

No. 709,266.

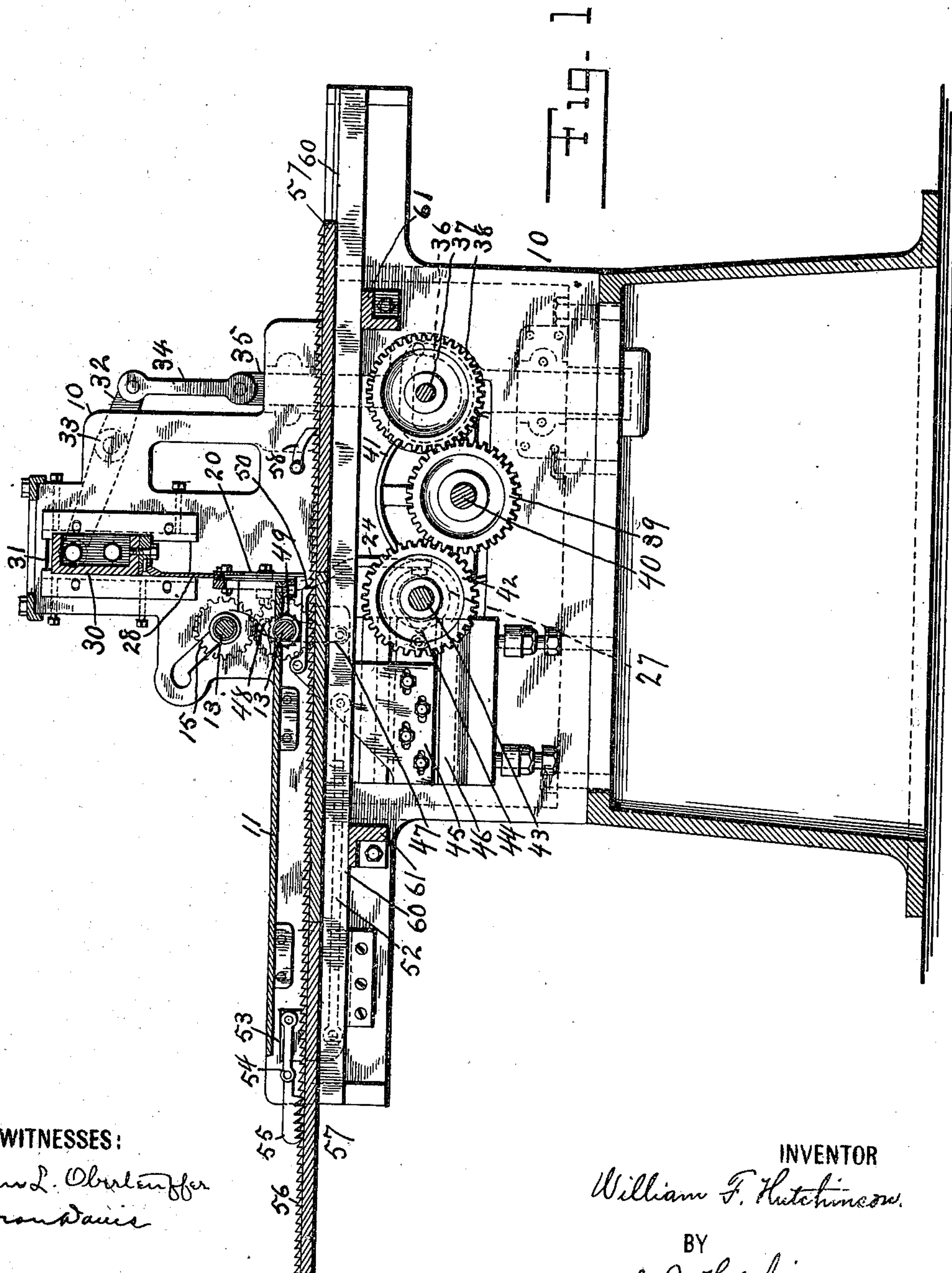
W. F. HUTCHINSON.
MATCH MACHINE.

Patented Sept. 16, 1902.

