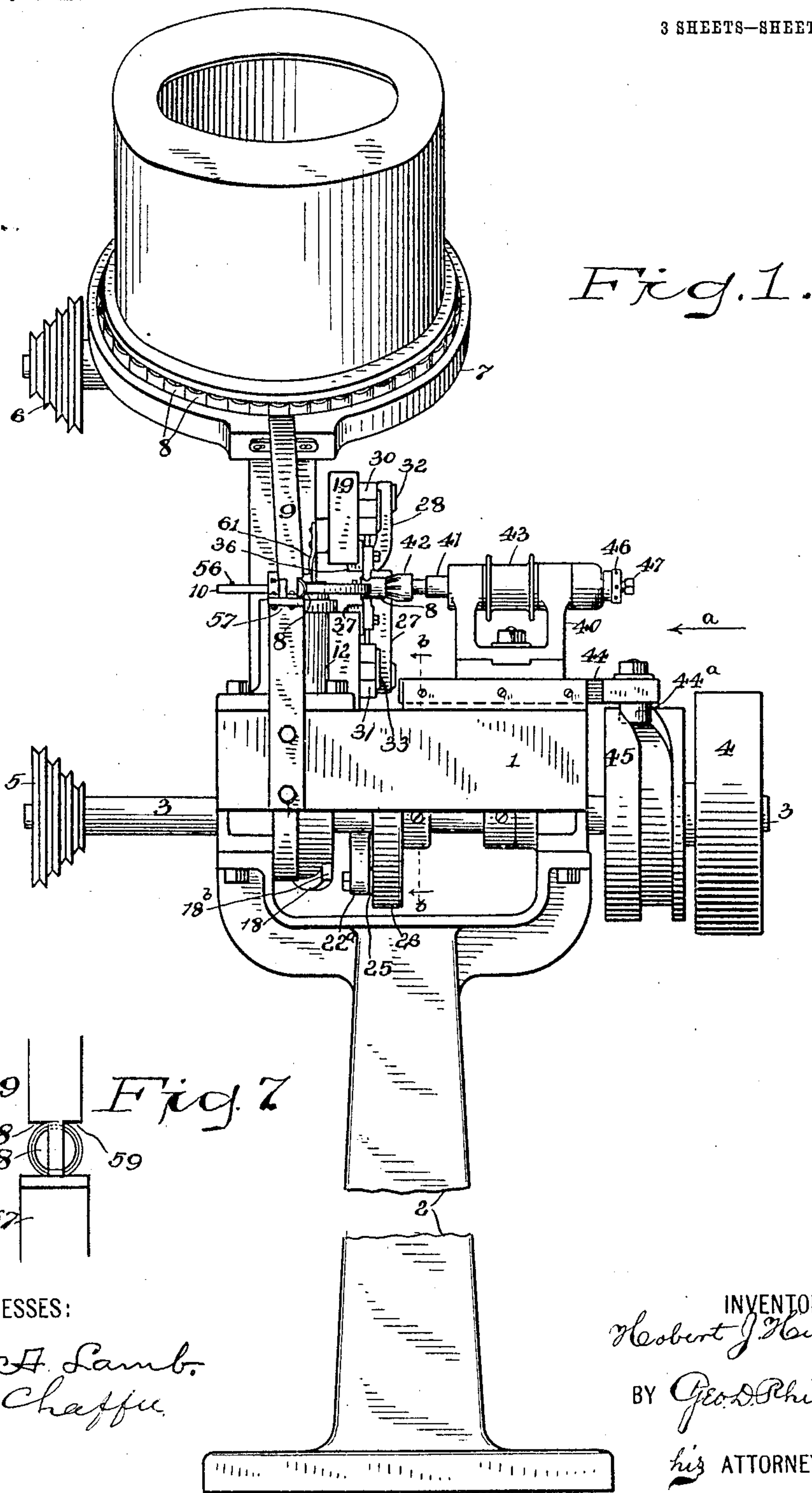


H. J. HURD.  
CARTRIDGE TRIMMING MACHINE.  
APPLICATION FILED APR. 10, 1905.

904,784.

