

No. 803,993.

PATENTED NOV. 7, 1905.

B. COHEN.
CIGARETTE MACHINE.
APPLICATION FILED SEPT. 16, 1904.

4 SHEETS—SHEET 1.

Fig. 1.

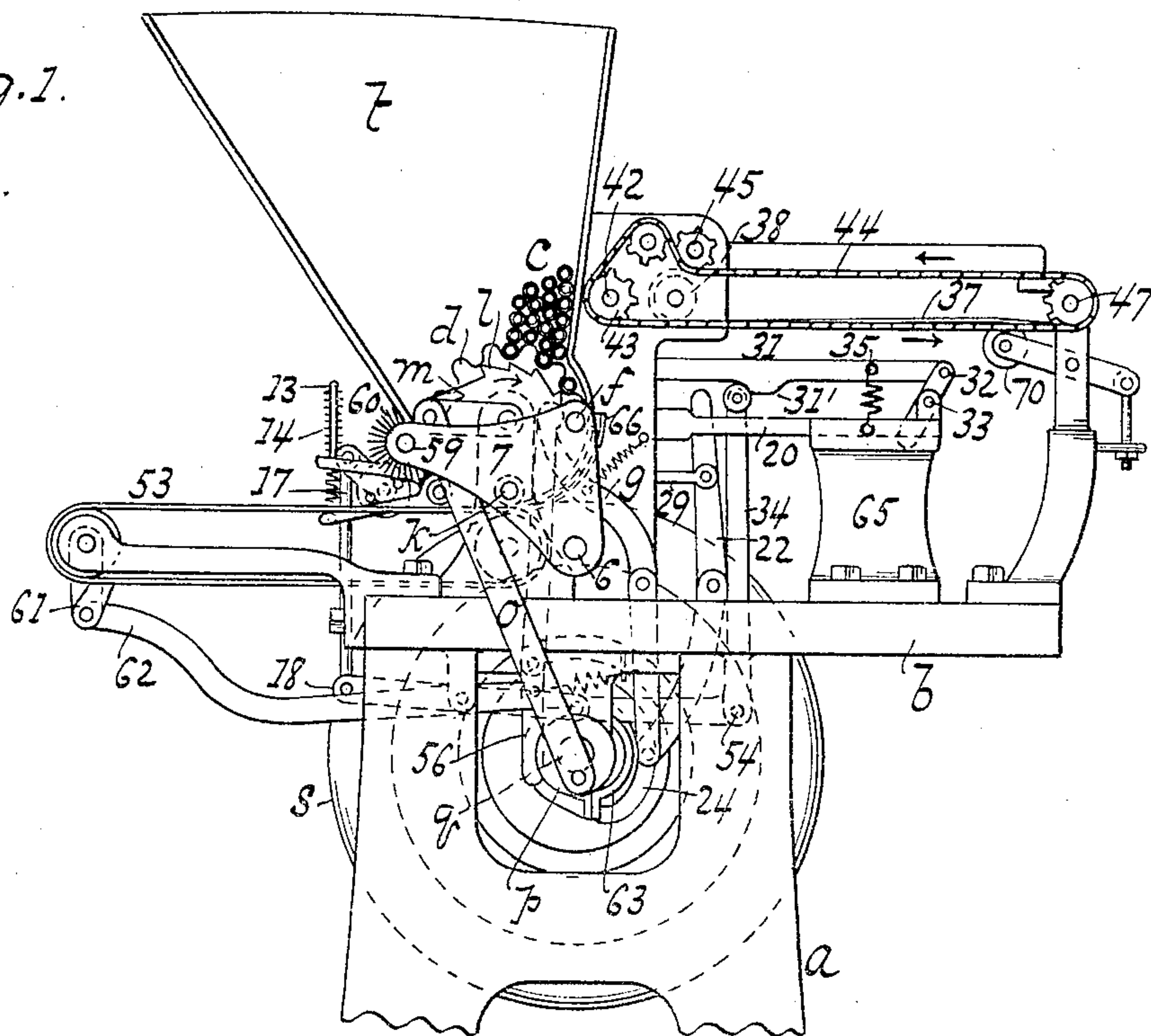
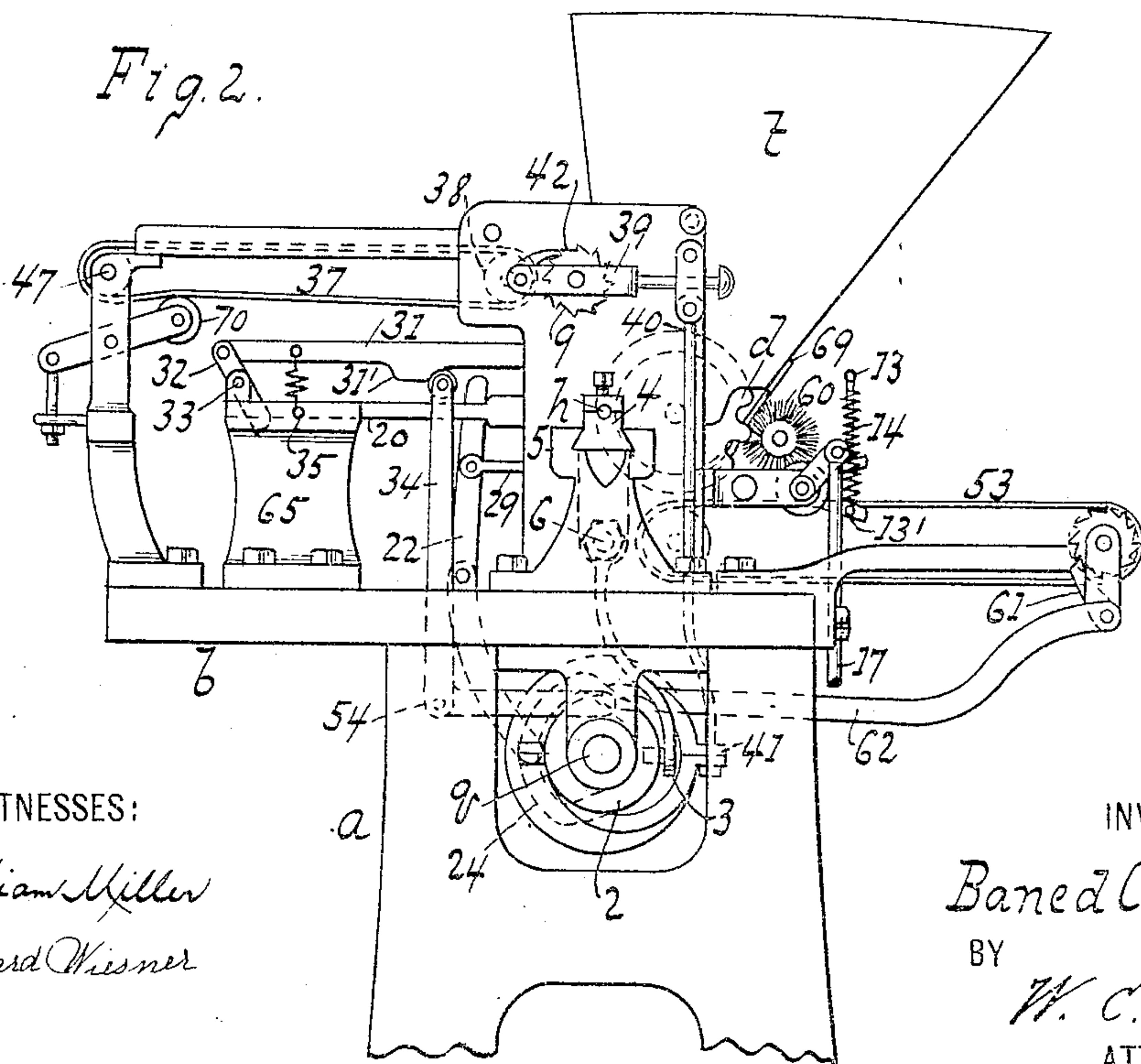


Fig. 2.