(Application filed Mar. 23, 1901. Renewed Feb. 1, 1902.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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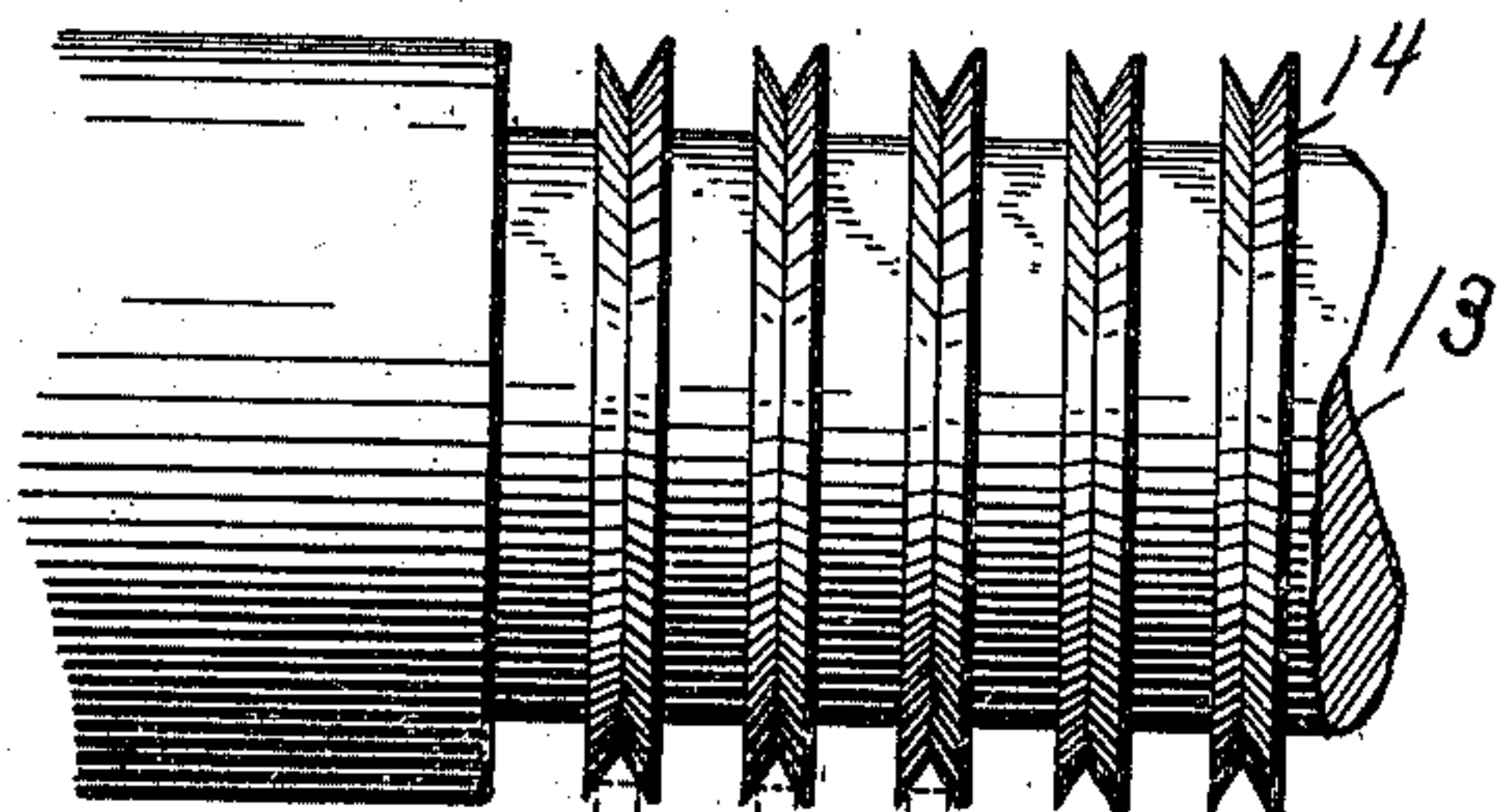
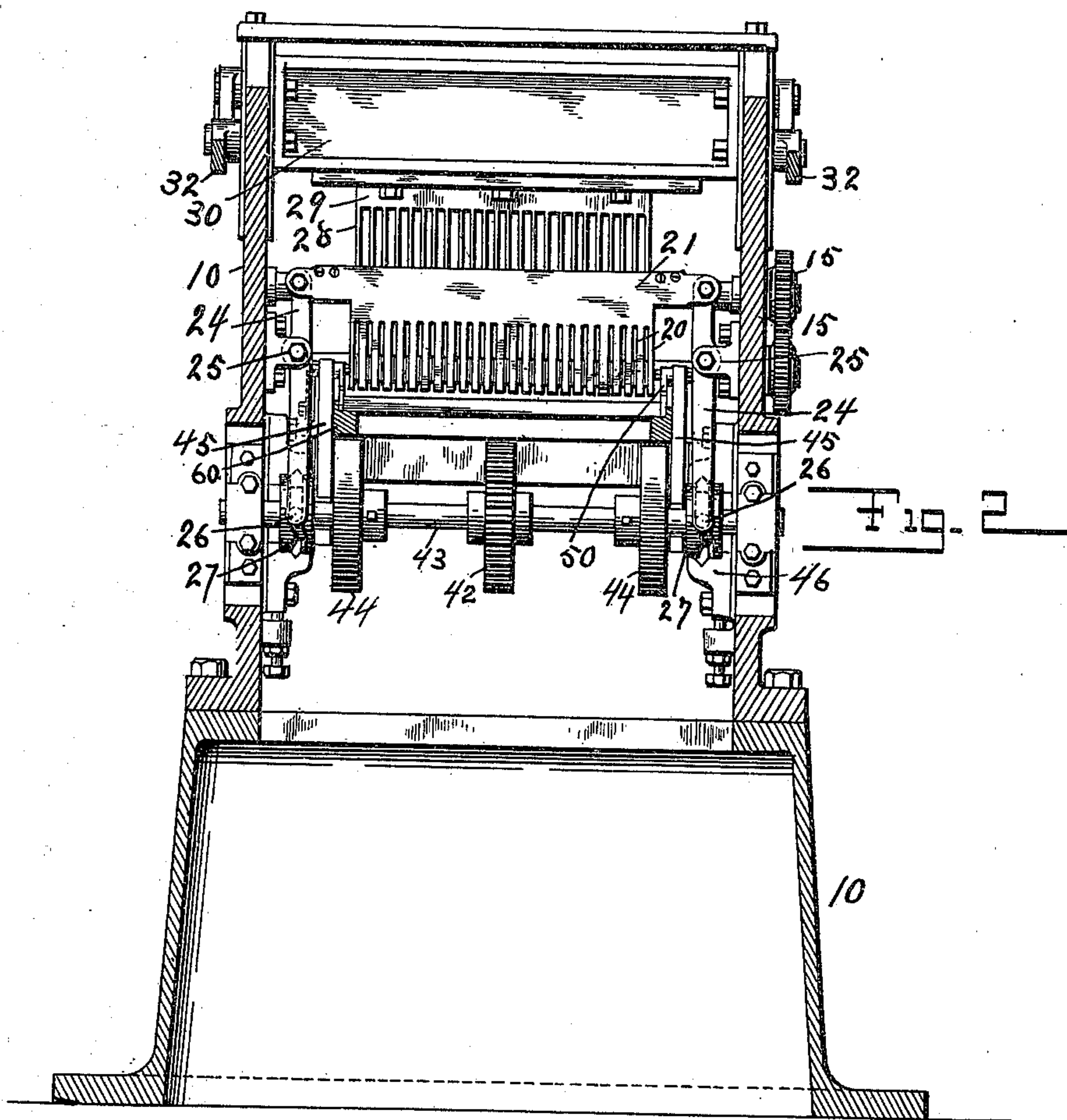


