the band *S*, and serves to draw on the ribbon *O* and thereby to hold such edge of the ribbon down



against the band S. At the opposite side of the rollers is held a magnet  $c^5$  which serves to attract and hold the adjacent edge of the band down to the position shown.

5 In Fig. 6 is shown the arrangement of the second pair of entry rollers, which comprise an upper roller  $e^6$  and a lower roller  $o^6$ , the upper one  $e^6$  having a groove somewhat larger than the groove in roller  $o^6$ , and formed with  
10 one edge (at the left in such Fig. 6) of a larger diameter than the other, whereby a flange  $e^v$  is provided, which is held in close engagement with the edge  $o^x$  of the lower roller  $o^6$ , which roller has one flange  $o^v$  projected be-  
15 yond the edge of the flange  $e^v$  of the roller  $e^6$ , to form a passage  $e^z$ . It should be stated before describing the arrangement of the folding means further, that the belt S is first fitted, folded and adjusted between the several form-  
20 ing means as hereinafter further described, before the machine is started, the curvatures, and bends of the band and tape ribbon being afterward automatically attained as such band and ribbon pass through the folding  
25 and wrapping means.

It will be noticed in Fig. 6, that the right hand edge of the band is extended laterally between the rollers and is held down with the ribbon to the first position by a suction de-  
30 vice  $a^6$ , while the opposite edge with ribbon, is folded over one half of the filler rod, and as the ribbon engages the rod with its paste edge it is thereby held thereon as the band is unwound therefrom. After the band passes  
35 through the second pair of entry rolls, its flexibility will cause its bent over side to drop and again assume the position shown in Fig. 5 to which position it is held as it passes through the third pair of entry rollers  $e^7$   $o^7$   
40 see Fig. 7, by means of the magnet  $c^7$  and suction device  $a^7$ , such rollers being more in the nature of guide rollers, they serving also to press the pasted portion of the paper ribbon firmly on the filler rod. After passing  
45 the third pair of entry rollers, the band, the ribbon and the filler rod pass onto the wrapping wheel and engage the first wrapping and forming portion thereof which is illustrated clearly in Fig. 8, by reference to which it will  
50 be seen that  $d^8$  indicates a segmental rib section which is fixedly held on the frame of the machine, over the upper edge of the wrapping wheel T, which section has a groove  $t^8$ , corresponding to the groove in the roller  $e^7$  of  
55 Fig. 7.

$r^8$  indicates one of a series of rollers journaled in an annular groove T' in the periphery of the wheel T, as most clearly shown in Figs. 1 and 16 and such roller has a groove  $r^x$   
60 corresponding to the groove in roller  $o^7$ , such rollers  $r^8$  and the rib member  $d^8$  serving as guides for the band being held in the same position as shown in Fig. 7, by the magnet  $c^7$  and suction device  $a^7$ .

65 Fig. 9 shows the second wrapping or folding portion and comprises a fixed segmental section  $d^9$ , having a groove slightly larger than the

groove in segmental rib section  $d^8$ , which section  $d^8$ , also opposes one of the rollers  $r^8$ . At this point the suction device is omitted and the  
70 band S at the suction side is turned up with the ribbon over the filler rod, thereby inclosing the filler rod in the ribbon, and to permit of such portion of the ribbon being closely  
75 pressed thereon, the band at the opposite edge is spread and held down by a magnet  $c^9$ . The second wrapping and folding section it will be seen from Fig. 1 ends at a point near the third and final wrapping section which  
80 extends down over one-fourth of the circumference of the wrapping wheel T, under the same and ends at the cutting devices presently referred to. This section comprises the fixed member or rib  $d^{10}$  (see Fig. 10)  
85 grooved on its under face, between which and the roller  $r^8$  both edges of the band S are turned up, as shown. At the point where the last section  $d^{10}$  stops the band leaves the continuous cigarette and spreads and passes back over the tension or guide roller P.  
90

X indicates a guide tube mounted on the frame with its mouth disposed at the discharge point of the section  $d^{10}$ , which tube extends over the cutting devices, and dis-  
95 charges into a receiving compartment as will be presently fully described.