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INVENTOR

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BY

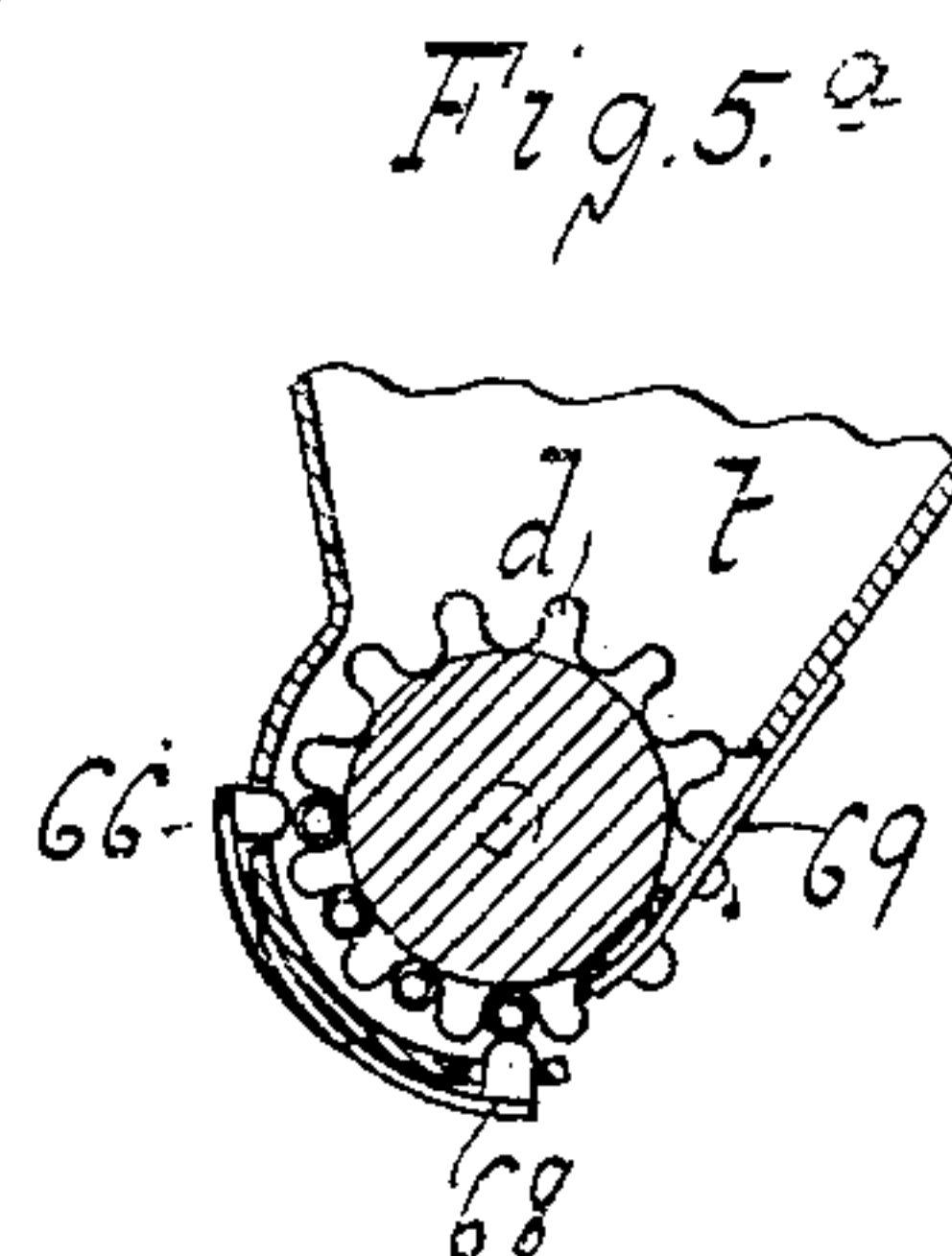
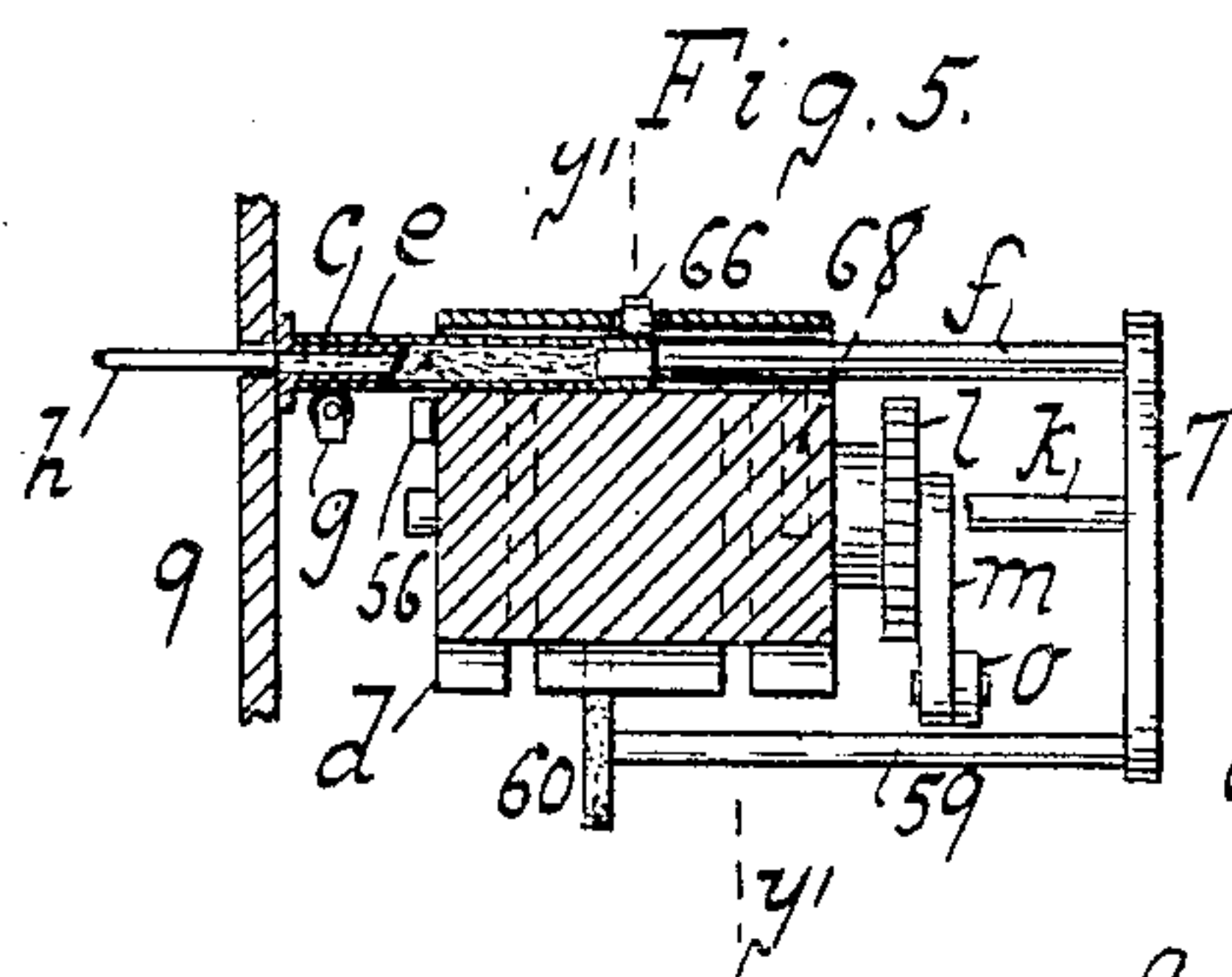
