

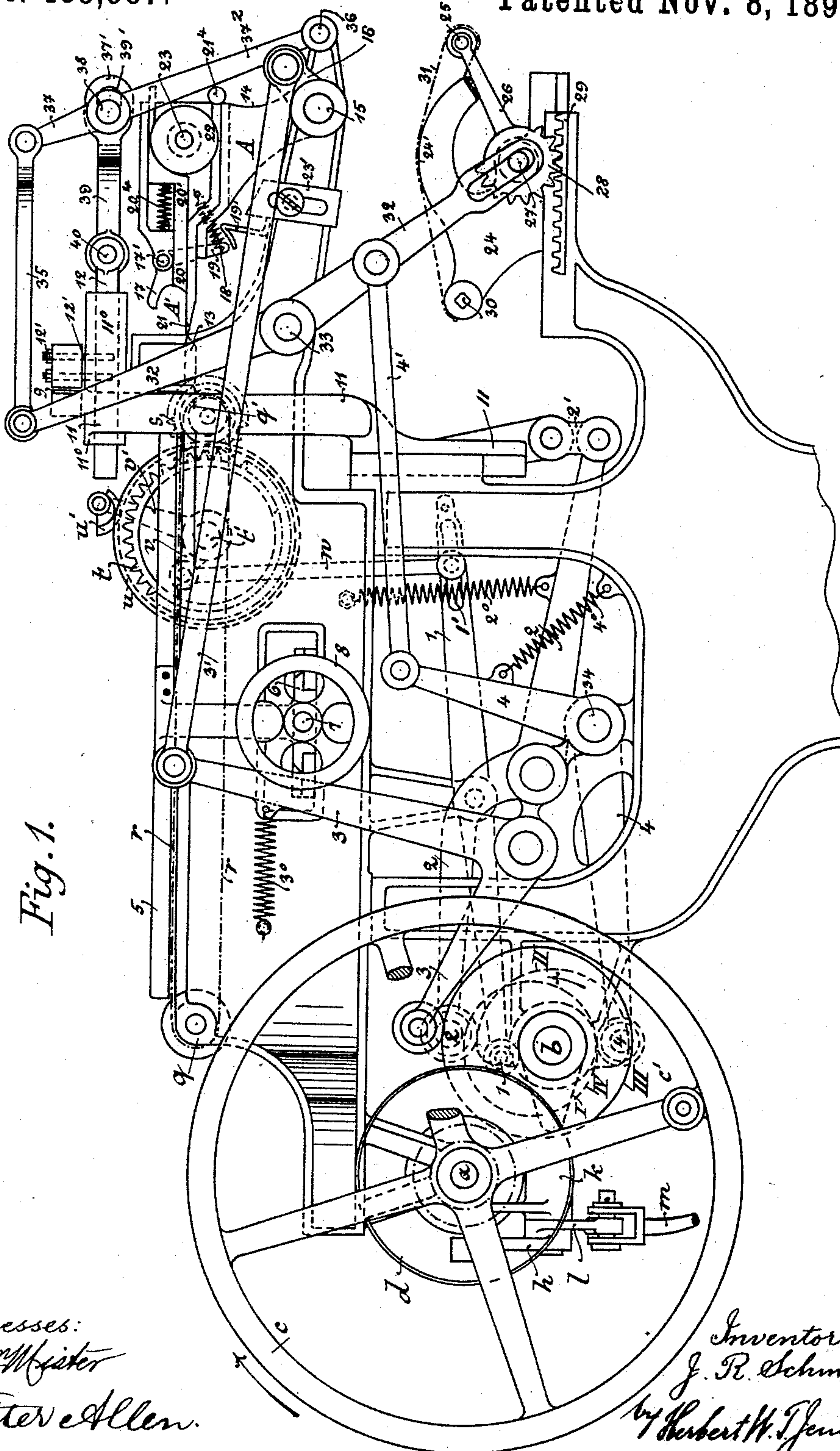
(No Model.)

7 Sheets—Sheet 1.

J. R. SCHMITT.
CIGAR BUNCHING MACHINE.

No. 485,987.

Patented Nov. 8, 1892.



Witnesses:
J. R. Schmitt
Walter Allen

Inventor.
J. R. Schmitt.
by *Herbert W. Jenner.*
Attorney.

(No Model.)

7 Sheets—Sheet 2.

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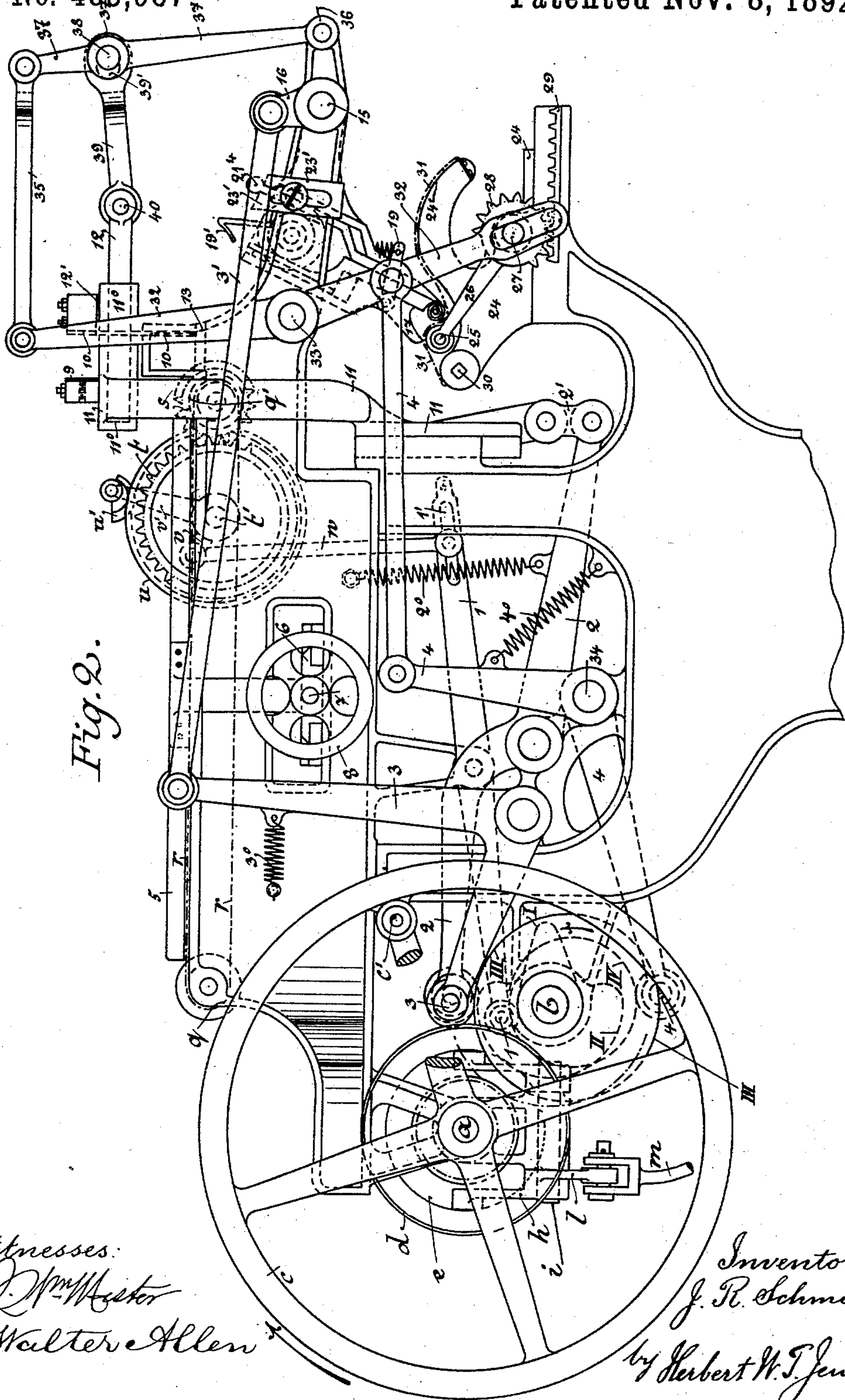