Fig. 8

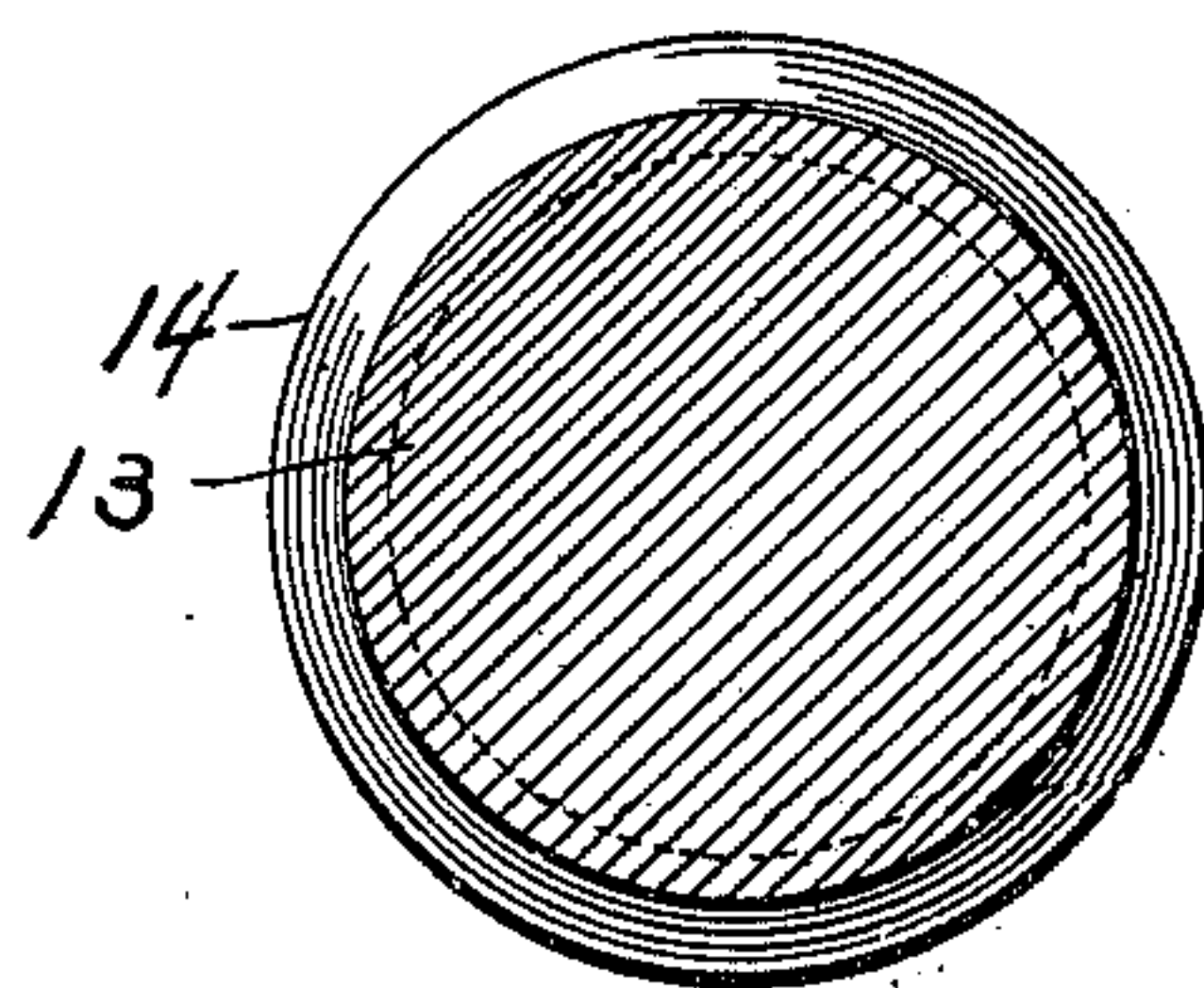


Fig. 9

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