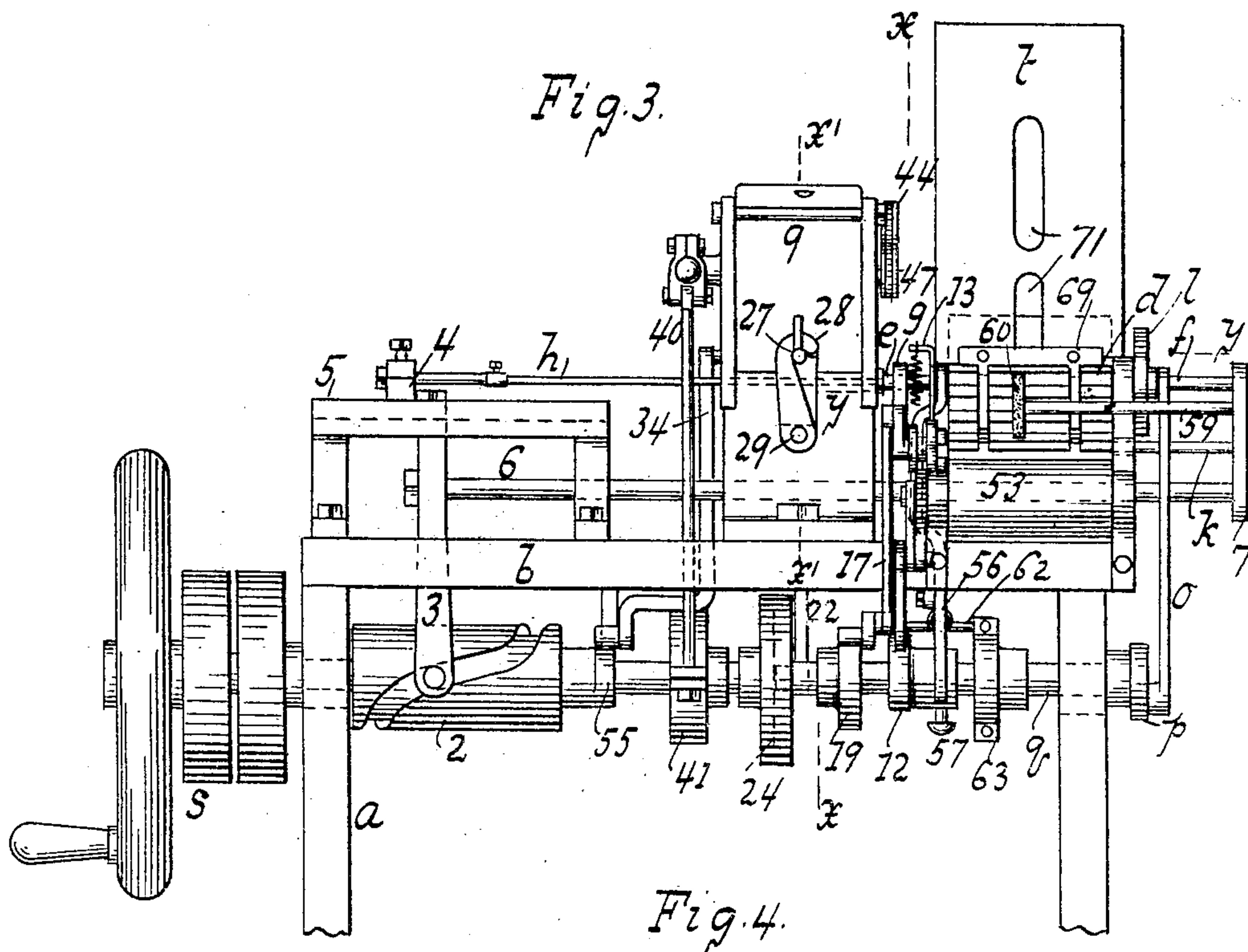
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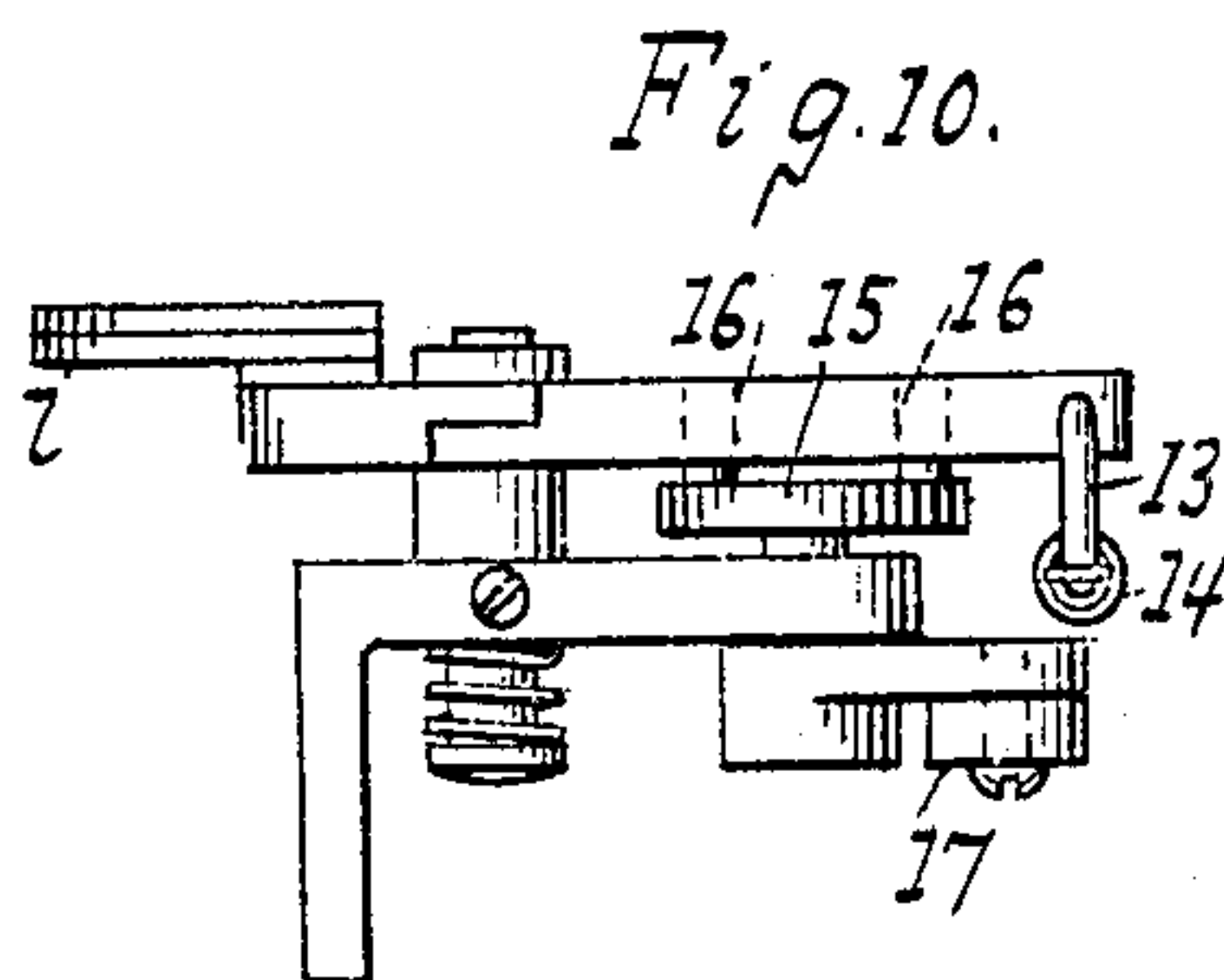
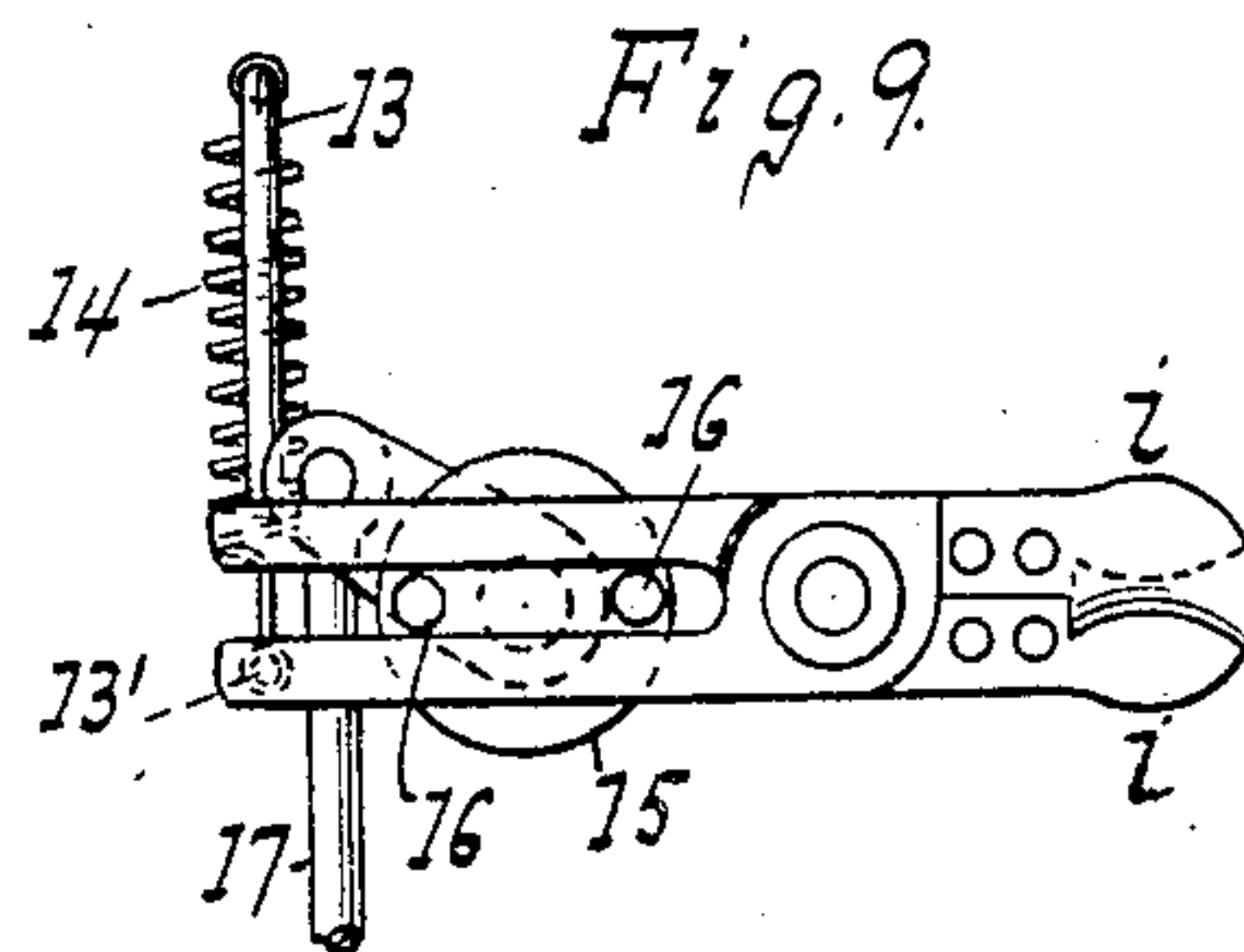
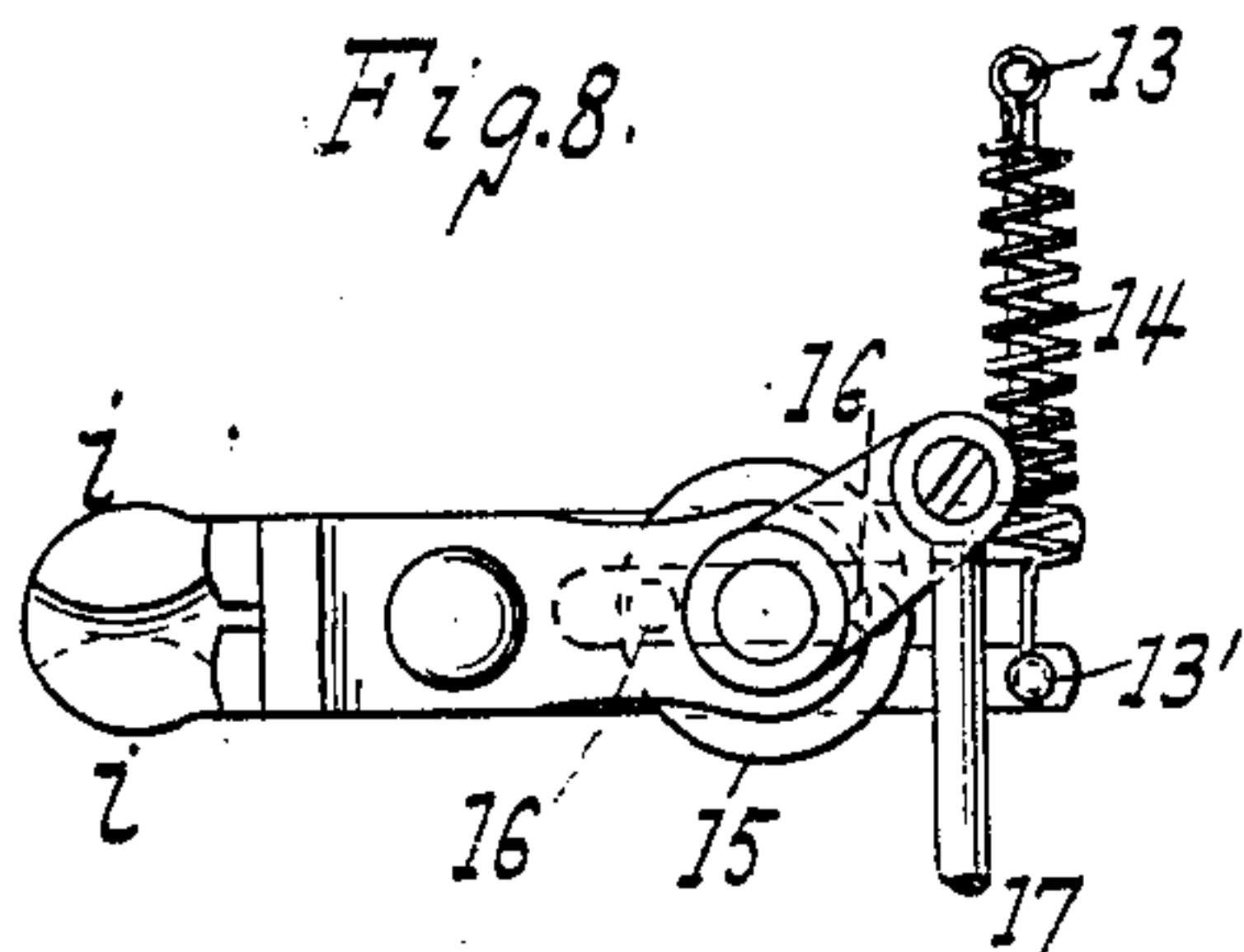