Referring now more particularly to Figs. 18 and 19 it will be noticed the tube X, has centrally an enlargement  $x$ , cut out at its bottom as at  $x'$ , to receive the cutter blade as shown.  
100 The cutting devices comprise a standard 14, having a fixed disk portion  $14^a$ , through which centrally passes a drive shaft 11 provided with a bevel gear  $11^a$ , which meshes with a bevel gear  $13^a$ , on a shaft 13, which has at its opposite end  
105 a bevel pinion  $13^b$  which meshes with a bevel gear  $X^2$ , on the shaft of the wrapping wheel Fig. 1, which pinion  $X^2$ , is also engaged by a gear  $x^3$ , on a short vertical shaft  $x^4$  which has also a gear  $x^5$  which meshes with a gear  $x^6$  on  
110 a horizontally disposed drive shaft  $x^7$  which is driven by a gear  $x^8$  on the shaft of the wheel E, which engages a gear  $x^9$  on the shaft  $x^7$  as shown, such construction and arrangement of driving mechanism serving to oper-  
115 ate the wheels E and T and the cutter devices. The disk 14 has a cam lug  $n^x$ , which is adapted to engage a swinging arm  $m^5$  pivoted in link arms pivoted to a bracket 10 projected at one face of a disk 15 mounted on  
120 the shaft 11 to turn therewith. This disk 15 has a series of equi-distant peripheral recesses 17, in each of which is to be fitted a cutting mechanism proper, and which comprises the swinging arm  $m^5$ , the bracket 10, a  
125 rotary cutting disk 7 journaled on the arm  $m^5$ , to rotate transversely to the face of the wheel 15, which disk has a small band pulley 8 over which passes an endless cord  $4^x$  which passes over a guide pulley 6, in one end of the arm  
130  $m^5$  a guide pulley 5 on the bracket 10 and a double pulley 3 journaled to rotate at right angles to the pulleys 6 and 5. The arm  $m^5$  is held to its downward position to pull the cut-



ter disk below the path of the cigarette rod by means of the spring 12.

While I have illustrated but one set of cutting devices, a set is used in each of the seats or recesses 17. The cutter disk is continuously rotated by means of the operating cord 2 which passes over the outer portion of the double pulleys 3<sup>x</sup>, which cord may be driven in any desired manner.

It will be noticed by reference to Fig. 19 that the cam lug  $n^x$  on the disk 14 is so arranged that the cutting devices which are carried by the wheel 15 successively engage such lug (with the arm  $m^5$ ) whereby the cutter disk is raised up through the opening in the tube X to sever the continuous cigarette into single cigarettes, such operation being quickly and positively effected without tearing or otherwise marring the end of the severed portion.

After each cigarette is cut off from the continuous cigarette, it is pushed out of the forward section of the tube X into a receiver Z into which projects the upper end of a feeding box filling and laying mechanism, the construction of which is most clearly shown in Fig. 20. Such construction comprises a pan  $F^5$  which projects into the receiver Z and receives the cigarette from the cutting devices and is rigidly secured to bracket arms  $f^2$ , which are pivoted to vibrate on a slide table  $f^3$  upon which the cigarette rolls downward.

$f^4$  indicates a skeleton frame the inner ends of which are pivoted to bracket members  $f^5$  projected up from the slide table, and to the pintle, member of such inner ends is rigidly connected one end of link arms  $f^9$ , the opposite ends of which are connected to the arms  $f^2$  as shown. The frame  $f^4$  has its front end projected over a rotary carrier  $f^6$  and has at such end a transverse roller 50, and at a point intermediate the roller and its pivot end it has a transverse downwardly projecting flange  $f^x$ , disposed over the discharge end of the slide table  $f^3$ .

The carrier  $f^6$  is in the nature of a cylinder having a series of pocket like portions or cells  $f^y$  the ends of which are closed by the end disks  $f^8$  which have a series of cam portions  $f^z$ , one for each cell  $f^y$ . The cylinder  $f^6$  and the roller 50 are so arranged, that the roller extends at its ends onto the periphery of the disks whereby such roller will have an intermittent rise and drop motion, as the inclined faces of the cams  $f^z$  engage it, such operation being effected to release the cigarette which is temporarily held at the end of the table  $f^3$  by the flange  $f^x$ .

The carrier  $f^6$  which in the practical construction is rotated by a suitable drive pulley (not shown) is disposed over a hopper  $G^5$ , fitted on the upper end of vertical chute  $g$ , which has internally a staggered channel or passage  $g^2$  of a width sufficient to admit of the passage of a single cigarette at a time

which passage extends to the discharge mouth  $g^3$  at the bottom of the chute.