Fig. 2.

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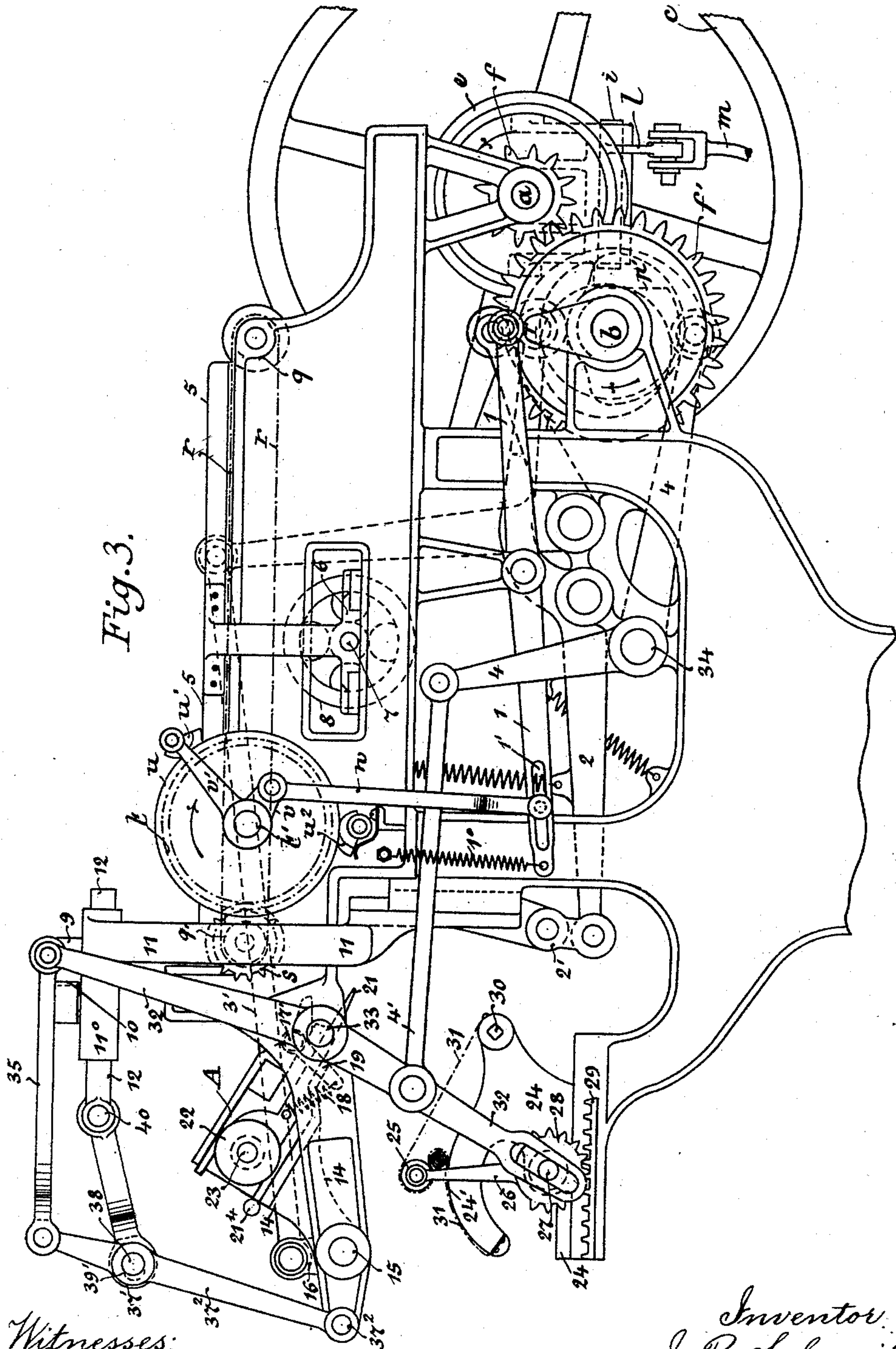
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J. R. SCHMITT.
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Patented Nov. 8, 1892.