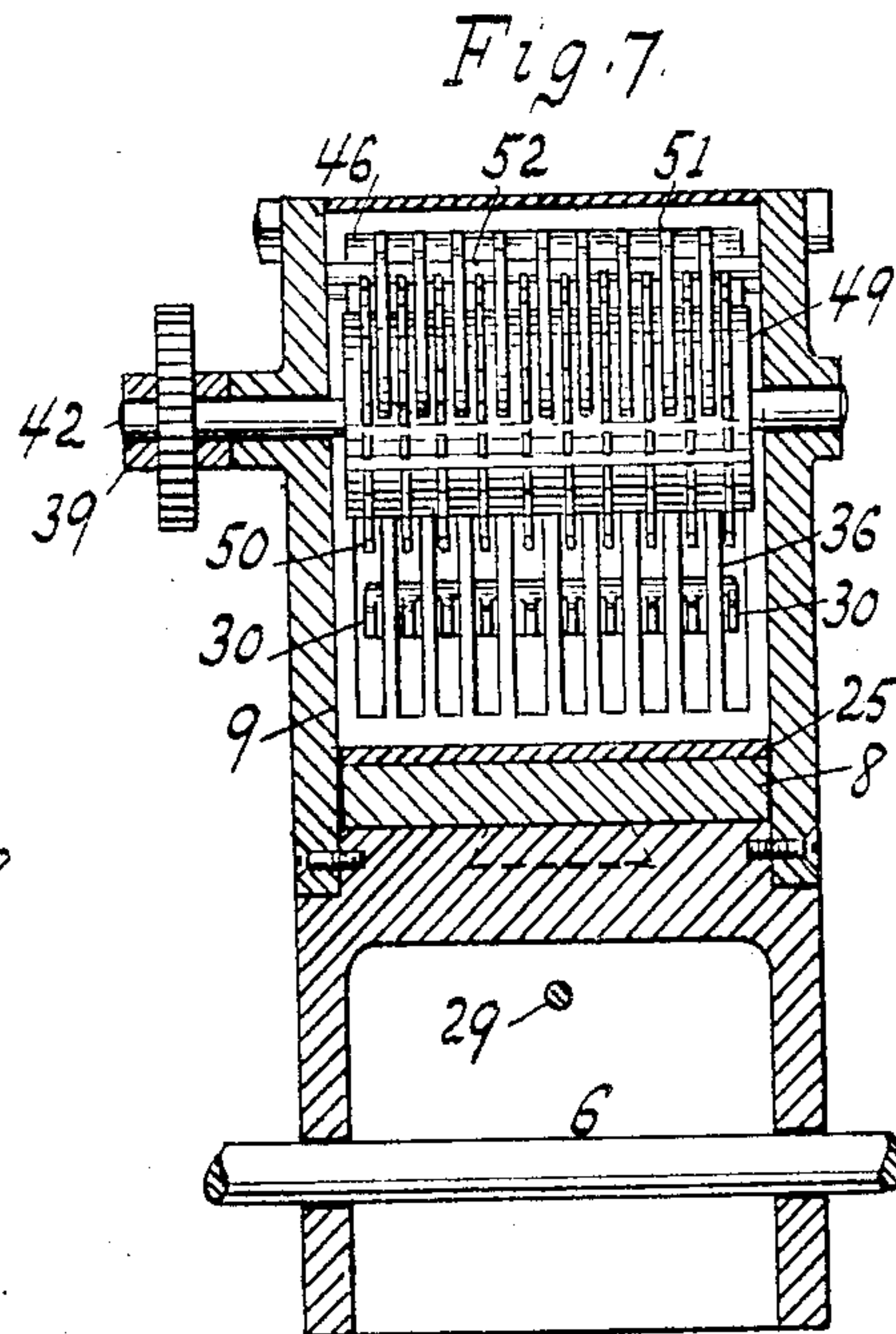
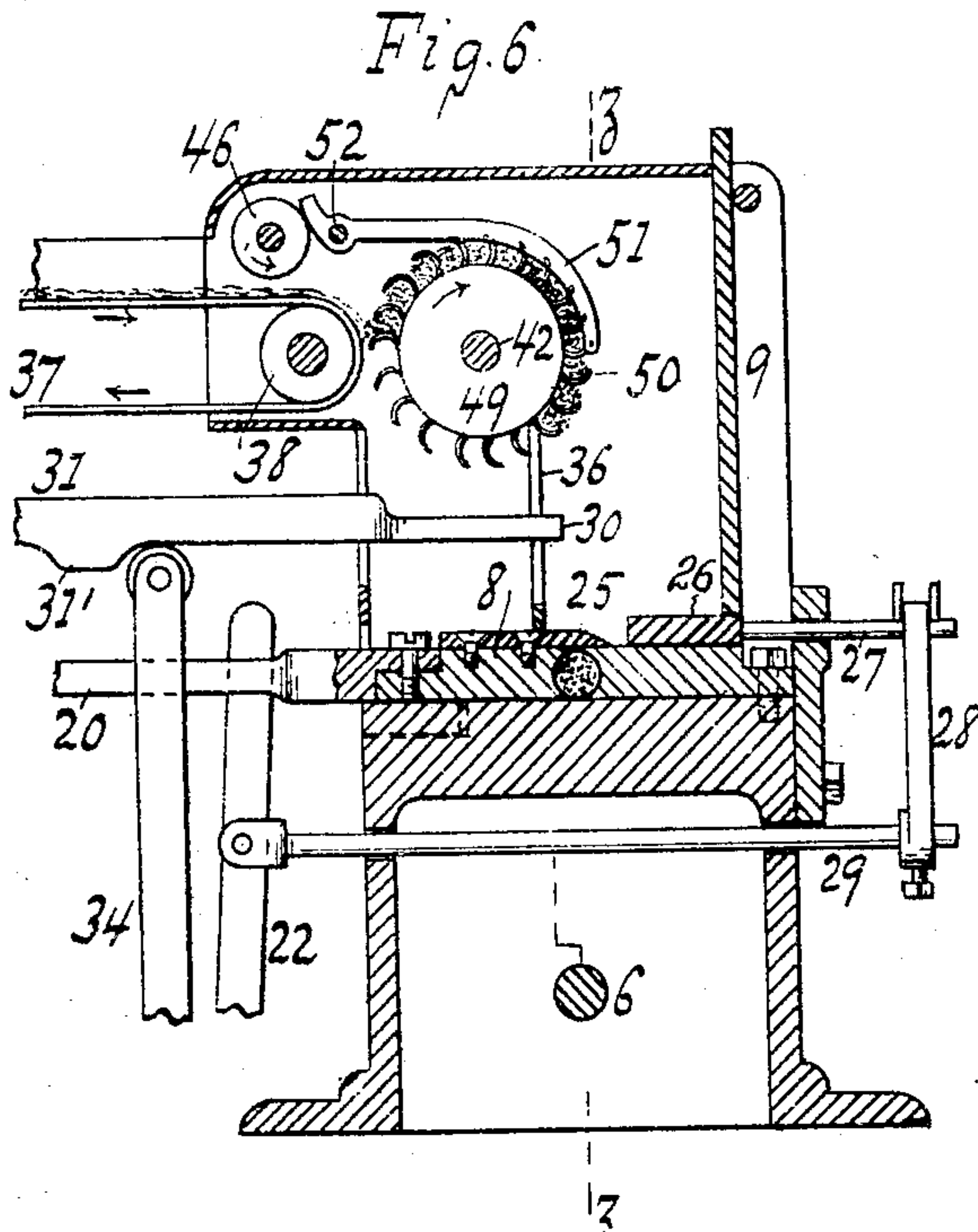
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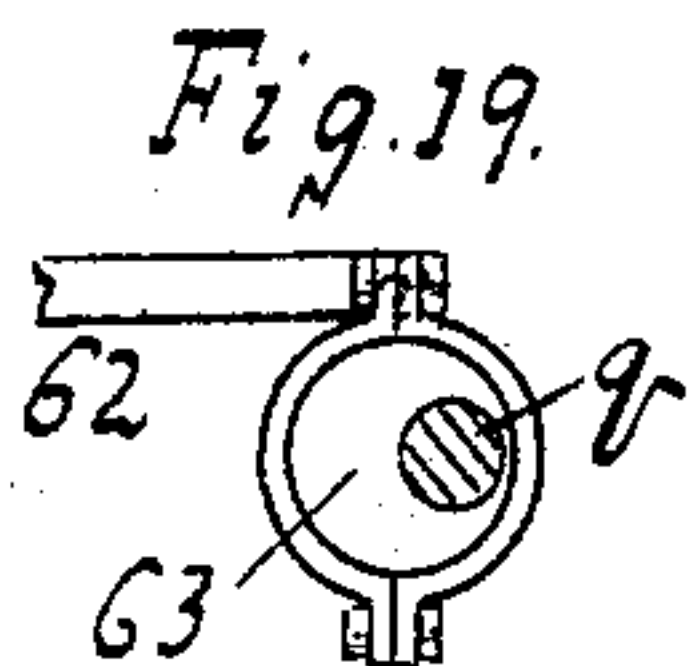