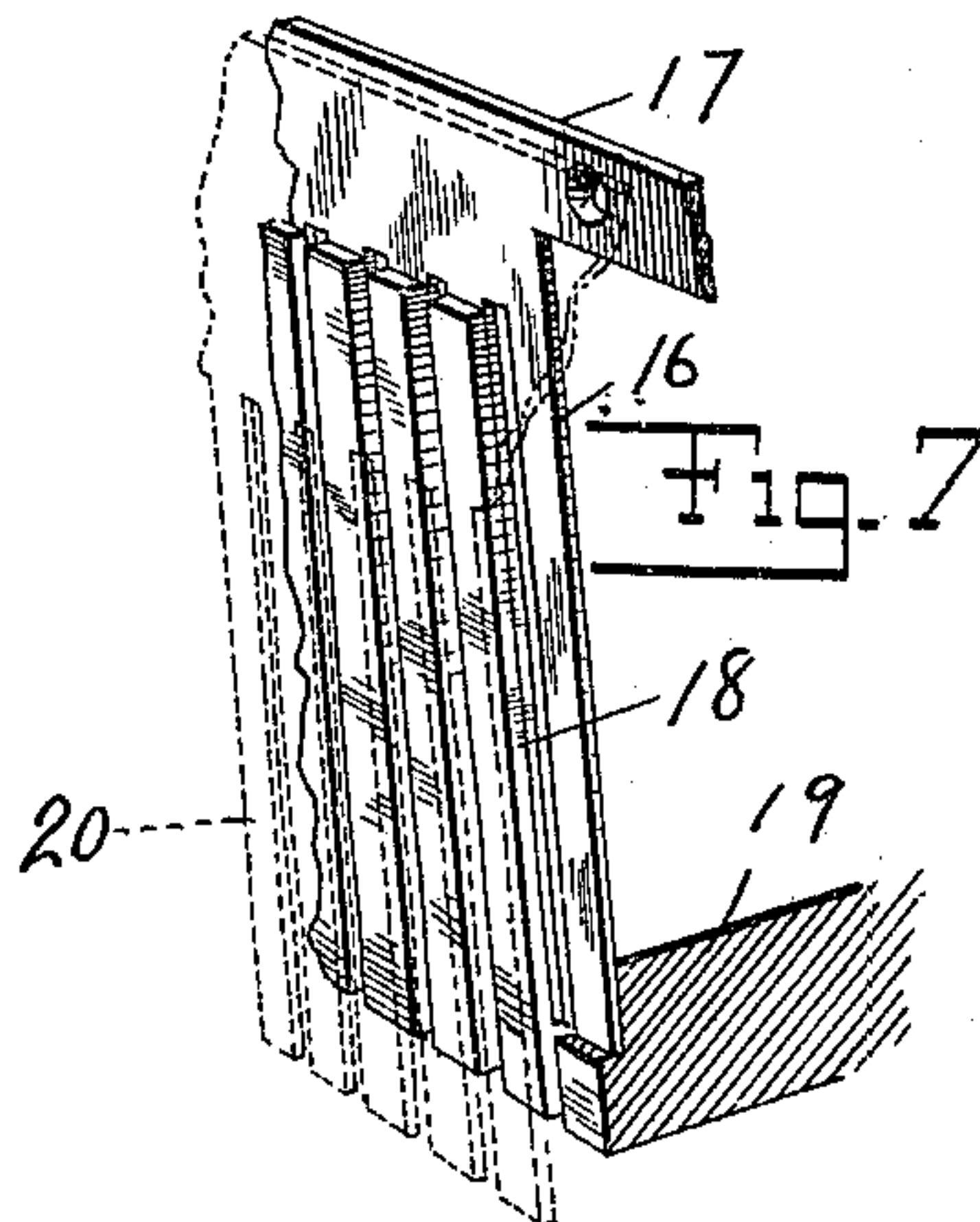
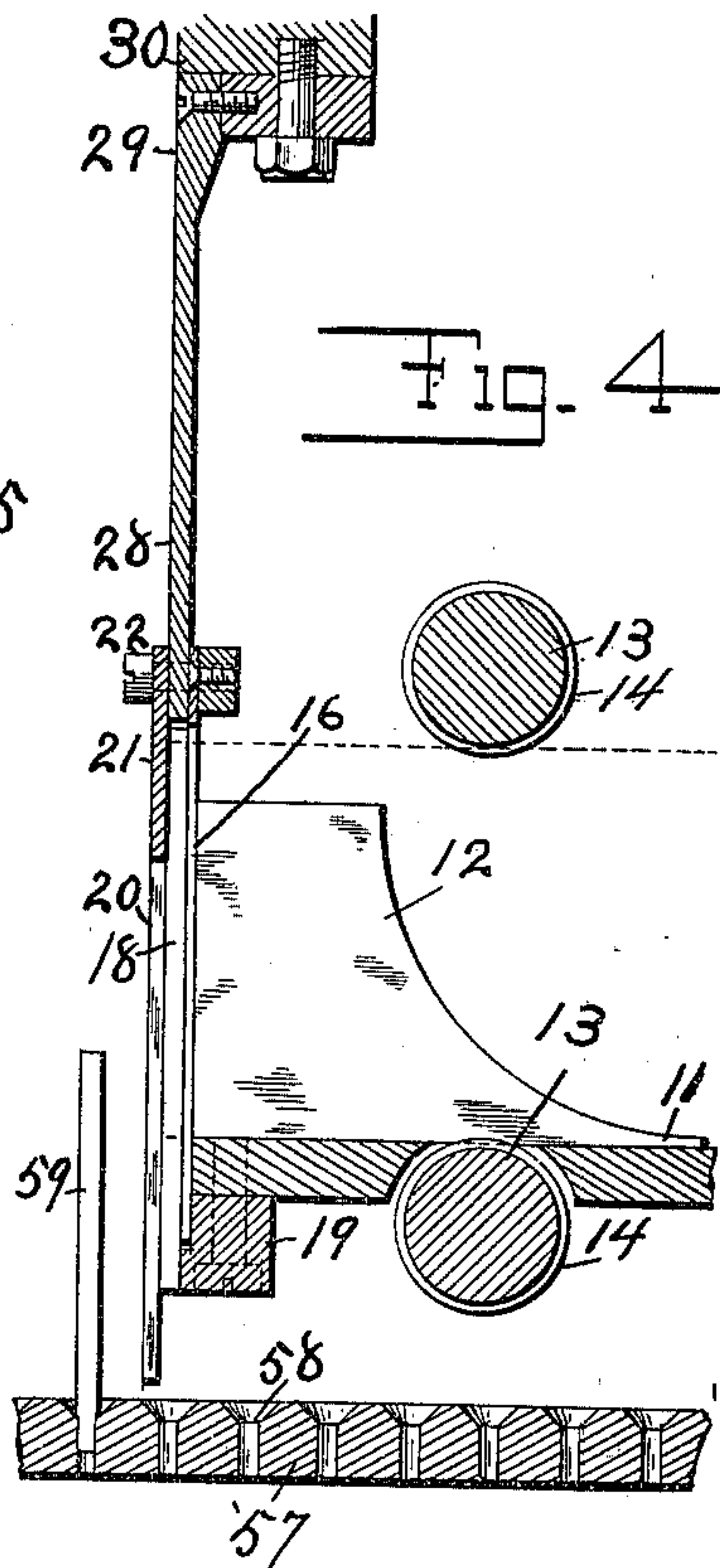
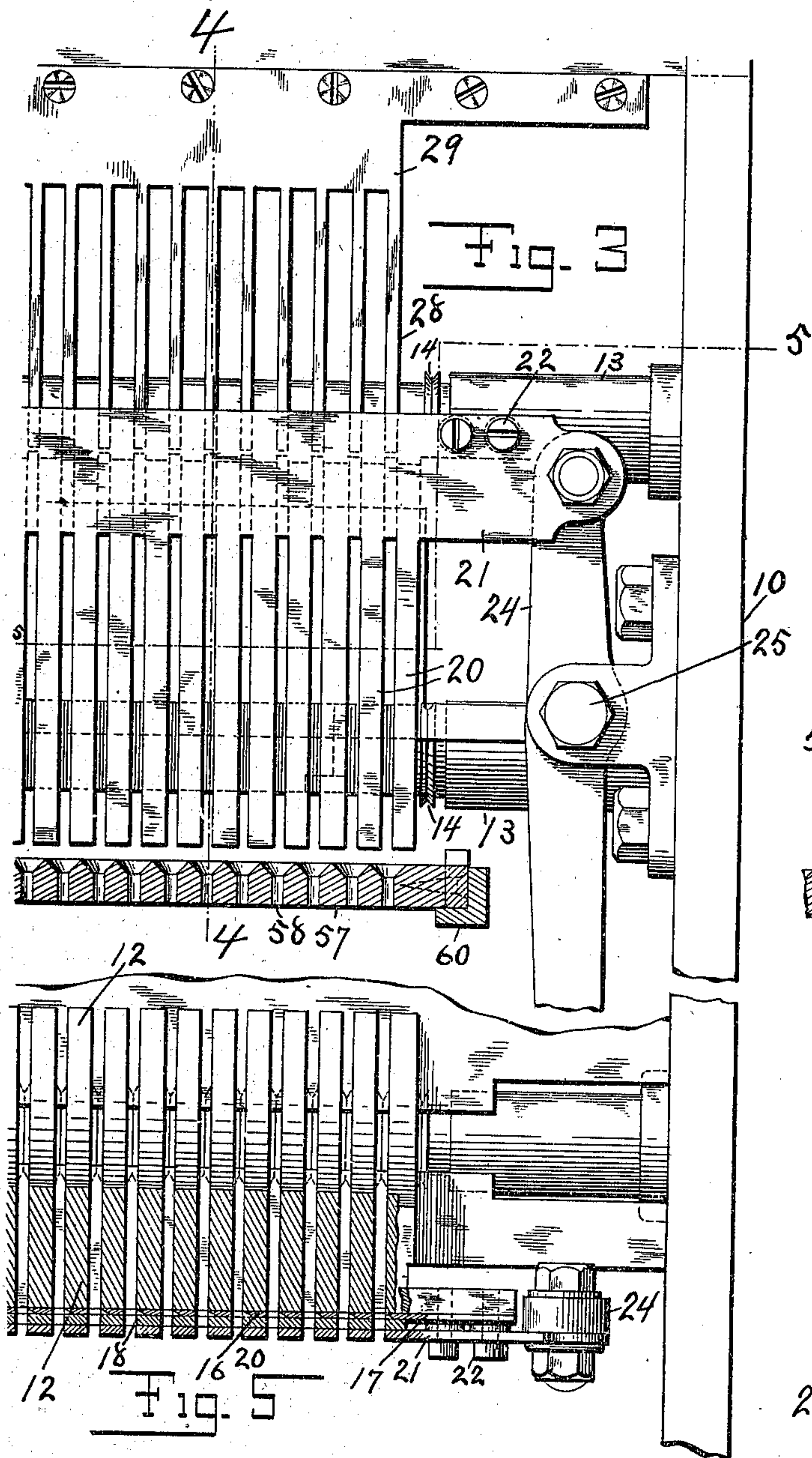