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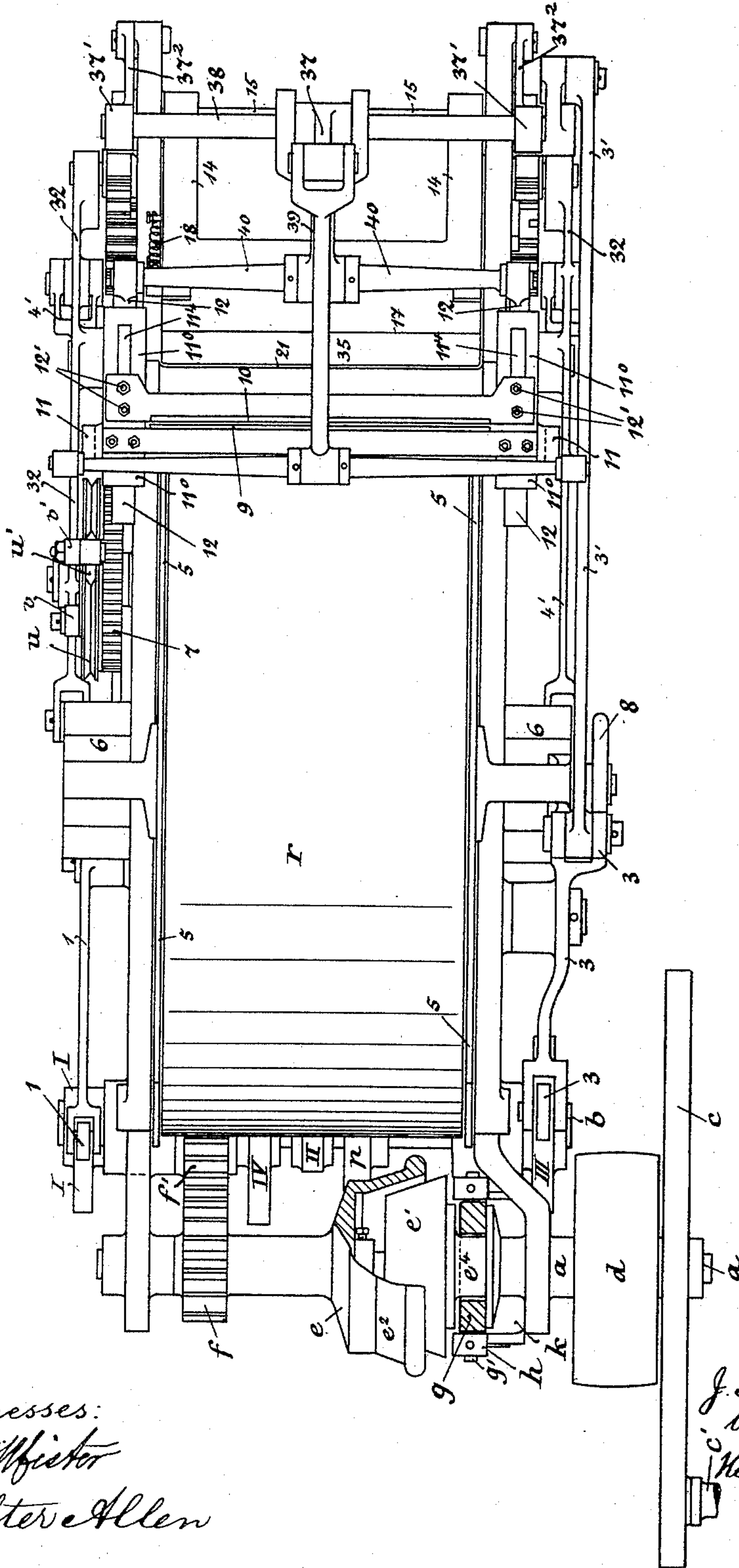
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Fig. 4.



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7 Sheets—Sheet 5.

No. 485,987.

Patented Nov. 8, 1892.