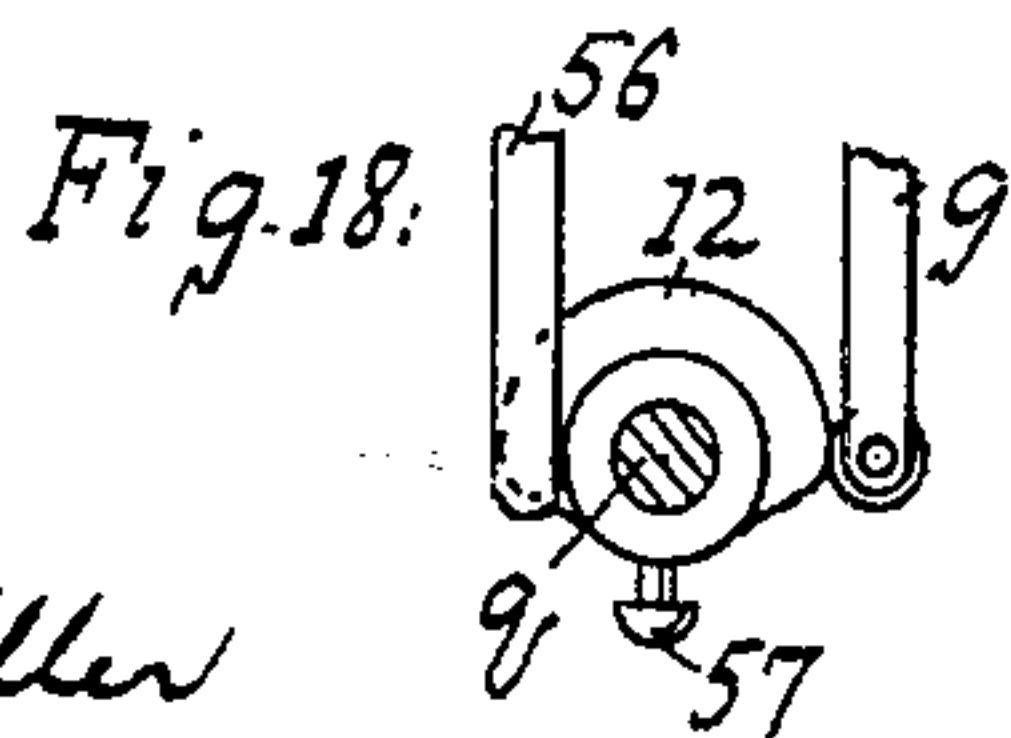
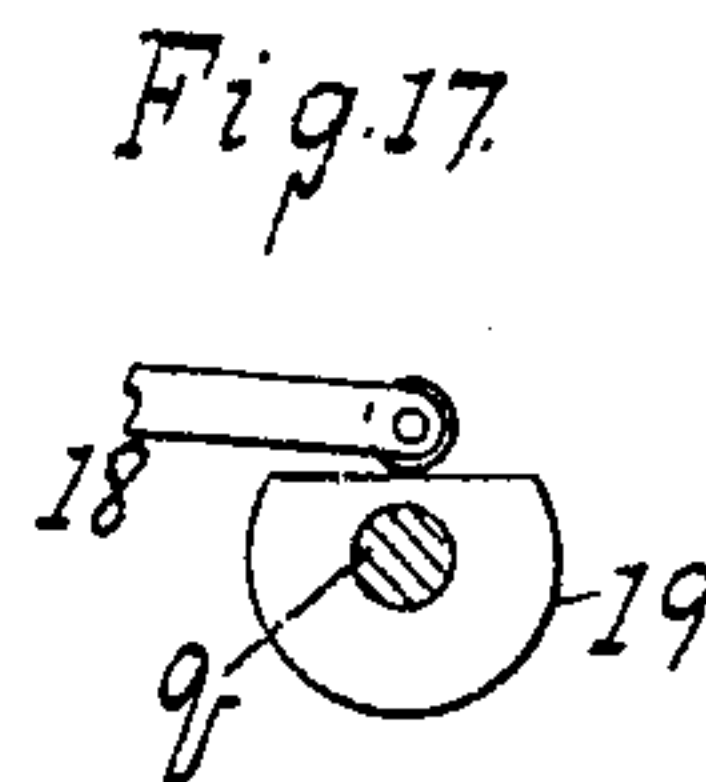
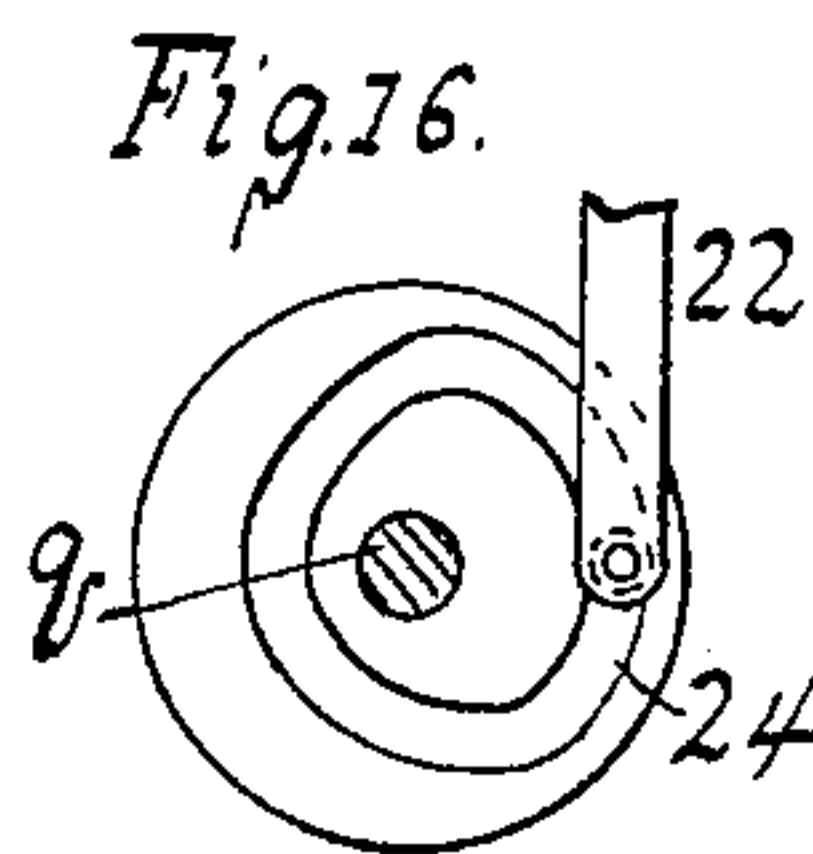
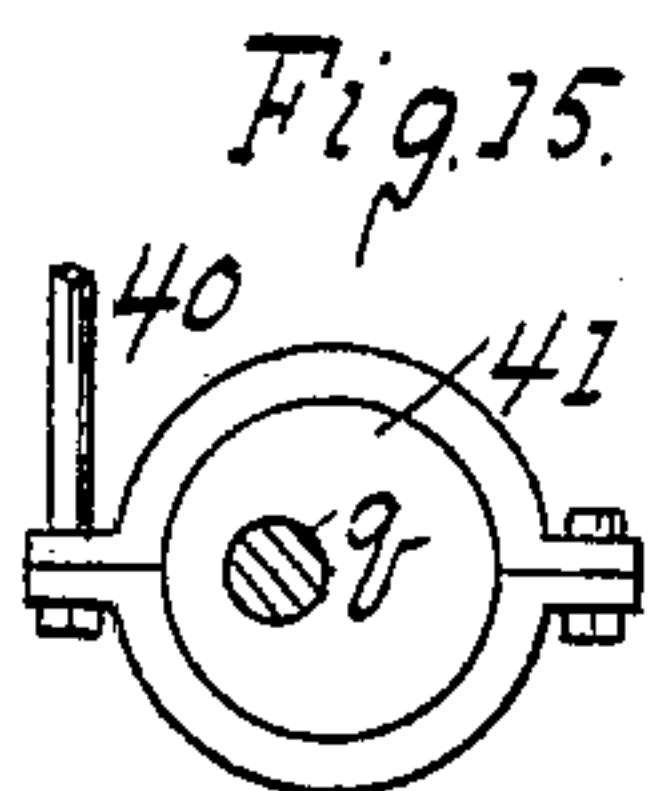
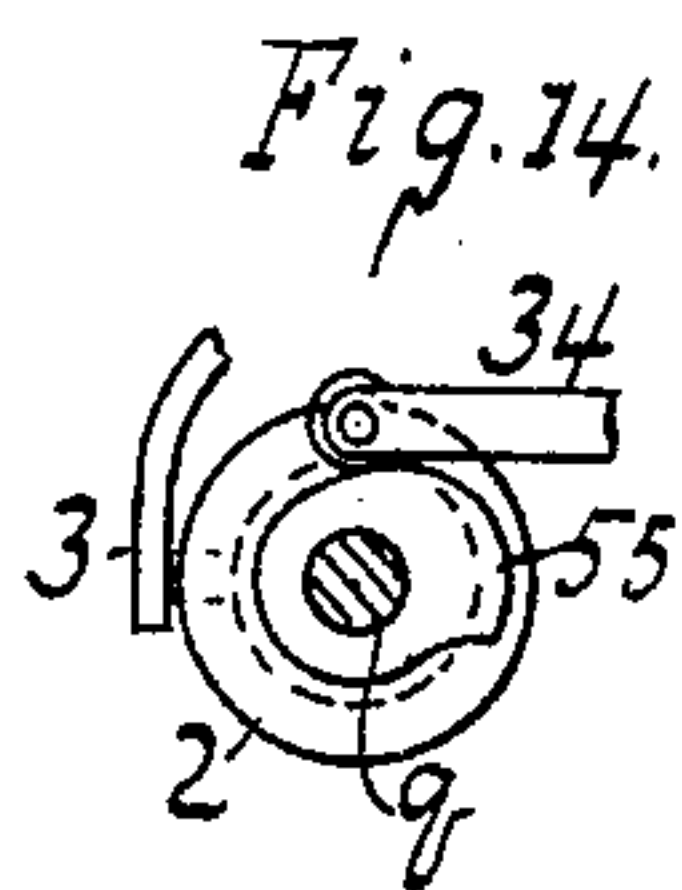