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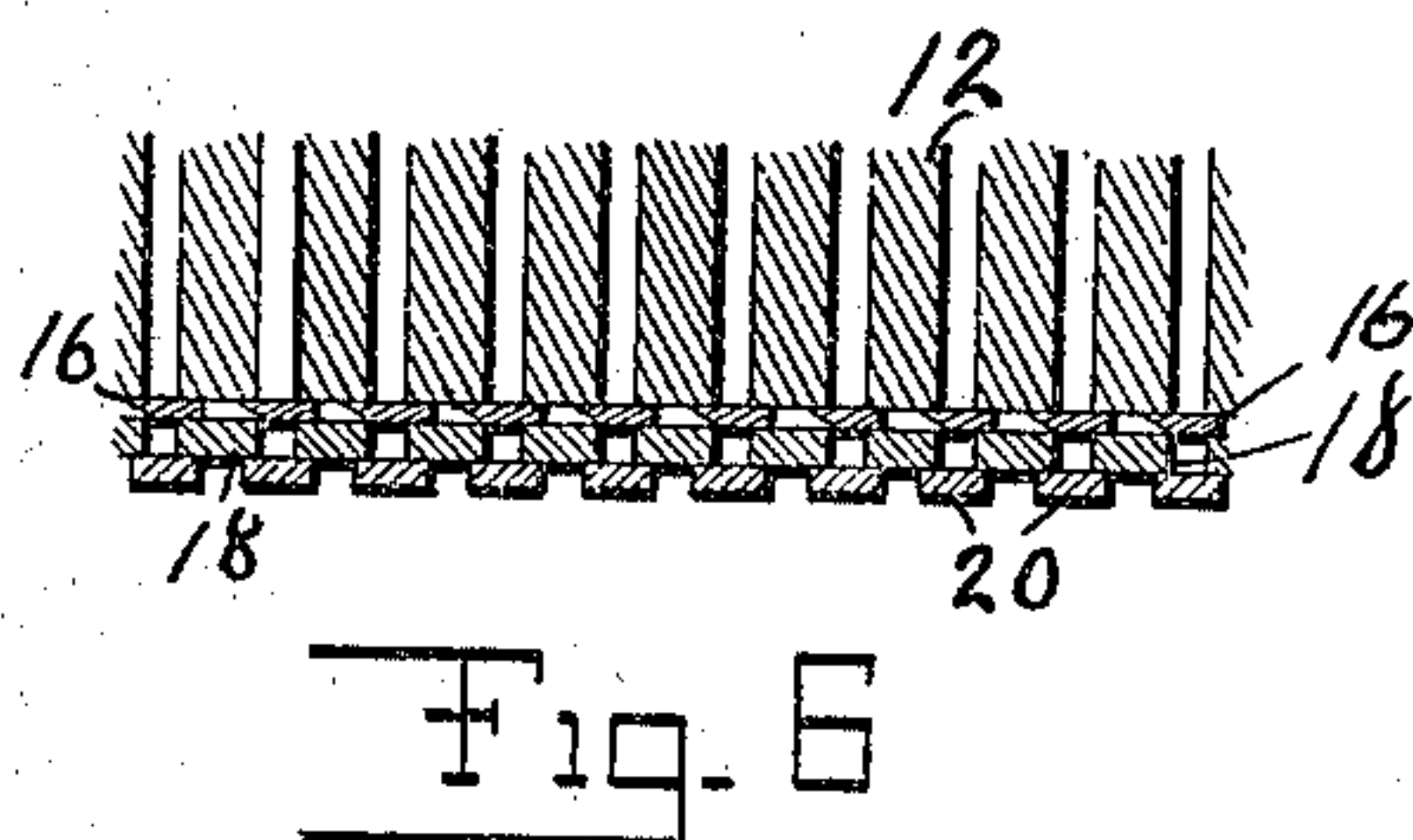
(Application filed Mar. 23, 1901. Renewed Feb. 1, 1902.)