Patented Nov. 24, 1908.

3 SHEETS—SHEET 1.



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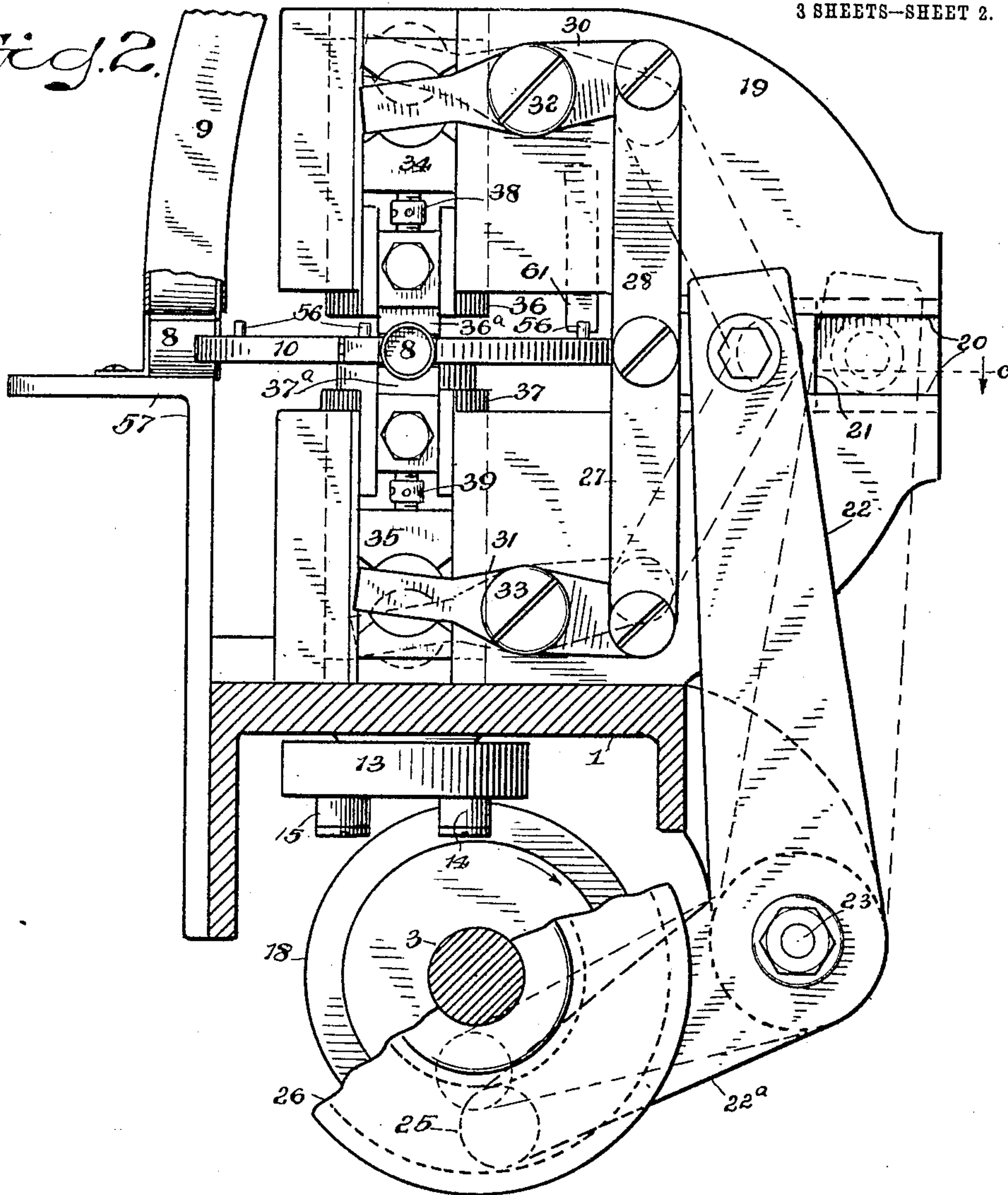