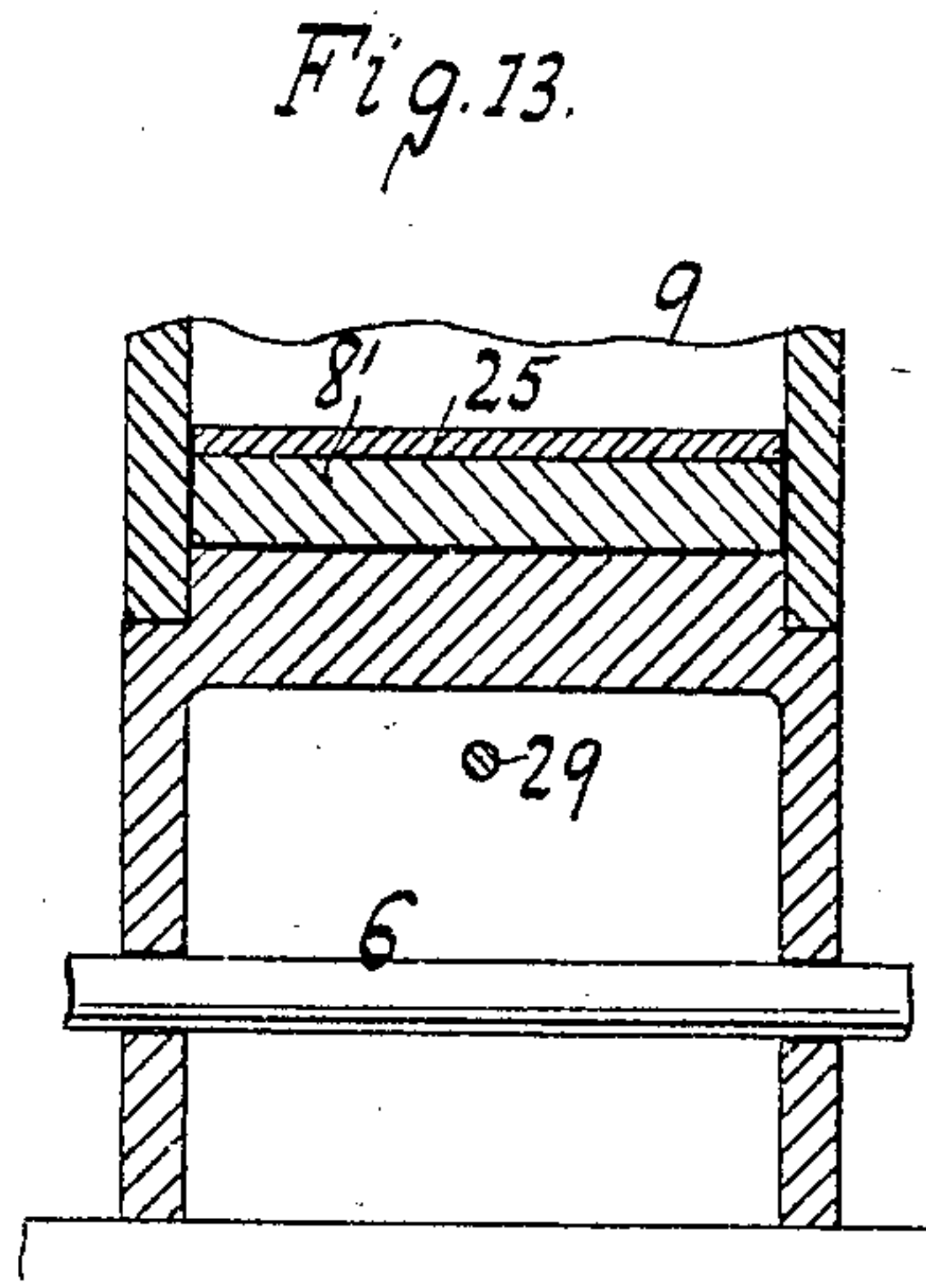
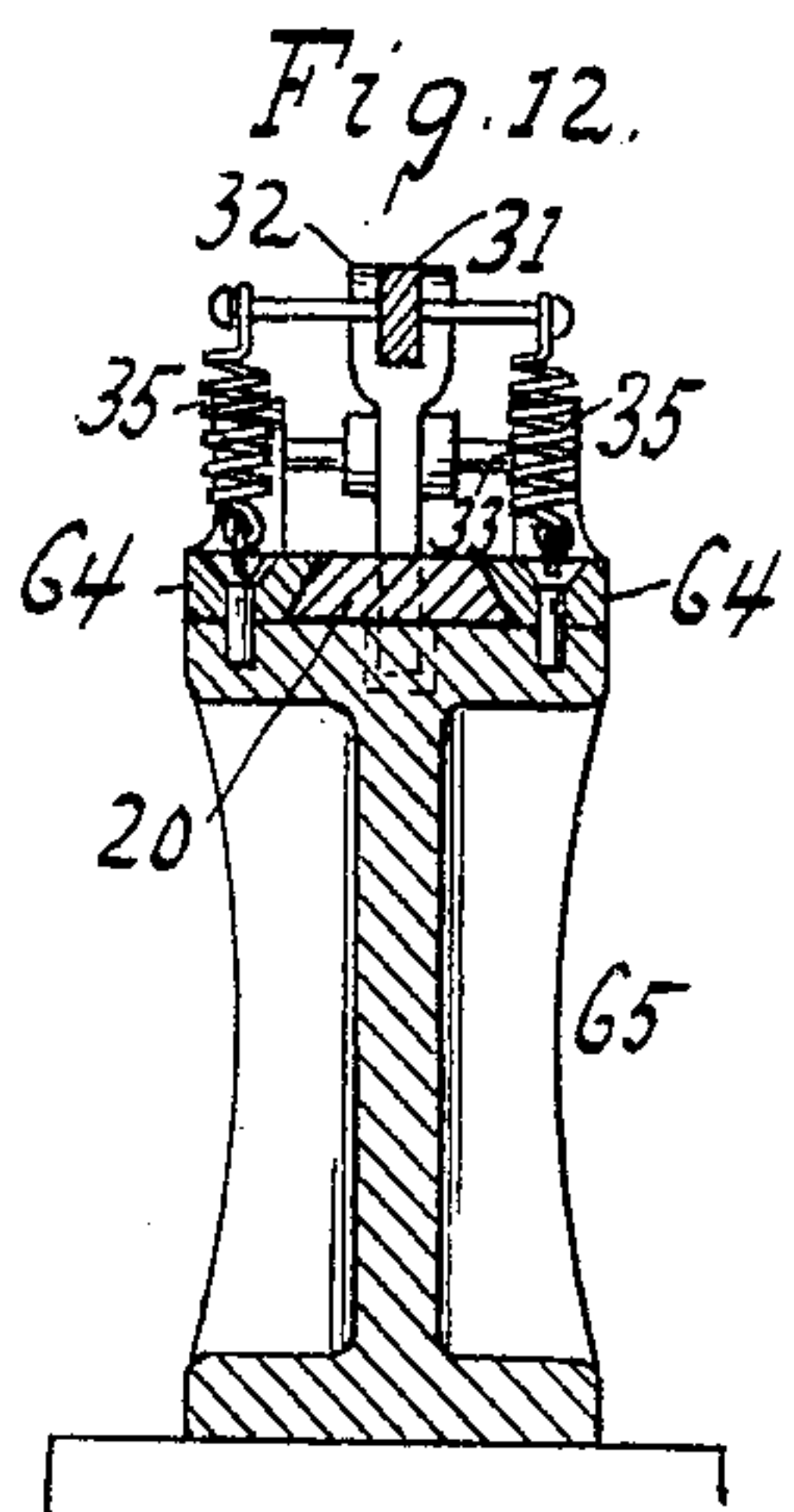
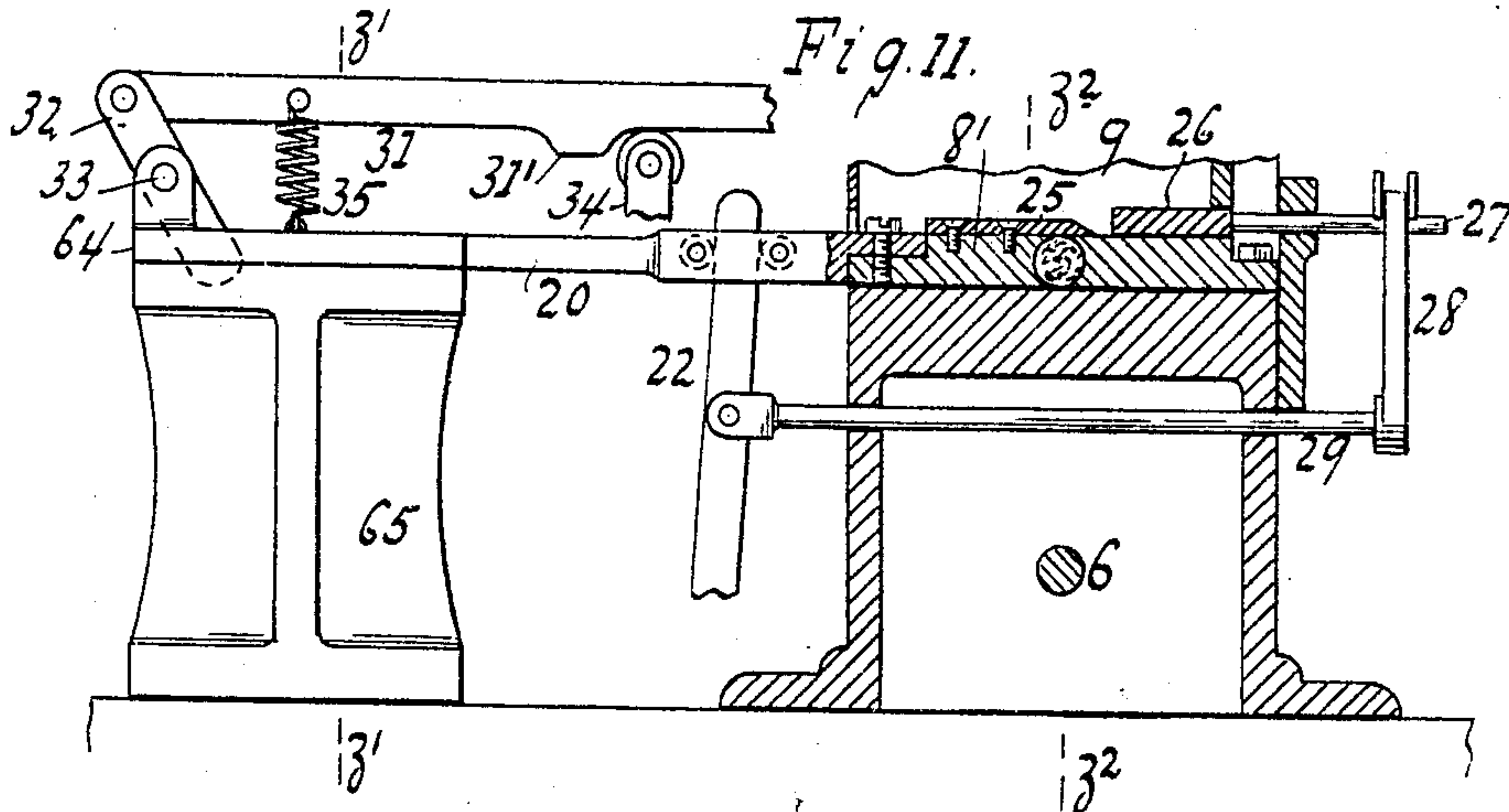
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UNITED STATES PATENT OFFICE.