(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

WILLIAM F. HUTCHINSON, OF BOUNDBROOK, NEW JERSEY, ASSIGNOR TO
ATLAS MATCH COMPANY, OF MELLENVILLE, NEW YORK, A CORPORATION OF NEW JERSEY.

MATCH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 709,263, dated September 16, 1902.

Application filed March 23, 1901. Renewed February 1, 1902. Serial No. 92,196. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. HUTCHINSON, of Boundbrook, Somerset county, New Jersey, have invented certain new and useful
5 Improvements in Match-Machines, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of match-machines which cut
10 match-splints from strips of veneer, the width of the strip corresponding to the length of the match; and my present invention is an improvement on the machine illustrated in Letters Patent of the United States No. 668,519,
15 dated February 19, 1901.

My invention relates particularly to the mechanism for cutting and guiding the splints and for delivering them into a suitable carrier, in which they may be held while
20 going through the dipping process.

It is known that a match-splint is a very difficult thing to handle and that it must be held perfectly, and accurately guided, when it is cut, into a suitable carrier, or else it is
25 difficult to handle a splint economically.

The objects of my present invention are to provide means for holding the veneer strips very close to the carrier, so that the splints when cut are perpendicular thereto; to provide
30 cutting means which will cut good splints even though the wood be slightly cross-grain; to provide means for holding the severed splints in very close relation to the carrier, so that they may be easily pushed into
35 the holding parts of the carrier, and to provide means for automatically removing parts of the guiding mechanism of the splints as the carrier advances, so that the splints may move freely and without interruption.

40 With these ends in view my invention consists of certain features of construction and combination of parts, which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying
45 drawings, forming part of this specification, in which similar figures of reference refer to similar parts throughout the several views.

Figure 1 is a vertical longitudinal section of the machine embodying my invention. Fig.

2 is a central vertical cross-section of the machine. Fig. 3 is an enlarged detail sectional
50 view of the mechanism for guiding and ejecting the splints and pushing them into the carrier. Fig. 4 is a broken vertical section on the line 4 4 of Fig. 3. Fig. 5 is a broken
55 sectional plan on the line 5 5 of Fig. 3. Fig. 6 is a detail sectional plan showing the position of the cutting and guiding mechanism just after a series of splints has been cut. Fig. 7 is a broken detail perspective view
60 showing parts of the cutting and guiding mechanism. Fig. 8 is a broken detail view of one of the feed-rollers, and Fig. 9 is a cross-section of one of the feed-rollers.