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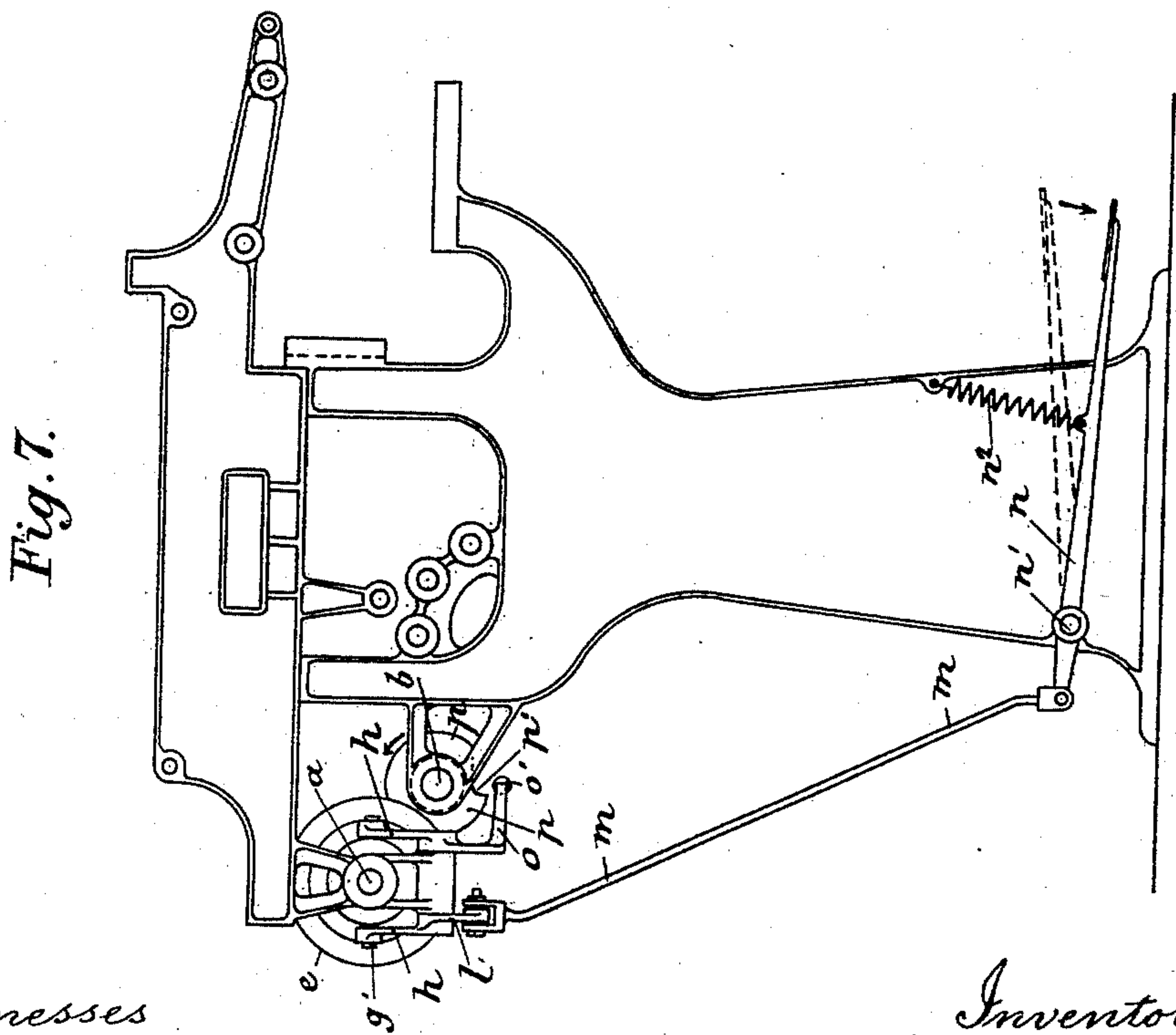
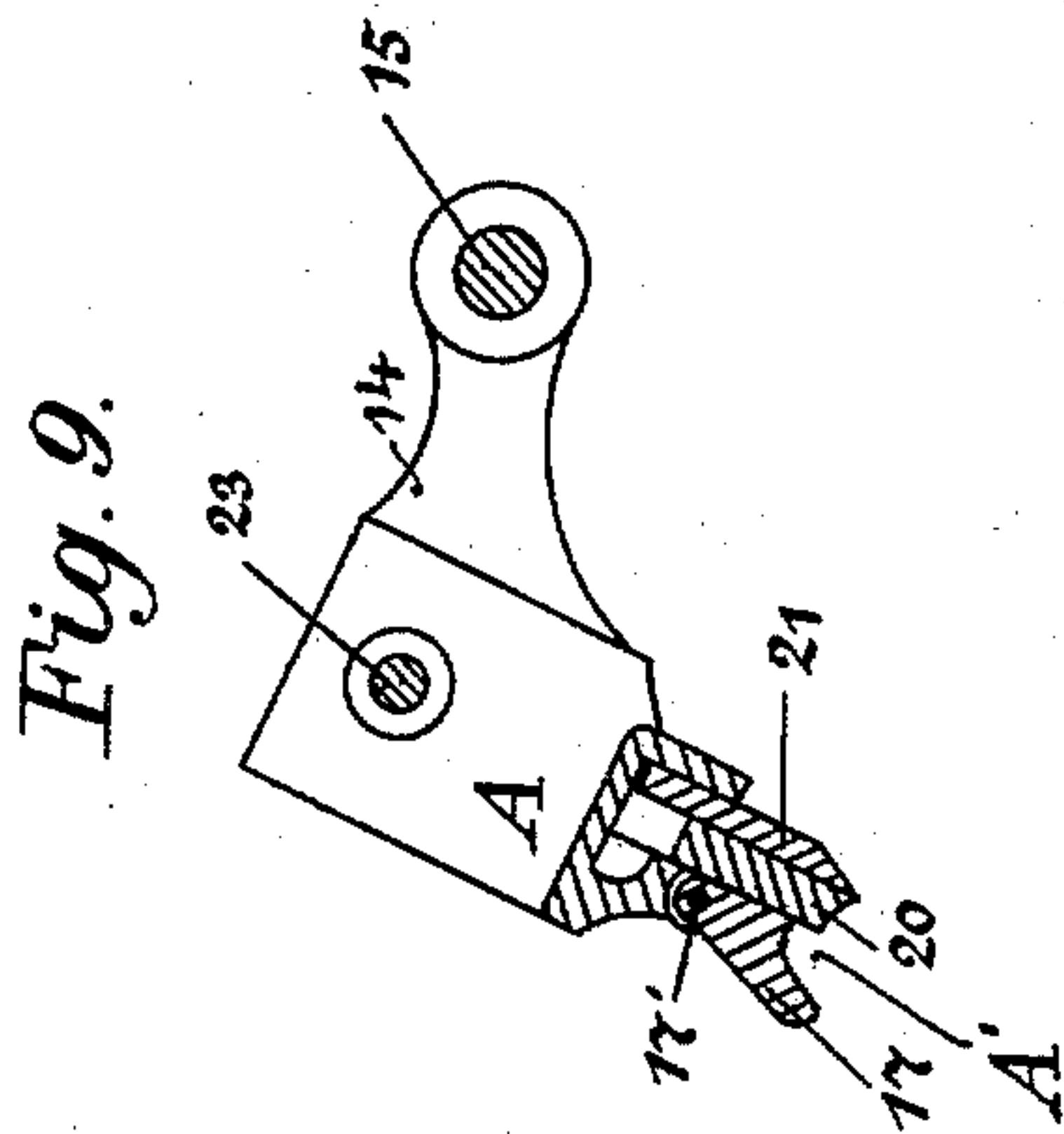
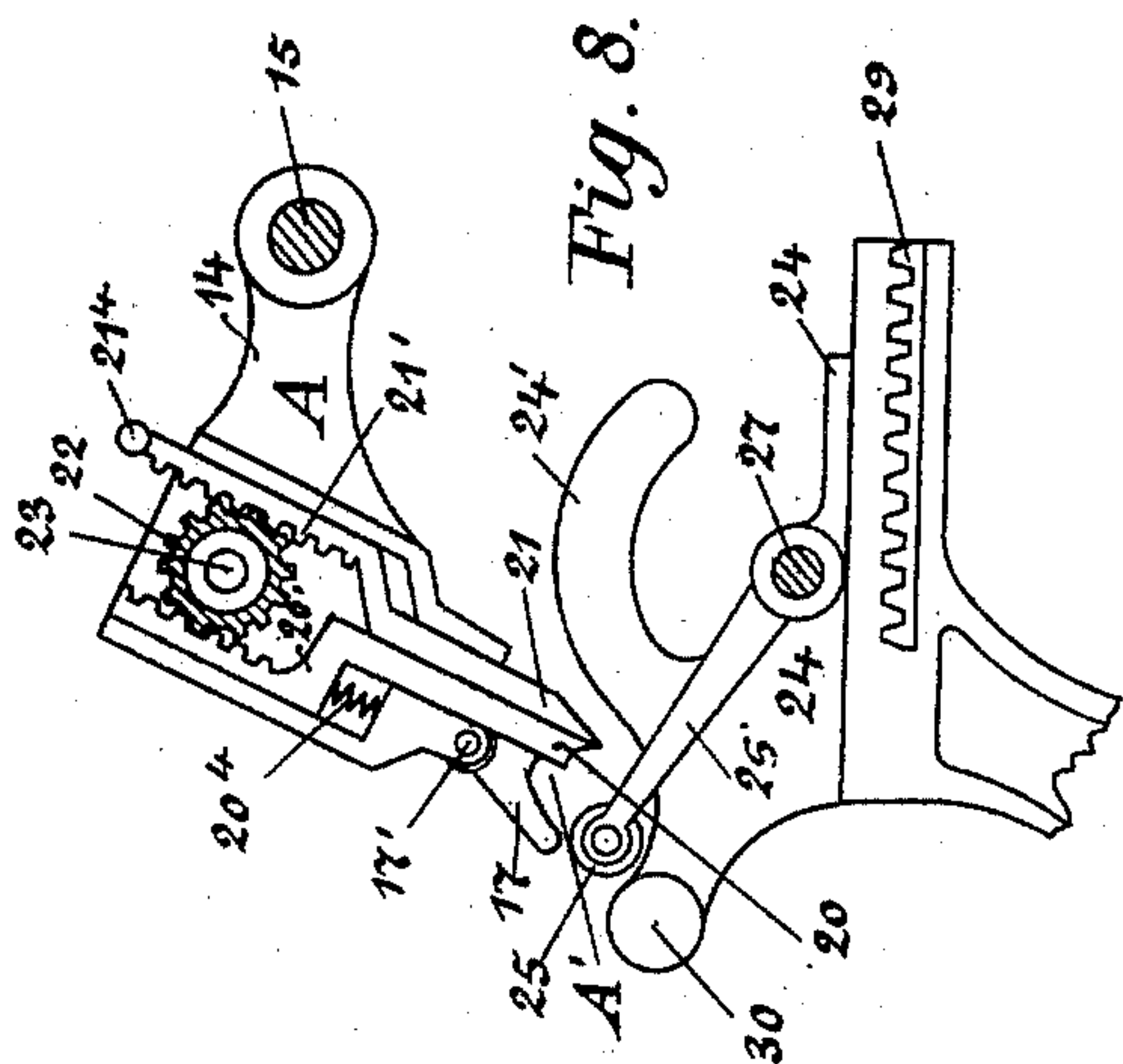
(No Model.)