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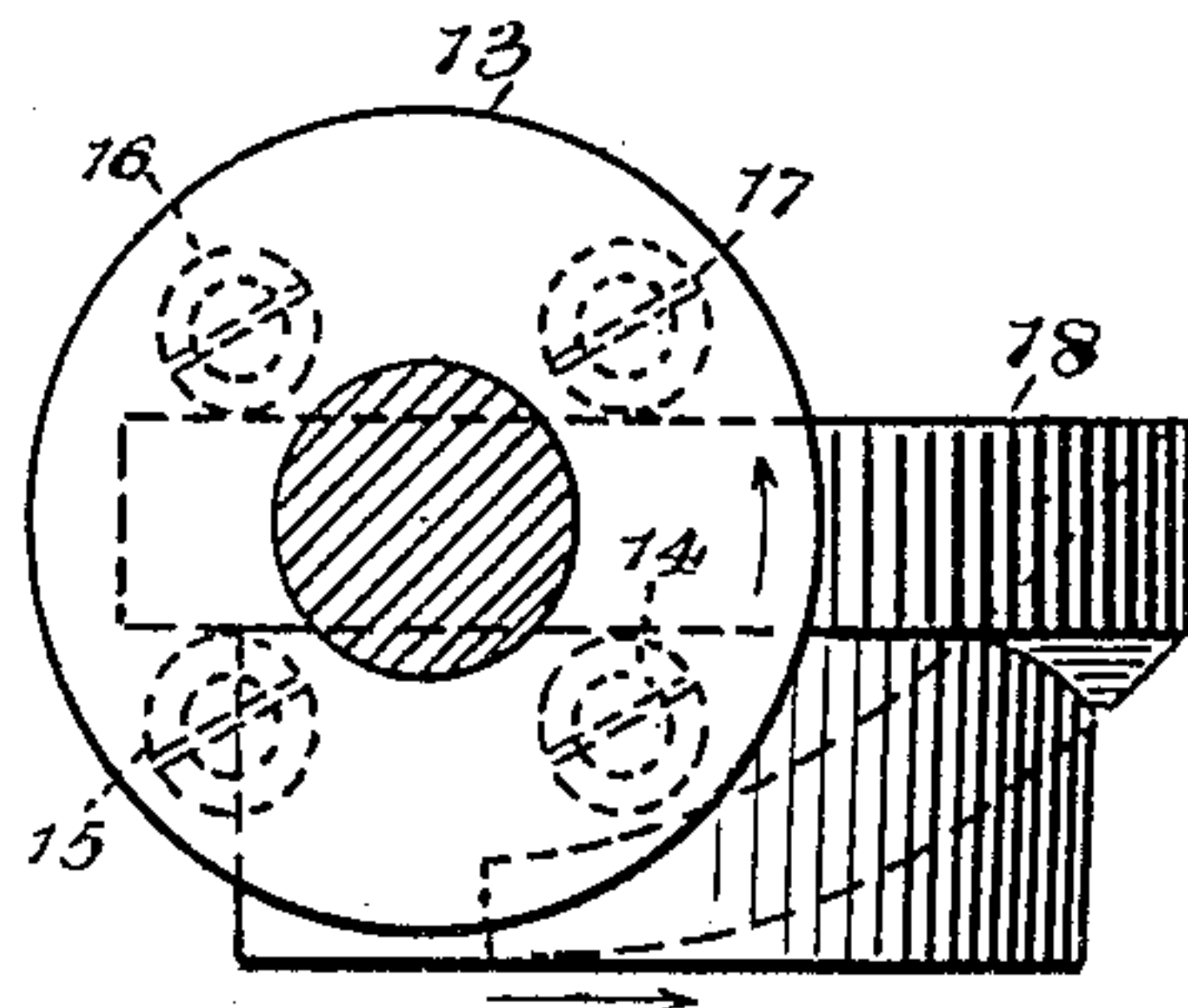
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3 SHEETS—SHEET 2.