The machine has a suitable frame 10, provided near the top with a table 11, on which
65 the veneer strips are placed, and these have their ends pushed forward between the stationary guides 12, (shown best in Figs. 4 and 5,) the strips being held in the position shown
70 by dotted lines in Fig. 4 and fed forward by the feed-rollers 13, which are arranged, as usual, above and below the stock, and which are preferably provided with disks 14, having
75 V-shaped slots therein to engage the veneer strips, as shown in Fig. 8. This arrangement I find gives the feed-rollers a good grip on the veneer, so that the latter will not slip, and, furthermore, this style of feed-roller prevents the edges of the veneer from being
80 broomed or spread during the feeding process. The feed-rollers are geared together by gears 15 or so connected by equivalent means that they are turned in unison in a direction to feed the veneer forward. The rollers are
85 turned intermittently in a manner to be hereinafter described, although no novelty is claimed for the feeding mechanism. The veneer strips as they are fed forward through the guides 12 enter between the knife-blades
90 16, which, as illustrated, are formed integral with a solid back 17, (see Fig. 7;) but, obviously, the blades may be made independent of the back, if desired, and attached thereto in any convenient way. The blades 16 are
95 not shown connected at the bottom, but, if necessary or desirable, they may be so connected. The space between the blades is suf-

ficient to permit the veneers to pass between
 them, and it will be seen that when the knife
 is moved quickly to one side the blades sheer
 across the face of the guides 12 and so sever
 5 the splints from the veneer strips which pro-
 trude between the blades. There are two ob-
 jects in making the knife in this manner—
 first, it takes very little motion to cut off the
 splints, as the knife has to travel only about
 10 one-eighth of an inch, and, secondly, the
 blades engage the full width of the strip of
 veneer, so that if the latter happens to be a
 little cross-grain it will still cut smoothly and
 not split off. When the veneer strips are fed
 15 forward between the knife-blades, they enter
 between the guide-fingers 18, which are
 placed the same distance apart as are the
 guides 12, and these fingers are stationary,
 being, as illustrated, rigid on the cross-bar
 20 19, (see Fig. 4,) which is held fast to the un-
 derside of the table 11; but the fingers may of
 course be supported in any convenient way.
 These fingers, it will be observed, hold the
 severed splints from any lateral movement.
 25 It will be noticed that the guide-fingers 18
 will hold the splints from moving laterally,
 that the knife-blades 16 when moved forward
 to cut off the splints, as shown in Fig. 6, will
 prevent the splints from falling back, and to
 30 inclose the other side of the splints, so as to
 form a series of keepers to receive them, the
 slotted part 20 of the back plate 21 is used,
 the part 20 of the plate moving forward in
 unison with the knife, and thus it will be seen
 35 that a series of keepers is formed in which
 the splints are held absolutely against dis-
 placement. This is clearly shown in Fig. 6.
 It will be observed, however, that these keep-
 ers must be opened to permit the forward
 40 movement of the match-splint in the carrier
 and also to permit the feeding forward of
 fresh stock of veneers. Consequently the re-
 turn stroke of the knife-blade 16 carries with
 it the slotted back plate 20, and the parts then
 45 assume the position shown clearly in Fig. 5,
 so that the fresh veneer stock can feed for-
 ward between the guide-fingers 18, while the
 splints already cut can move forward between
 the slots of the back plate 20. The essential
 50 thing is that the knife-blades 16 and back
 plate 21 move in unison, and of course this
 can be effected without rigidly connecting the
 parts; but the simplest way is to fasten the
 parts together, which is done by suitable
 55 screws, as shown at 22.

The knife and back plate can be recipro-
 cated by any convenient means, and I do not
 claim the special means shown. Neither do I
 limit the invention to any precise means of
 60 effecting the movement. As illustrated, the
 prolonged backs of the knife and back plate
 are pivoted to the upper end of the levers 24,
 which are arranged on opposite sides of the
 machine, being fulcrumed, as shown at 25,
 65 and having their lower ends provided with
 rollers 26, (see Fig. 2,) working in cam-slots

of the cams 27, which cams are carried by a
 rotary shaft 43, to be hereinafter referred to.

The splints after being cut by the knife-
 blade 16 and held are pushed downward to 70
 the carrier, to be hereinafter referred to, by
 the plungers 28, which reciprocate vertically
 between the guide-fingers 18 and which merge
 in a solid plate 29, which is fastened to a cross-
 head 30, and the latter moves up and down in 75
 ways 31 in the sides of the machine. This
 operation of the plungers is substantially like
 that shown in my former application, and the
 movement can be effected in any convenient
 way. As illustrated, the cross-head is moved 80
 by the vertically-tilted levers 32, which are
 fulcrumed, as shown at 33, on the sides of the
 machine and connected by links 34, moved up
 and down by the cams 36 on the counter-
 shaft 37. This counter-shaft connects by a 85
 gear 38 with the gear-wheel 39 on the driving-
 shaft 40, and, as illustrated, the latter is turned
 by a pulley 41. The gear-wheel 39 also meshes
 with a gear-wheel 42 on the shaft 43, and the
 latter carries the cams 27, already referred to, 90
 and also carries the cams 44, which recipro-
 cate the slide-blocks 45, (see Figs. 1 and 2,) the
 latter moving back and forth in guide-
 ways 46. The slide-blocks are also pivoted
 to levers 47, which are fulcrumed on the feed- 95
 rollers 13 and carry pawls 48, (see Fig. 1,) meshing
 with the ratchet-wheels 49 on the lower feed-roller 13, so that by this means the
 feed-rollers are intermittently rotated.