7 Sheets—Sheet 6.

J. R. SCHMITT.
CIGAR BUNCHING MACHINE.

No. 485,987.

Patented Nov. 8, 1892.



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(No Model.)

7 Sheets—Sheet 7.

J. R. SCHMITT.
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FIG. 10.

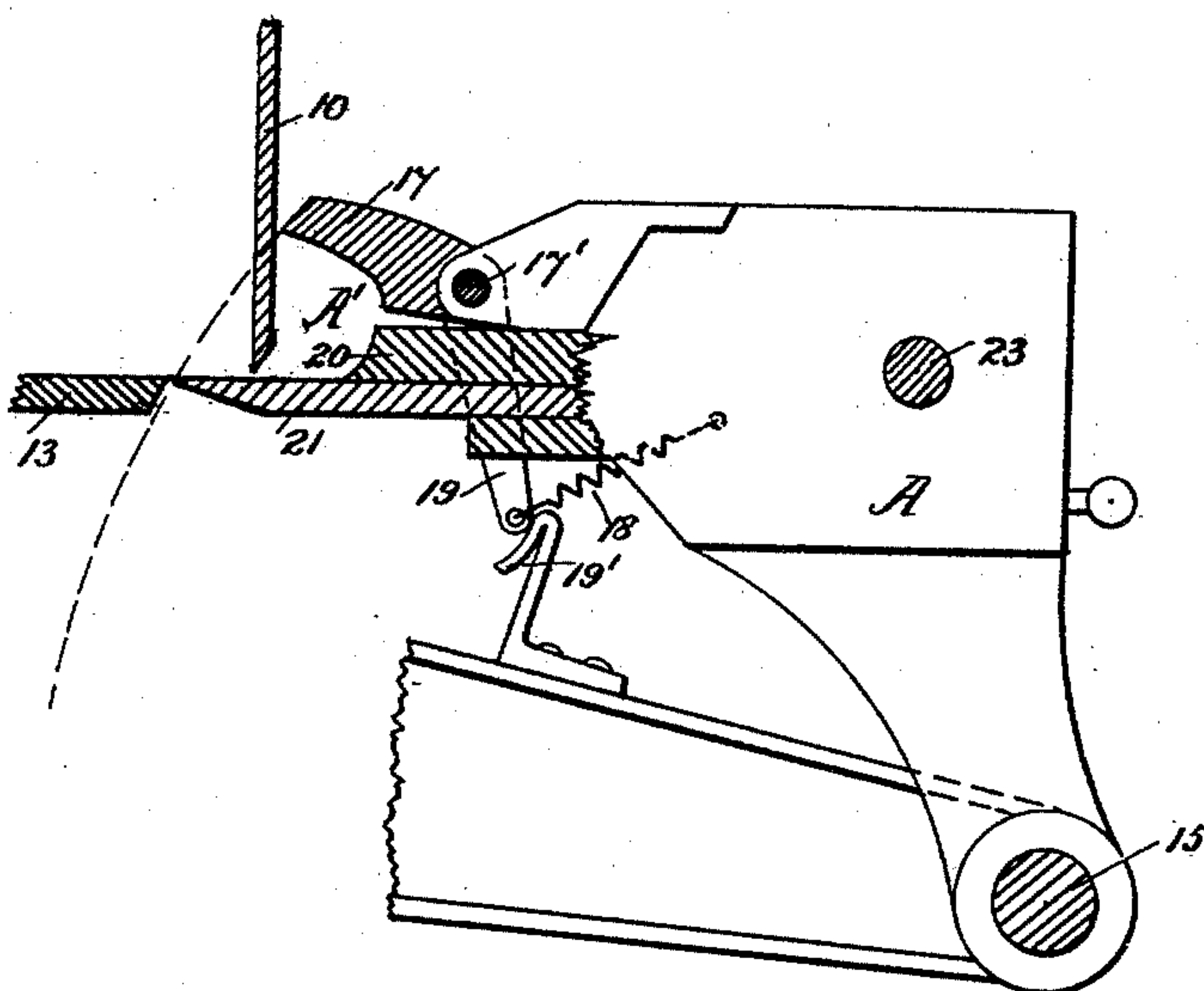
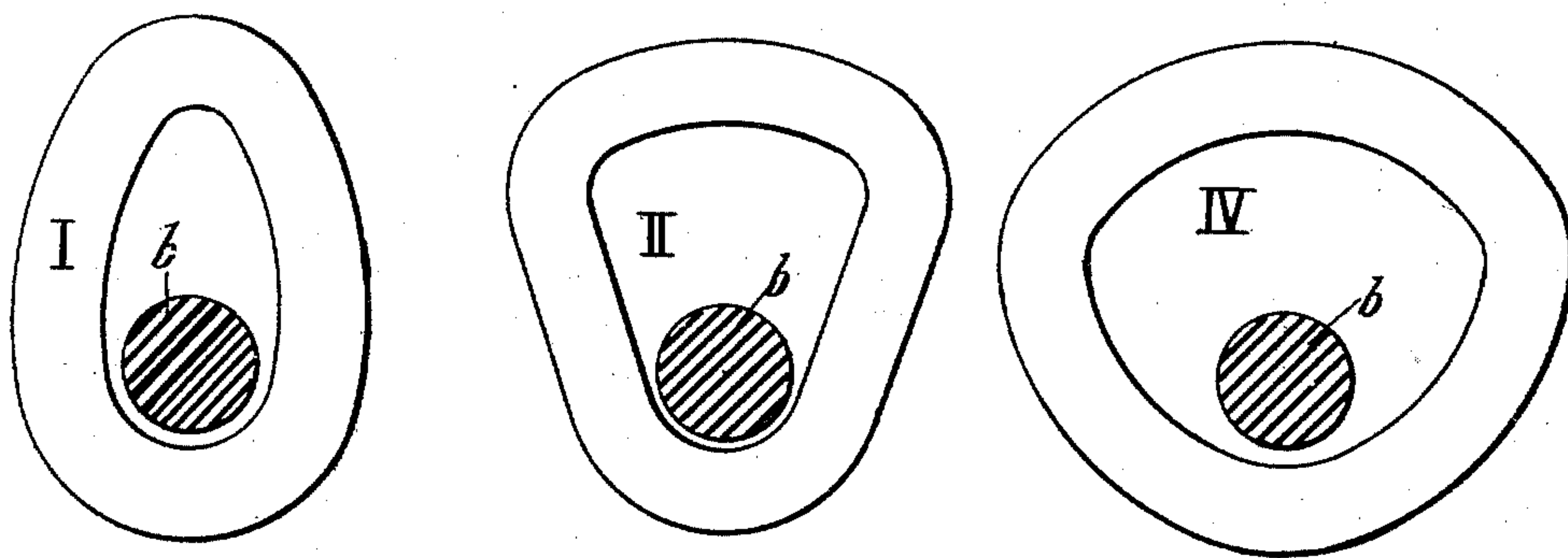