*Fig. 2.*



*Fig. 5.*



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3 SHEETS—SHEET 3.

Fig. 3.

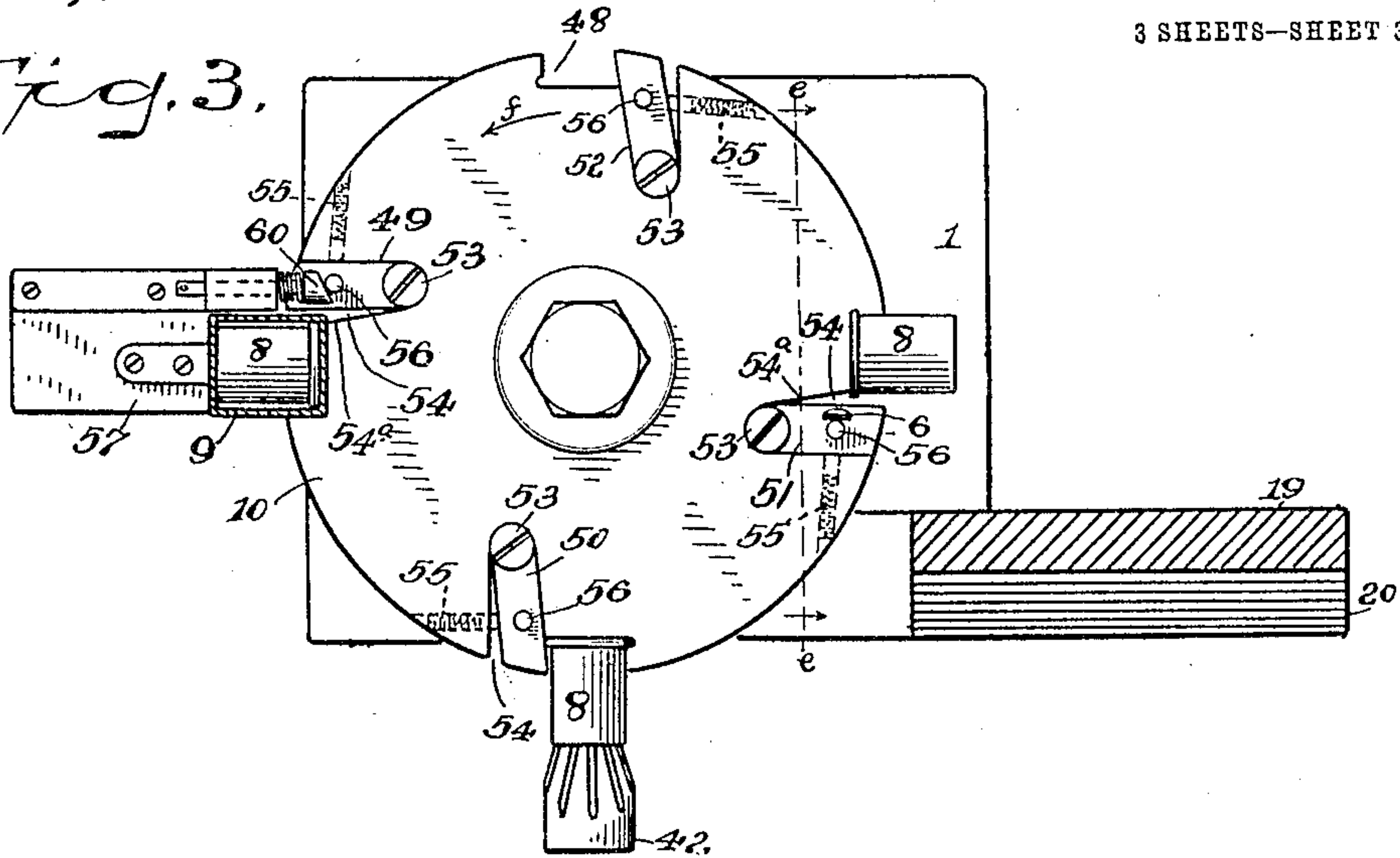