Nothing is claimed for the above-described 100
 mechanism, and it is referred to in order to
 make the construction and operation of the
 machine clear; but any well-known intermit-
 tent feed can be substituted for that de-
 scribed. 105

The slide-blocks 45 also carry the pawls 50
 for operating the carrier, as presently de-
 scribed, and the slide-blocks connect by
 links or rods 52 with a second set of slide-
 blocks 53 near the front end of the machine, 110
 and these are provided with links 54 and
 pawls 55, the said pawls and the pawls 50,
 already referred to, serving to engage the
 ratchet-teeth 56 on the sides of the carriers
 57. As illustrated, these carriers are merely 115
 plain plates with holes 58 therein for the re-
 ception of match-splints 59, (see Fig. 4;) but
 no novelty is here claimed for the carrier,
 and, on the other hand, any suitable carrier
 may be substituted for that shown. The car- 120
 rier-plates 57 illustrated are independent
 plates, and so two sets of pawls 50 and 55 are
 used to engage different plates and feed them
 through the machine as fast as they are pre-
 sented. Detents 58 (see Fig. 1) are used to 125
 prevent any backlash of the carriers. The
 carriers are shown sliding on tracks 60, which
 are supported on cross-bars 61. It will be ob-
 served that when the slide-blocks 45 move
 forward they will advance, by means of the 130
 pawls 50 and 55, the carriers 57, so as to bring
 the hole 58 beneath the slots of the guide-fin-

gers 18. At the same time the feed-rollers 13 will be turned by the mechanism described, so as to feed the stock forward between the said fingers. At this time the slide-blocks 45 will begin their reverse movement, and the cams 27 will actuate the levers 24, so as to move the knife-blade 16 and back plate 21 to one side. This causes the knife-blade and back plate to inclose the space between the guide-fingers 18, as shown in Fig. 6 and as already described, so that the severed splints are thus securely held. It will be seen, too, that this arrangement enables the splints to be cut in very close proximity to the carriers 57. Consequently there is very little chance for the splints to get displaced, and when the plungers 28 come down, as they do at this moment, actuated by the cam and lever mechanism described, the said plungers striking the ends of the splints force the latter firmly into the holes 58 of the carrier. At this moment the plates 45 and pawls 50 will be in position to move forward and push the carrier through the machine, and at the same instant the knife and back plate make the return stroke, thus opening a passage for the severed splints, as shown clearly in Fig. 5 and as already described. It will be observed that except for this slotted back plate and its movement back and forth the splints could not be cut in close proximity to the carrier, as the back plate would prevent them from passing through the machine.

In the specification I have used the term "guide-fingers" as applied to the parts, this term being used to distinguish the said parts; but by this term I mean to include any stationary guides which will hold the splints from lateral movement while they are being cut and engaged by the knife and back plate or equivalent means.

It will be understood that after the splints are placed in the carrier they can be dipped in the necessary compositions in any usual way.

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

1. A match-machine, comprising a series of parallel guide-fingers, means for feeding veneer strips between the fingers, means for cutting off the strips into splints while in engagement with the fingers, and means for opening and closing the slots between the fingers on the side opposite the cutting mechanism.

2. A match-machine, comprising a series of parallel guide-fingers, means for feeding veneer strips between the fingers, cutting mechanism to sever the splints from the strips while the strips are engaged by the fingers, a carrier movable across the finger ends, means for opening and closing the slots between the fingers on the side opposite the cutting mechanism, and ejecting means for forcing the splints from between the fingers into the carrier.

3. A match-machine, comprising a carrier, a series of guide-fingers perpendicular to the

carrier, means for feeding veneer strips between the fingers, cutting mechanism arranged to move opposite one side of the fingers and sever the veneer strips, and a slotted back plate movable across the opposite side of the fingers, the said back plate being arranged to open when the carrier is advanced.

4. A match-machine, comprising a carrier, a series of guide-fingers perpendicular to the carrier, means for feeding veneer strips between the said fingers, cutting mechanism movable on one side of the fingers to sever the veneer strips, a slotted back plate on the opposite side of the fingers, the back plate and cutting mechanism being moved in unison so as to open and close the passage between the fingers and parallel with the plane of movement of the carrier, and means for forcing the severed splints from between the fingers into the carrier.

5. In a match-machine, the combination with a carrier, of four-walled guiding devices to guide the splints to the carrier, one wall of such devices being movable so as to open a passage for the forward movement of the splints after they are engaged by the carrier.

6. A match-machine, comprising a series of stationary guide-fingers adapted to receive veneer strips between them, a series of knife-blades movable across one side of the fingers so as to sever the veneer strips when engaged by the fingers, and a slotted back plate on the opposite side of the fingers, the back plate and knife-blades being movable in unison.

7. A match-machine, comprising a series of stationary guide-fingers adapted to receive veneer strips between them, a series of cutting-blades movable opposite one side of the fingers, a slotted back plate movable across the opposite side of the fingers, the knife-blades and back plate being adapted to open and close the finger-slots, plungers movable between the guide-fingers and parallel therewith, and a carrier movable in a plane perpendicular to that of the plunger and adapted to receive the splints when ejected from between the fingers.

8. A match-machine, comprising a series of stationary guides adapted to hold veneer strips in parallel relation, knife-blades movable across the face of the guides, a series of guide-fingers behind the knife-blades and in line with the guides, a slotted back plate movable behind the guide-fingers, the slots of the back plate registering with the slots between the knife-blades, plungers movable between and parallel with the guide-fingers, and a carrier to receive the match-splints, said carrier moving essentially perpendicular to the travel of the plungers.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM F. HUTCHINSON.

Witnesses:

W. W. RICE,

GEO. A. HOLSAPPLE.