FIG. 11.



Witnesses

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Inventor

Johann R. Schmitt.
By his Attorney
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UNITED STATES PATENT OFFICE.

JOHANN RUDOLPH SCHMITT, OF BINGEN, GERMANY.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 485,987, dated November 8, 1892.

Application filed July 3, 1891. Serial No. 398,418. (No model.) Patented in Germany September 23, 1890, No. 58,773; in France November 25, 1890, No. 209,791; in Austria-Hungary February 19, 1891, No. 10,031 and No. 26,888; in England August 19, 1891, No. 19,281, and in Switzerland November 2, 1891, No. 3,054.

To all whom it may concern:

Be it known that I, JOHANN RUDOLPH SCHMITT, residing at Bingen-on-the-Rhine, in the Grand Duchy of Hesse and German Empire, have invented certain new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

Patents for this invention have been obtained in the following countries: Germany, No. 58,773, dated September 23, 1890; France, No. 209,791, dated November 25, 1890; England, No. 19,281, dated August 19, 1891; Switzerland, No. 3,054, dated November 2, 1891, and Austria-Hungary, Nos. 10,031 and 26,888, tom. 41 and 25, fol. 1,851 and 1,735, dated February 19, 1891.

This invention relates to machines for forming the bunches of cigars; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of the machine, showing the grippers raised and the bunch-rolling table and apron in a position to discharge the bunch. Fig. 2 is a side view similar to Fig. 1, but shows the grippers lowered and the bunch-rolling table and apron in a position to receive the compacted filler from the grippers. Fig. 3 is a side view of the machine, taken from the opposite side of the machine from the view shown in Fig. 1, and shows the grippers in a partly-raised position and the binder and compacted filler being rolled together in the bight of the bunch-rolling apron to form a bunch. Fig. 4 is a plan view of the machine from above, showing the clutch partly in section. Fig. 5 is a rear end view of the machine. Fig. 6 is a front end view of the machine. Fig. 7 is an outline side view of the frame of the machine, showing the foot-lever mechanism for starting it. Fig. 8 is a detail side view of the grippers and the bunch-rolling table. Fig. 9 is a cross-section through the yoke and the jaws which form the grippers. Fig. 10 is a cross-section through the grippers and shows them in their raised position, with the upper jaw raised to receive the filler. Fig. 11 is a detail side view showing the precise form of the cams I, II, and IV.

The machine is driven either by the crank-

handle c' on the fly-wheel c or by the belt-pulley d , secured on the driving-shaft a . A half-friction clutch e is journaled on the shaft a and has the toothed pinion f secured to it. The other half of the friction-clutch is splined on the shaft a , and is adapted to be thrown into and out of gear by means of the forked lever h . This lever is secured on the shaft i , supported in bearings k , secured to the frame of the machine. An arm l on the shaft i is connected to the foot-lever n by means of the connecting-rod m . A spring n^2 is provided for raising the foot-lever, and the clutch is thrown into gear by depressing the foot-lever, as shown in Fig. 7. The pinion f gears into a toothed wheel f' , secured on the shaft b , which is journaled in the frame of the machine. A cam p , provided with a recess p' , is secured upon the shaft b , as shown in Fig. 7. When the foot lever is depressed, a roller o' , carried by the lever o , which is secured on the shaft i , is thrown out of contact with the cam. The machine is operated as long as the roller runs on the cam, and stops automatically when the roller o' drops into the recess p' . The filling is placed on the endless band r which runs over rollers q q' , journaled in the frame of the machine parallel with the shafts a and b . A toothed pinion s is secured on the shaft of the front roller q' and gears into a toothed wheel t , secured on a shaft t' , also journaled in the frame. A friction-wheel u is also secured on the shaft t' , and is provided with a wedge-shaped groove in its periphery. A friction-pawl u' is pivoted to the vertical arm v' of the bell-crank lever v and engages with the said groove. A rod w connects the bell-crank lever v with one end of the pivoted lever 1 , and the other end of the lever 1 is provided with a roller which runs on the cam I , which is secured on the said shaft b . A spring-pressed friction-pawl u^2 is pivoted to the frame, as shown in Fig. 2, to prevent the wheel u from turning backward.