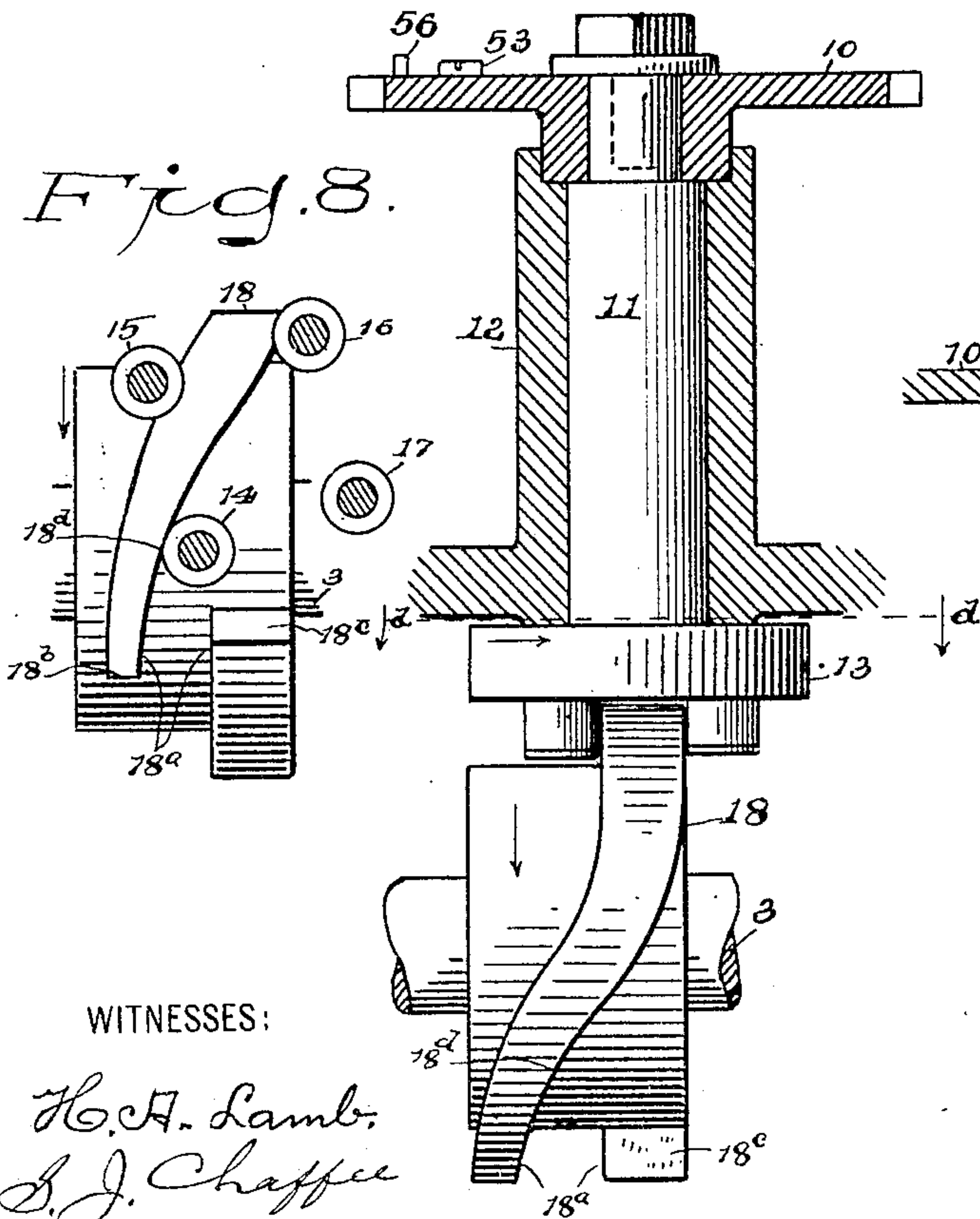


Fig. 4.

Fig. 6.

Fig. 8.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HOBERT J. HURD, OF BRIDGEPORT, CONNECTICUT.