The chute  $G^5$  is held stationary and discharges onto the bottom of a receiving box  $K^5$ , held between ribs  $h^5$  projected up from a reciprocating bed or carrier  $H^5$  held to reciprocate in ways  $h^6$  secured on the upper end of a plunger  $J^5$  movable in a base or bed frame  $L^5$ .

The carrier  $H^5$  serves to shift the box  $K^5$  back and forth (it being operated by the crank shaft  $I^5$ ) continuously until the box shall have been filled.

So far as described, it will be seen the packing and delivery devices are so arranged, that as each cigarette is cut, it falls onto the receiver  $F^5$ , which drops to discharge it onto the table  $f^3$ , as the roller 50 engages the periphery of the disks  $f^8$   $f^8$  which movement brings the flange  $f^x$ , in position to catch it and hold it until one of the pockets or cells  $f^y$  of the carrier comes in the proper position, when it is released, as the proper cam  $f^z$  will at this time engage and lift the roller  $f^5$  and its supporting frame. The cigarette is then carried by the carrier until it comes over the hopper  $G^5$  where it drops and passes through the staggered passage  $g^2$ , until it passes onto the bottom of the box  $K^5$ , and as such box is reciprocated the cigarettes will be deposited in a layer on the said bottom.

By arranging the several receiving and depositing devices as described, the cigarette will be received, deposited and packed in the receiving box without any jar which might cause the tobacco in the end of the cigarette to crumble and drop out, and make a bad looking unsalable article.

$M^5$  indicates a lever pivoted to the base  $L^5$  and  $l^5$  a weight adjustably fitted on the outer end thereof. The inner end of such lever engages a socket in the plunger and serves to lift the plunger  $J^5$  to its uppermost position.

$N^5$  indicates a shaft having a drive gear  $n^5$ , journaled at one end in bearings on the base  $L^5$ , such end having regulating or cam wheel  $n^6$  which has a series of cam projections  $n^7$  which are adapted to engage a tooth  $O^5$  on the side of the plunger as shown. The lower end of the plunger has a piston like portion 29 which is adapted, when the plunger is depressed to enter an air chamber or dash pot 30, which serves as a cushion for such plunger, such pot having a bleeding off cock 21 as shown.

It should be stated that in the practical construction of the aforesaid parts the crank arm and shaft for operating the reciprocating carrier  $H^5$  and the means for depressing the plunger which supports the guides for such carriage are so arranged relatively that as one of the cams on the wheel  $n^6$  serves to depress the plunger, (which may be accomplished by an intermittent or continuous movement of such wheel) the carrier  $H^5$  will be continuously moved back and forth until the box  $K^5$



shall have been filled to the top with uniform layers of cigarettes. When this occurs the plunger J<sup>5</sup> is almost to its extreme lowermost position and the cam on the wheel n<sup>6</sup> about ready to leave the tooth on the plunger. The filled box is removed, another placed in position and the wheel n<sup>6</sup> caused to turn further, which releases the plunger J<sup>5</sup> which is then quickly moved back to its uppermost position by the weighted lever connected thereto.

From the foregoing taken in connection with the drawings it is thought the complete operation of my improved machine will be readily understood.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a cigarette making machine the combination with a filler rod forming mechanism, of endless feed aprons arranged one above the other, an inclined platform disposed under the lower apron, having its discharge end held over the receiving point of the filler forming mechanism, said lower apron being adapted to carry the tobacco up the inclined platform and a regulating device at the lower end of the lower apron arranged to regulate the feed of the tobacco to the rod forming mechanism all arranged substantially as shown and described.

2. In a cigarette machine the combination with the filler forming mechanism, of a feed mechanism comprising an inclined platform having its discharge end held at a point above the receiving point of the filler rod forming mechanism, an endless toothed carrier apron movable over the said platform, a stop member projected up from the platform at the lower end of the apron, and a regulating device consisting of an endless band having its lower end held for adjustment to or from the lower end of the carrier apron all arranged substantially as shown and described.