To enable the intermittent motion of the band r to be varied, the end of the lever 1 , to which the rod w is pivoted, is provided with a longitudinal slot $1'$, and the adjustment is effected by moving the pivot-pin in the said slot of the lever. A spring 1^0 is provided for

holding the roller of lever 1 in operative contact with the cam I.

The length of the filling is adjusted by means of two bars 5, Figs. 1 and 3, arranged one on each side of the band *r*. These bars 5 are each connected with a slide 6, guided in an opening in the frame below the band *r*. These slides 6 are adjusted simultaneously, as shown in Fig. 5, by the spindle 7, provided with right and left handed screw-threads engaging with the slides. A hand-wheel 8 is provided for turning the spindle.

The filling is separated into portions by means of the two cutters 9 and 10, arranged behind the roller *q'*. Both of these cutters are carried by a frame 11, adapted to be reciprocated vertically in guides on the frame of the machine. This frame 11 is connected by means of the links 2', with a pin passing through one end of the lever 2, which is pivotally supported by the frame. The other end of the lever 2 is provided with a roller, which runs on the periphery of the cam II, which is secured on the shaft *b*.

The cutter 10 is not secured direct to the sides of the frame 11, but is carried by a cross-bar, the ends of which are secured to the supports 12'. These supports are secured in the slides 12, which slide horizontally in bosses 11⁰ at the upper parts of the sides of the frame 11, and the supports 12' project upwardly through the slots 11⁴ in the said bosses.

A spring 2⁰ is provided for holding the roller of the lever 2 constantly in operative contact with the cam II.

The mechanism for moving the cutter 10 longitudinally will be more fully described hereinafter.

A plate 13 is arranged under the cutters 9 and 10 to receive the filling from the endless band *r*. A pair of grippers A' is provided for seizing the filling separated by the cutters and delivering it to the bunch-rolling mechanism. These grippers are carried by a yoke A, provided with arms 14 and secured on the shaft 15, journaled in the frame of the machine. An arm 16 is secured on one end of the shaft 15 outside the frame, and 3' is a rod pivoted at one end to the said arm and at the other end to one arm of the bell-crank lever 3. The other arm of the bell-crank lever 3 is provided with a roller, which is constantly pressed upon the periphery of the eccentric III, secured upon the shaft *b* by means of the spring 3⁰. The swinging yoke A is merely a frame for carrying the grippers. The grippers consist, essentially, of an upper jaw 17 and a lower jaw 21. The upper jaw is provided with pins 17', which are pivoted in the yoke A, and 19 is an arm for raising the said upper jaw. A spring 18 is provided and secured to the arm 19 for keeping the jaw 17 in its closed position. A tappet 19' is secured to the frame of the machine for the arm 19 to strike against. In Fig. 1 the parts are all shown, but the tappet 19' has

been moved back out of contact with the end of the arm. When the machine is at work, the tappet is moved forward, as shown in Fig. 10, so that the upper jaw of the grippers is raised when the grippers arrive at their highest position. A discharging-plate 20 is arranged to slide between the two jaws 17 and 21. The plate 20 is provided with two arms 20', and the plate 21 is provided with the arms 21'. These arms are guided in the yoke A at each end of it and are cranked apart from each other and provided with toothed racks, as shown in Fig. 8. Toothed wheels 22 are secured on a shaft 23, which is journaled in the yoke A, and each toothed wheel gears into one pair of racks, so that the plate 20 and the lower jaw are constrained to move simultaneously in opposite directions. One of the arms 21' is also provided with a stop 21⁴, which is adapted to strike a stop 23', secured to the frame, as shown in Figs. 1 and 2, when the yoke A is swung around toward the left. When the said stop strikes the stop 23', the lower jaw 21 is pulled back and the discharging-plate 20 is pushed forward, as shown in Figs. 2 and 8, and the compacted filler is delivered to the bunch-rolling mechanism. A spring 20⁴ is provided for restoring the said parts to their original positions when the yoke is raised clear of the stop 23'.

The bunch-rolling mechanism is provided with a slide 24, provided with a curved rolling-table 24'. A shaft 27 is journaled in the slide below the table, and 26 are two arms secured on the said shaft. The bunching-roller 25 is journaled in the upper ends of these arms above the curved table. Two toothed wheels are secured on the shaft 27, one on each side of the slide 24, and these toothed wheels gear into racks 29, secured to the frame of the machine. When the slide is reciprocated, the bunching-roller is oscillated in the same direction as the slide. A bar 30 is secured at one end of the rolling-table, and 31 is an apron secured to the bar 30, passing over the bunching-roller 25, and secured to the other end of the table. The length of this apron is such that it can be stretched over a compacted filler and its binder when placed on the apron, as shown in Figs. 2 and 3.

Two levers 32 are provided, one on each side of the machine, and are pivoted on the shaft 33. The lower ends of these levers are provided with slots, which engage with the ends of the shaft 27, and the slide 24 is moved back and forth when the levers 32 are oscillated. A rod 4' is pivoted at one end to a shaft passing through the two levers 32 and has its other end pivoted to the bell-crank lever 4, journaled on the pivot 34. The other end of the bell-crank lever is provided with a roller, which is held in operative contact with the cam IV by means of the spring 4⁰. This spring also serves to move the slide 24 toward the right in Fig. 1. The upper ends of the levers 32 are connected by a cross-shaft, and a connecting-rod 35 is pivoted to the middle

part of this cross-shaft at one end, as shown in Fig. 4, and has its other end pivoted to the upper end of an arm 37, secured centrally on the shaft 38, which is journaled in the frame of the machine. Two arms 37² are secured on the ends of the shaft 38 outside the frame and have their lower ends pivoted to the frame by the pins 36.