## CARTRIDGE-TRIMMING MACHINE.

No. 904,784.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed April 10, 1905. Serial No. 254,747.

*To all whom it may concern:*

Be it known that I, HOBERT J. HURD, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Cartridge-Trimming Machines, of which the following is a specification.

My invention relates to cartridge shell trimming machines, and it consists in certain details of construction to be more fully set forth in the following specification.

To enable others to understand my invention, reference is had to the accompanying drawings in which:

Figure 1—is a front elevation of the machine and broken view of its standard: Fig. 2—is an enlarged side elevation of the operative parts of the machine looking in the direction of arrow *a* of Fig. 1, with the hopper removed, also a sectional view of the machine-bed on line *b* of Fig. 1, sectional view of the driving-shaft, and broken view of the cam for operating the lever of the shell clamping mechanism, also broken view partly in section of feeding-chute: Fig. 3—is an enlarged detail upper plan view of the shell carrying dial, sectional view of the feeding-chute, upper plan view of the bed of the machine, also a view of trimming-tool engaging a shell carried by the dial, and sectional view of the upright on line *c* of Fig. 2: Fig. 4—is an enlarged detail view of the dial operating-shaft, sectional view of the shell carrying dial, broken sectional view of the supporting standard for said shaft, broken view of the driving-shaft with the cam mounted thereon for operating said shaft: Fig. 5—is an enlarged detail view of the dial shaft operating cam, and a sectional view of said shaft on line *d* of Fig. 4: Fig. 6—is an enlarged broken sectional view of the shell carrying dial on line *e* of Fig. 3, broken sectional view of the machine-frame with a spring attached thereto for holding one of the shell holding fingers temporarily back until a trimmed shell has dropped out of the dial: Fig. 7—is a broken view of the shell feeding-chute, and bracket on which a shell is deposited: Fig. 8—is a detail view of the cam for operating the shell carrying dial, and plan view of the four rolls carried by the dial-shaft, said rolls being engaged by the cam in the act of turning the dial.

Its construction and operation are as follows:

1 is the machine-bed, 2 its supporting standard.

3 is the driving-shaft carrying on one end the driving-pulley 4, and on the other end the cone-pulley 5, adapted, through means of a belt, not shown, to connect with the upper cone-pulley 6, which pulley rotates the hopper 7 carrying the untrimmed shells 8.

9 is the chute for conveying the shells from the hopper to the rotatable-shell carrying dial 10, mounted, Fig. 4, on the vertical shaft 11 journaled in the standard 12 secured to the bed 1.

13 is a head or flange portion of this shaft carrying the four rolls 14, 15, 16 and 17, seen also at Figs. 2 and 5, adapted to be engaged by the cam 18 for the purpose of intermittently rotating the dial 10 for the purpose presently to be more fully explained.

19, Fig. 2, is the vertical upright or frame of the machine having the longitudinal groove 20 therein to receive the slide 21, and to this slide is pivotally supported the upper end of the arm 22 of its operating-lever journaled on the stud 23 projecting from the bed. The lower arm 22<sup>a</sup> of this lever carries the roll 25 adapted to engage with a cam groove in the vertical face of the disk 26 mounted on the driving-shaft 3.

27 and 28 are toggle arms pivotally supported at their inner ends on the stud 29 secured to the slide 21. The outer ends of these arms are pivotally connected to the outer ends of the fulcrum levers 30 and 31, which levers are, in turn, pivotally supported on the studs 32 and 33 of the upright 19. The forward ends of said levers engage with the sliding-blocks 34 and 35 vertically movable in the upright 19, which blocks are adjustably connected to the slides 36 and 37 by means of the screws 38 and 39. These slides carry the semicircular gripping-jaws 36<sup>a</sup> and 37<sup>a</sup> adapted to hold a shell against rotation during the trimming process, presently to be described.