BANED COHEN, OF NEW YORK, N. Y.

CIGARETTE-MACHINE.

No. 803,993.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed September 16, 1904. Serial No. 224,677.

To all whom it may concern:

Be it known that I, BANED COHEN, a subject of the Czar of Russia, residing at Manhattan, New York city, in the county and State of New York, have invented new and useful Improvements in Cigarette-Machines, of which the following is a specification.

By means of this machine such operations as bringing of wrappers to a filling-plunger, filling, trimming, and delivering the same can all be performed automatically.

This invention is set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of a machine embodying this invention with parts broken away. Fig. 2 is a view of the side opposite to that exposed in Fig. 1, with the driving wheel and pulley removed. Fig. 3 is a rear elevation of Fig. 1. Fig. 4 is a section along line $x x$, Fig. 3. Fig. 5 is a sectional view taken through the axis of the wrapper-conveyer. Fig. 5^a is a transverse section of the conveyer along line $y' y'$, Fig. 5. Fig. 6 is a sectional side elevation of the tobacco-chamber along line $x' x'$, Fig. 3. Fig. 7 is a section along line $z z$, Fig. 6. Figs. 8 and 9 show, respectively, opposite sides of shears or trimmers. Fig. 10 is a plan view of Fig. 8. Fig. 11 is a side elevation of a modification. Fig. 12 is a section along line $z' z'$, Fig. 11. Fig. 13 is a section along line $z^2 z^2$, Fig. 11. Fig. 14 shows a form of cam for actuating the feed-fingers in one direction. Fig. 15 shows an eccentric for actuating the tobacco belt or conveyer. Fig. 16 shows a cam for actuating feed-fingers in another direction. Fig. 17 shows the cam for actuating the shears. Fig. 18 shows the cam for actuating a holding finger or lever and a cast-off. Fig. 19 shows the eccentric for actuating the cigarette belt or conveyer.

In the drawings is shown a base or support a , with a table part b . Cigarette-wrappers c in form of empty tubes or shells are carried by a roller or conveyer d opposite a spout e , Fig. 5, and are slid onto such spout by a wrapper-pusher f and held thereon by a finger g , Fig. 1, while filler-pusher h forces a filler through spout e into wrapper c . As finger g releases the filled wrapper or cigarette the pusher h moves the cigarette from the spout e back onto the conveyer, which rotating further brings the cigarette opposite a

cutter or pair of shear-jaws i . A gage k then pushes the end portion of the cigarette a certain distance between the jaws i , which on closing snip or trim the cigarette or any trailings hanging out of the wrapper. The cigarette thus trimmed then drops off the conveyer into a suitable place—such, for example, as a box. A cigarette conveyer or belt is shown at 53.

The conveyer d has a circumferential groove or series of grooves, Fig. 3, intermediate its ends for the insertion of a hook or tool to remove any cigarette which should tend to stick or remain in the flutings or seats formed on the conveyer for the several wrappers and cigarettes.

The conveyer receives a step-by-step rotation from ratchet l and pawl m , driven by link n with eccentric or crank-pin p on shaft q . The shaft q can be driven by hand or power. Pulleys s —one fast, the other loose—with the usual belt-shifter can be employed for power transmission.

The empty wrappers are contained in a reservoir t , and as each wrapper falls into a seat in the conveyer it is carried to the spout e .

The wrapper-pusher f for pushing or sliding a wrapper along the conveyer until its end portion is slipped onto the spout is reciprocated by cam-roller 2 on shaft q . The arm 3 of carriage 4 engages into the groove of this cam, so that as the latter rotates the arm and carriage are reciprocated back and forth along the carriage-tracks 5. To this carriage 4 is secured the filler-pusher h . A suitable set-screw allows this pusher to be fixed to suitable adjustment on the carriage. From arm 3 extends rod 6 with bracket 7 on its opposite end, in which bracket the wrapper-pusher f and gage k can be fixed to suitable adjustment. The cam 2 thus actuates the pushers h and f with gage k , and as the filler-pusher h moves toward spout e the parts f k move away therefrom, and conversely. The filler-pusher h ejects a filler or mass of tobacco from between jaws 8, Fig. 6, out of the chamber 9 into the wrapper on the spout. These jaws will be presently described. The finger g for holding the wrapper temporarily to the spout has a yielding or rubber contact or roller at its upper or free end. This finger is actuated by a cam 12, and a spring holds the finger to such cam so as to move to and from contact with the spout.

The shears or jaws *z*, Fig. 8, have at their tails the studs 13 and 13', to which is connected spring 14, tending to close the jaws or cause the shears to cut. The jaws are opened
5 by studs 16 on a rocking carrier-disk 15, rocked a quarter-turn by a link 17 and lever 18, actuated by cam 19.