The slides 12 and the cutter 10 are reciprocated by means of the rod 39, one end of which is centrally pivoted on the shaft 40, which connects the two slides, as shown in Fig. 4. The other end of the rod 39 is provided with a forked end 37', having slots 39' in it. The shaft 38 passes through these slots 39' and operates to reciprocate the rod 39. The slots 39' are provided, and are made of a length adapted to move the cutter 10 for the desired amount and at the proper intervals.

The operation of the machine is as follows: The filling is placed on the endless band *r* and is fed forward intermittently to the cutters by means of the cam I, lever 1, rod *w*, bell-crank *v*, friction-wheel *u*, and the toothed wheels *v* and *s*. The cutters at this period being raised, a portion of the filling is deposited on the plate 13 under them. The band *r* then stops and the two cutters descend simultaneously onto the plate 13, being operated by the cam II, lever 2, and slide 11. The cutter 9 then stops at its lowest position. The cutter 10 is then moved horizontally away from the cutter 9 by means of the rod 39, which is operated by the shaft 38 of the bunch-rolling mechanism, as hereinbefore described. The horizontal motion of the cutter 10 separates a portion of the filling and delivers it to the grippers A', as shown in Fig. 10. The cutter 10 is then moved out of the way, so that the path of the grippers is not obstructed. The eccentric III then permits the yoke A to swing over toward the left from the positions shown in Figs. 1 and 10. The lever 19 leaves the tappet and the upper jaw compresses the filler against the lower jaw. The continued motion of the yoke A brings the parts into the position shown in Fig. 2, and the stop 21⁴, having struck the stop 23', the lower jaw 21 is pulled back and the discharging-plate 20 is pushed forward to deliver the compacted filler to the bunch-rolling mechanism. The binder has previously been laid on the surface of the apron and is under the compacted filler when the latter is discharged from the grippers. The compacted filler and the binder are now rolled in the bight of the apron by means of the bunch-roller and its actuating mechanism hereinbefore described, and the completed bunch is discharged at the rear of the machine. The swinging yoke and the grippers are raised while the bunch-rolling mechanism is in operation, and more filling is delivered upon the plate 13 under the cutters without any delay and before the said cutters descend again.

What I claim is—

1. The combination, with the feeding-apron,

of the two longitudinal bars supported above the apron and on each side of it, the slides connected to the said bars and carried by the machine-frame, and a spindle provided with right and left handed screw-threads for varying the distance between the said bars, substantially as set forth.

2. The combination, with the vertically-sliding frame provided with horizontally-slotted bosses at its upper parts, of the cutter 9, secured to the said frame, the slides guided in the said bosses and provided with supports projecting through the said slots, a cross-bar secured to the said supports, a cutter 10, secured to the said cross-bar, and a rod operating to reciprocate the said slides, substantially as set forth.

3. The combination, with the swinging yoke A for carrying the gripping devices, of a shaft supporting the yoke, an arm secured on the shaft, a revoluble eccentric, a pivoted bell-crank lever provided with a roller, a spring operating to press the said roller on the eccentric, and a rod pivotally connecting the said arm and bell-crank lever, whereby the yoke is swung intermittently, substantially as set forth.

4. The combination, with the swinging yoke A, of the upper gripper-jaw 17, pivoted to the yoke and provided with a lever-arm, and a spring adapted to hold the said jaw in its normal position, a lower gripper-jaw also carried by the yoke, and a tappet secured to the frame of the machine and projecting into the path of the end of the said lever-arm, whereby the upper jaw is moved away from the lower jaw to receive the material, substantially as set forth.

5. The combination, with the swinging yoke A, of the upper gripper-jaw pivoted to the yoke, the lower gripper-jaw, a spring pressing the upper jaw toward the lower jaw, the discharging-plate between the said jaws, and means for sliding the said plate and the lower jaw simultaneously in opposite directions, substantially as set forth.

6. The combination, with the swinging yoke and the upper gripper-jaw, of the two plates 20 and 21, sliding longitudinally in the said yoke and provided with toothed racks, and toothed pinions arranged between the said racks and gearing with both, whereby the said plates are constrained to move in opposite directions, substantially as set forth.

7. The combination, with the swinging yoke and the upper gripper-jaw, of the two plates 20 and 21, sliding longitudinally in the said yoke, one of the said plates being provided with a projecting stop and each plate being provided with toothed racks, toothed pinions connecting the said racks, a stationary stop for the said stop to strike, whereby the said plates are moved in opposite directions, and a spring for restoring the plates to their normal positions when the stops are separated, substantially as set forth.

8. The combination, with the reciprocatory

rolling-table provided with a curved upper surface, of the shaft 27, journaled in the lower part of the said table, the arms secured on the said shaft, the bunching-roller carried by the said arms, the bunching-apron secured to the ends of the table and looped over the said roller, the toothed wheels secured on the said shafts, and the stationary toothed racks gearing into the said wheels, whereby the said arms are vibrated as the table is reciprocated and in the same direction, substantially as set forth.

9. The combination, with the curved rolling-table, the stationary toothed racks, the toothed wheels gearing into the said racks, the arms and the bunching-roller, a shaft journaled in the lower part of the said table and having the said arms and wheels secured on it, and the bunching-apron secured to the ends of the table, of pivoted levers provided with longitudinally-slotted ends engaging with the projecting ends of the said shaft, a revoluble cam, and intermediate operating rods and levers connecting the said pivoted levers with

the said cam, whereby the said table is reciprocated intermittently, substantially as set forth.

10. The combination, with the rolling-table provided with an apron and a bunching-roller, of the pivoted levers 32 for reciprocating the said table, the cutter 10, and the horizontal slides connected to the said cutter, the guide-rod pivotally connected to the said slides and provided with the slotted end 37', the arms 37² 37, pivoted at one end to the frame and secured upon a shaft passing through the slotted end of the said guide-rod, and the rod 35, pivotally connecting the upper ends of the said levers 32 and the arm 37, whereby the said cutter is moved at the ends of the travel of the table in opposite directions to the table, substantially as set forth.

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

JOHANN RUDOLPH SCHMITT.

Witnesses:

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JOHANNES DITZ.