3. In a cigarette making machine in combination with the filler rod forming devices, a feed mechanism comprising a chamber having an inclined platform having its discharge end over the receiving point of the filler rod forming devices, an endless toothed carrier belt movable upwardly over the platform and projected beyond the upper end thereof, a rotary brush held to engage the lower face of such projecting portion and a regulating means at the lower end of such belt, arranged substantially as shown and for the purposes described.

4. The combination of a filler rod forming wheel having a peripheral groove and also having yielding side walls, and an endless flexible band having its front face arranged to fit in the groove and means for holding the side walls pressed inward at points where the wheel engages the band as and for the purposes specified.

5. The combination with suitable tobacco feeding mechanism, of a rotary filler rod forming wheel having a groove and a pair of par-

allel peripheral flexible flanges means for distending such flanges at the discharge point of the feed mechanism, and an endless flexible band held to engage the descending face of the wheel flanges and compressing devices engaging such flanges to hold them compressed to their parallel position as they engage the said band all substantially as and for the purposes specified.

6. In a cigarette making machine, in combination, a rotary filler rod forming wheel, having flexible peripheral flanges, a flexible endless band held to engage one face of such wheel distending rollers projected between the said flanges at a point in advance of the tobacco receiving point of the wheel, and a series of rollers fixedly held to engage the outer faces of the flanges to hold them compressed and means for rotating the wheel substantially as shown and described.

7. The combination with the endless band, and the wheel, of the rod forming mechanism, powder distributing devices located adjacent the band and the wheel, arranged to throw the powder onto the said band and wheel as and for the purposes specified.

8. In a cigarette making machine, the combination with a filler rod receiving guide horizontally disposed on the bed of the machine, and a feed chamber having an upwardly inclined bottom, endless carrier devices adapted to carry the tobacco upon such bottom, and discharge it over the upper end thereof, of a rotary filler wheel having flexible peripheral flanges, held directly under the aforesaid discharge, fixed distending members engaging such flanges at a point in advance of the receiving point of the wheel an endless flexible band engaging the front face of the wheel and extending under the same to the filler rod receiving guide, and means for holding the flanges of the wheel parallel at the points where the band engages the tobacco as and for the purposes specified.

9. The combination with the feeding mechanism, of a rotary wheel held under the discharge point of such mechanism, said wheel having parallel flexible peripheral flanges and a continuous groove which receives the loose tobacco from the feed mechanism, fixed rollers held to engage the interior face of the flanges, in advance of the receiving point to distend said flanges, fixed rollers held to engage the exterior face of such flanges on the down going side, and an endless compressing band which covers the groove of the wheel on the down going side all arranged substantially as shown and for the purposes described.

10. The combination with the feeding devices for advancing the filler rod and the wrapper, such devices including an endless metallic flexible band adapted to turn the wrapper onto the filler and magnets arranged to hold one side of the band down from the filler rod at predetermined points, and means for turning the band over the filler rod all substantially as shown and described.



11. The combination of a series of grooved guide rollers, between which the filler rod and the paper ribbon are adapted to pass of a flexible endless metallic band having its edges  
5 arranged to alternately lap inward at points between the rollers, devices for holding the opposing edges extended at predetermined intervals and the paste applying means all arranged substantially as shown and described.

10 12. In a cigarette making machine the combination with a wrapping wheel having a peripheral groove, a series of grooved guide members held on the down going side thereof, and a series of vertically disposed guide and  
15 folding rollers, having peripheral grooves, of an endless flexible band having metallic edges passed between the several folding rollers, and about the wheel and under the guides held thereover, and the pasting devices, all  
20 arranged substantially as shown and for the purposes described.

13. The combination with the filler rod forming devices and the flexible folding band having perforated metallic edges, the guide  
25 and folding rolls, of magnets held to engage one edge of the band and a suction device to engage the opposite edge at predetermined intervals, all substantially as shown and for the purposes described.

30 14. The combination with the filler rod forming mechanism, the main frame, the wrapping wheel journaled at one end thereof, said wheel having a series of grooved rollers journaled in the periphery thereof a series of  
35 grooved guide and folding members held over the down going side of such wheel, of the endless folding band adapted to pass over the aforesaid wheel, guide pulleys for such band, the pasting means, the forming rolls  
40 and the magnet and suction devices arranged as shown and for the purposes described.