The jaws 8 above referred to, which form a bunch or filler, have their facing edge portions concaved, so that between such edges a filler can be compressed to a roll or mass of the required shape and diameter to be pushed into the wrapper by the pusher *h*, running between the jaws. One of these bunching-jaws is fixed
15 and the other is movable toward and from the fixed jaw. The movable jaw is reciprocated by arm 20, actuated by lever 22, oscillated by the action of cam 24, Fig. 2, on shaft *q*. Moving with the movable jaw is a knife-blade or
20 cutter 25, Fig. 6, which, sliding over the fixed jaw as the movable one comes toward the same, will cause a quantity of tobacco to be cut off from the supply descending in chamber 9. Such severed quantity is then com-
25 pressed into a filler or tight bunch between the jaws. Just previously to pusher *h* beginning its ejecting movement the movable jaw recedes somewhat to allow the filler enough freedom to be pushed out into the wrapper.
30 As the movable jaw recedes any surplus or clippings of tobacco on the fixed jaw is run off the same by scraper 26 into the space between the jaws to be used in forming the next filler. Waste of tobacco is thus avoided.
35 This scraper 26 is secured by rod 27 and arm 28 to a rod 29, connected to the lever 22, actuating the knife. As the knife then comes forward to shear over the fixed jaw the scraper 26 moves to make room on the fixed
40 jaw for the oncoming knife. On the return of the knife the scraper following the knife rubs over the fixed jaw to clean or brush the same.

The arm 28, if desired, can be properly adjusted on rod 29 to obtain the desired spacing between knife 25 and scraper 26. Any suitable set or clamping screw can fix the arm on the rod, Fig. 6, or it might be left fixed, Fig. 11.

Tobacco in the chamber 9 is fed toward the bunching-jaws by a feeder or fingers 30, Figs. 6 and 7, having a comb-like appearance and extending from an arm 31, reciprocated by lever 32, fulcrumed at 33, and having its op-
55 posite arm connected to the rod 20 or knife 25. The feed 30 and knife 25 thus reciprocate simultaneously, but in opposite directions, as they are connected to opposite arms of the transmission-lever 32—that is, when
60 the knife moves forward to cut, the feed moves back or out of the chamber, and when the fingers move into the chamber the knife moves back.

The feed-fingers have what may be called

the "four-motion sewing-machine-feed" ac- 65 tion. As the fingers move into the chamber the lever 34 moves along the shoulder or hump part 31' of arm 31 to first lift such arm and then to leave it free under the action of spring 35 to move toward the bunching-jaws 8. This 70 lever 34 is fulcrumed at 54 and is actuated by a cam 55 on shaft *q*. As this lever swings its upper arm back or away from the tobacco-chamber the feed-fingers are free to lower or move tobacco toward the bunching-jaws. On 75 the return of the lever it will come to position to elevate the fingers for a fresh feed-stroke on their return into the chamber.

The rear of the chamber being composed, in part, of cage-work or bars 36, the fingers 30 80 can suitably enter therebetween to feed tobacco in the chamber. Tobacco being placed on belt 37 is carried thereby into the chamber. The belt runs over a roller or pulley 38 in the chamber and is driven as presently explained. 85 A tightening-roller 70 can be applied to the belt. A pawl-lever is shown at 39, actuated by connection 40 with eccentric 41 on shaft *q*. This pawl drives a ratchet mounted on shaft 42, the latter having on its opposite end 90 sprocket-wheel 43, driving chain 44. This chain engages wheel 45 and drives such wheel with roller 46, Fig. 6, and also drives wheel 47, Fig. 1, together with an attached roller by which the belt 37 is supported and actu- 95 ated. By the action of belt 37, with roller 46, tobacco on the belt is carried to roller 49 on shaft 42. This roller 49 has prongs 50, Fig. 6, which engage the tobacco coming from the belt and carry it over to trail or drop down 100 into the chamber, where it is pressed by fingers 30 to the bunching-jaws 8, as already described.

The gravitating-fingers 51 between prongs 50 and swinging on rod 52 hold the tobacco 105 to the roll 49 and prevent such tobacco running over the machine, so that it will feed down into the chamber 9. By the action of prongs 50 the tobacco is somewhat pulled or loosened, so as to be brought to light or porous condition. The tobacco when placed on the belt is frequently in a thick or packed condition. By being pulled more or less apart by prongs 50 the tobacco comes to the jaws in a suitable light condition. 115

In case a cigarette or its tube or wrapper should be defective or become jammed or crumpled between the chamber and the roller or reservoir such defective cigarette or article will be ejected or pushed back or stripped 120 from spout *e* by a cast-off finger or ejector 56, Fig. 4, actuated by pin or cam 57 on shaft *q*. This cast-off or ejector is readily made in the form of a suitably-fulcrumed lever actuated by such cam and by a spring 58. Being lo- 125 cated between the tobacco-chamber and the conveyer or reservoir, said stripper is in position to clear this space or to knock or throw

off cigarettes or tubes which may be improperly sticking to the spout.

A cleaner can be provided for the conveyer. The bracket 7 is shown provided with a brush, or rather a stem 59, having a brush or scraper 60. As the bracket reciprocates the brush is carried across the conveyer or along its grooves or some one of the grooves to brush or clean the same or the face of the conveyer. In practice it has been found that chips or dust or fine particles of tobacco settle on or cling to the conveyer, and the brush shown has been found efficient in keeping the conveyer clean.

The reservoir *t* can have one or more finger-slits 71 to allow access to the shells or wrappers, as for loosening the pile in the reservoir.

The conveyer 53 for taking the cigarette to a point of delivery can be actuated by a ratchet whose pawl 61 is actuated by a link 62 and eccentric 63, said eccentric being shown on shaft *q*.

In the modification shown in Figs. 11 to 13 the movable jaw instead of being dovetailed is made flat or plate-shaped, as seen at 8', Fig. 13, and rigidly connected with the arm portion 20. This part 20 is shown beveled and guided or held to move horizontally or rectilinearly between guides or beveled rails 64, secured or screwed to a post 65. Antifriction-rollers can be applied between lever 22 and arm 20.

Springs or fingers 66 and 68, Fig. 5^a, can be applied to act against the conveyer. Finger 66 guides the shell or wrapper while being pushed onto and from the spout. Finger 68 holds the cigarette during trimming. The fingers 69 strip an adhering cigarette from the roller, so that it cannot return into the reservoir of the tubes.

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

1. In a cigarette-machine, a tobacco-chamber with a fixed and a movable jaw, a cutter and scraper arranged opposite one another and made to move with the movable jaw, and a pusher for clearing the jaws, said cutter being made to sever the amount of tobacco required by the jaws to be bunched for a filler, and said scraper being made to scrape cuttings or material into the space between the jaws.

2. In a cigarette-machine, a tobacco-chamber with a fixed and a movable jaw adapted to bunch a filler therebetween, a cutter and scraper arranged opposite one another and made to reciprocate over the fixed jaw so that the cutter will sever tobacco extending above the jaws and the scraper will push or move cuttings to the space between the jaws, and a pusher made to reciprocate between the jaws to clear the space therebetween.

3. In a cigarette-machine, a tobacco-chamber with a fixed and a movable jaw for bunch-

ing a filler therebetween, a cutter fixed to the top of the movable jaw and made to pass over the edge of the fixed jaw to cut the material for the filler, a scraper on the fixed jaw opposite the cutter and made to move therewith to clean the top of said fixed jaw, and a pusher to eject the filler from the jaws.

4. In a cigarette-machine, a tobacco-chamber having a fixed and a movable jaw for compressing a filler, a cutter for severing the amount of tobacco required to form a filler and moving with the movable jaw, a cam or actuator having connections for operating the cutter and movable jaw, a connecting-rod extended underneath the jaws, and a scraper secured to the rod and made to clear the exposed upper portion of the fixed jaw from cuttings or remnants.

5. In a cigarette-machine, a tobacco-chamber having a fixed and a movable jaw with filler-receiving grooves, a cutter for severing the tobacco required by the jaws in forming a filler and adapted to shear or move over the fixed jaw, a scraper adapted to move over the fixed jaw, and a connecting-rod with operating means for the cutter and scraper, said rod being extended underneath the jaws, the scraper being adjustably connected to the rod.

6. A cigarette-machine comprising a chamber, a filler-pusher extended across the bottom of the chamber to operate on the filler supported on said bottom, a wrapper-pusher for moving a wrapper toward the filler-pusher, a gage, a trimmer, a conveying-roller having a groove or grooves intermediate its ends for enabling a cigarette to be ejected from the roller, and an ejector extended into the groove, said gage being made to suitably position the cigarette on the conveying-roller for trimming.

7. A cigarette-machine comprising a tobacco-chamber, a wrapper-carrying roller alongside the chamber, a wrapper-pusher for holding a wrapper on the roller to the chamber for filling, a filler-pusher for ejecting tobacco from the chamber into the wrapper held as described, an ejector-lever mounted independently of the wrapper-pusher and having an arm extended between the tobacco-chamber and the roller, and a cam made to engage another arm of the lever to move the same when a filler has been ejected from the chamber and pushed to the wrapper so as to remove said filler and wrapper in case the same should be jammed in the space between the chamber and roller.

8. In a cigarette-machine, a wrapper-carrier, a bracket, a rod on which the bracket is mounted, a cam-roller for reciprocating the rod and bracket, a wrapper-pusher on the bracket, a gage and a cleaning-brush likewise mounted on said bracket, and means for trimming the cigarettes, said gage being made to uniformly set or adjust the cigarettes on the

carrier relatively to the trimmer so as to be uniformly trimmed or finished.

9. In a cigarette-machine, a wrapper-conveyer, a cleaner or brush for the conveyer, a
5 wrapper-pusher, a filler-pusher for moving a wrapper into position to be filled, filler-forming devices, and a cam-roller for actuating the cleaner and pushers.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

BANED COHEN.

Witnesses:

CHARLES E. POENSGEN,
GEORGE HULSBERG.