15. In a cigarette machine, the combination with the cigarette rod wrapping and continuous cigarette feeding means, and a guide for  
45 the continuous cigarette, of a cutter mechanism comprising a rotary disk carrying cutters held to revolve transversely to the direction of feed of the cigarette, said cutters being normally held below the plane of the cigarette, rod and means for revolving and means  
50 for raising such cutter beyond the periphery of the disk as they come directly under the cigarette whereby they will serve to cut such cigarette, as set forth.

55 16. In a cigarette machine substantially as described, a cutting mechanism comprising a slotted guide for the continuous cigarette, a continuously rotating cutter carrier having a series of radially disposed rotating cutter  
60 disks, and mechanism for shifting such disks successively into the path of the continuous cigarette and for rotating the disks, substantially as and for the purposes described.

17. In a cigarette machine essentially as  
65 described, the combination with the continuous cigarette feeding mechanism including the slotted guide X, of cutting devices, com-

prising a rotating disk having a series of radial notches rotating cutters therein mounted in bearings pivotally joined on the rotary  
70 disk, a fixed cam member, disposed under and just in advance of the slot in the guide X means for rotating the cutters, the said cutter bearings having portions adapted to engage the aforesaid cam whereby such cutters are  
75 successively raised and means for rotating the disk all arranged substantially as shown and described.

18. In a cigarette machine substantially as described, a packing mechanism, comprising  
80 devices for intermittently dropping one cigarette at a time into the receiver or box, the said box, and means for automatically reciprocating such box in reverse directions as each layer is deposited substantially as shown  
85 and described.

19. In combination with a vertically movable standard, and a reciprocating carrier horizontally movable on the standard, of a box held on the carrier and means for intermit-  
90 tently depositing the cigarettes into the box in horizontal layers as the box is reciprocated substantially as shown and described.

20. The combination with the standard, means for automatically moving it down-  
95 wardly, and a reciprocating carrier held on the upper end thereof, of a box held on the carrier, a fixed chute projected therein having a staggered passageway, and means for intermittently feeding the cigarette into the  
100 said chute, all arranged substantially as shown and described.

21. The combination with the reciprocating carrier, and the box held thereon, said carrier being vertically movable, and the vertical  
105 chute having a hopper like upper end, of a rotary cylinder having a series of chambers or pockets, and a feed mechanism operating in connection therewith for delivering the cigarettes one at a time into the pockets of the  
110 cylinder as and for the purposes described.

22. The combination with the reciprocating carrier, the box held thereon and the chute, projected therein, said carrier being vertically  
115 movable, of the cylinder held over the chute having a series of pockets and cam portions, of a feed table projected over the cylinder and a swinging cut off, having a member adapted to project over the end of the said table said cut off having a member adapted to be en-  
120 gaged by the cams on the cylinder and be lifted thereby substantially as and for the purposes set forth.

23. The combination with a receiving box, a chute held to project therein and a cylinder  
125 having a series of pockets to each receive a single cigarette, said cylinder having a series of cam portions, of a feed table projected over the said cylinder, a pivoted pan held at the upper end thereof adapted to receive the cigarette as it passes from the cutting mechanism, a swinging cut off, connected with the pan, having a member normally projected in front of the discharge end of the table, and



having a member held to engage the cams on the cylinder, and arranged when raised thereby to uncover the discharge end of the table and to raise the pan to temporarily hold the next cigarette from passing down the table as set forth.

24. The combination in a cigarette machine essentially as described, of a base member, a standard vertically movable thereon, a weighted lever mechanism connected thereto to force it normally upward, a rotary cam mechanism for moving it gradually downward, a carrier held to reciprocate horizontally on the standard a box carried thereby, and means for feeding the cigarettes singly into the box all substantially as shown and for the purposes described.

25. As an improvement in cigarette making

machines, in combination, a filler rod forming mechanism, wrapping, folding and pasting devices arranged to receive the filler rod from the said mechanism, cutter devices held to engage the complete cigarette as it leaves the wrapping and folding devices, a packing means arranged to lay the cigarettes in uniform rows in the receiving box, a delivery means arranged to receive the cigarettes after they are cut and successively feed them to the said packing means, and gearing mechanism connecting the packing, feeding, wrapping and filler forming mechanism arranged substantially as shown and described.

EDWARD RANDOL COLGIN.

Witnesses:

GEO. E. WISE,

MINETELL FORKES.