40, Fig. 1, is the supporting standard for the rotatable spindle carrying the burring-tool or trimmer 42 adapted to finish the mouth of the shell by slightly countersinking it. 43 is a pulley on said spindle by means of which it is independently rotated. The standard 40 is mounted upon the slide 44 and



it carries the roll 44<sup>a</sup> adapted to engage with the grooved cam 45 on the driving-shaft. This cam operates the standard carrying slide 44 to carry the tool 42 in and out of engagement with a shell, while the nut 46 and screw 47 serve to adjust said tool.

The shell carrying dial 10, Fig. 3, is provided with four recesses, one of which, 48, is shown empty, and they are cut in the periphery of said dial to admit the head of a shell from the hopper 10.

49, 50, 51 and 52 are spring fingers pivotally supported on the screws 53. These fingers operate in the grooves 54 of the dial and normally lie against the side wall 54<sup>a</sup> of said grooves under the tension of their springs 55. Each of these fingers has the pin 56 projecting from its upper surface for the purpose presently to be explained. The lower end of the shell feeding chute 10 is secured to the upper or horizontal portion of the bracket 57, Figs. 1, 2 and 7, and this lower end has the cutaway portions or openings 58 and 59, shown more clearly at Fig. 7. One of these openings is for the purpose of permitting a shell in the chute to be discharged laterally therefrom, and the other for the free operation of the spring actuated fingers, presently to be described.

Operation—Referring to Fig. 3, a shell is dropped from the hopper with its head inserted in one of the four recesses in the periphery of the dial to receive it, while the body of the shell will rest on the top of the bracket 57. While in this position, the dial is, of course, temporarily halted, and the finger 49 is held back and out of contact with said head by the engagement of its pin 56 with the taper headed spring-pin 60. The dial is then rotated by means of the cam 18, as previously described, and in the direction of arrow *f*. Before, however, the shell has been carried from off the bracket 57, the movement of the dial will have carried the finger 49 out of engagement with the spring-pin 60 and under the influence of its spring 55 to force said finger against the head of the shell and hold the same against accidental displacement while said shell is being carried opposite the trimming-tool 42. When this position is reached, the dial is halted long enough for the gripping-jaws 36 and 37, Fig. 2, to be brought into engagement with the shell and the tool 42 carried forward into the mouth of the shell to perform its work, and, while thus halted, another shell is dropped into the dial. When the tool has performed its work, said tool and clamping-jaws are retreated and the dial rotated to carry the finished shell to the next position, viz: opposite the feeding-chute 9. Just before the dial is again halted, the spring 61, see also Figs. 1 and 6, overlying said dial, engages with the pin 56 of the shell retaining finger to hold said finger back so that,

when the dial is halted, said finger will be out of contact with the shell and thus permit said finished shell to drop from the dial. The above operation is automatically continued as long as there are shells to be fed from the hopper.

Attention is called to the novel construction of the dial operating cam and arrangement of the rolls carried by the dial-shaft whereby the dial is rotated and also held against rotation entirely by said cam and rolls; thus greatly simplifying the construction.

In Figs. 2, 4 and 5, the straight or standstill portion of the cam 18 is embraced by the rolls 14 and 17 and, so closely, that there can be no unnecessary side play in the dial when it is at a standstill. It will be understood that the cam 18 is rotating continuously whether the dial is moving or standing still. When, therefore, the dial is to be rotated a quarter of a revolution, the cam will have rotated to bring the roll 14, Fig. 8, through the opening 18<sup>a</sup>, between the two ends 18<sup>b</sup> and 18<sup>c</sup> of the cam, and into engagement with the turning face 18<sup>a</sup> to bring the roll 14 in the position recently occupied by roll 17, and the roll 15 into the position recently occupied by the roll 14. Previous to the turning movement just explained, rolls 14 and 17 straddled the cam, but, after said movement, rolls 14 and 15 will straddle said cam to hold the dial against accidental rotation until it is ready to be again rotated a quarter of a revolution. By this arrangement, the dial is controlled entirely by the cam, without which, it would require considerable mechanism to effect the same result.

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

1. In a machine of the character described, the combination with shell feeding mechanism, of an intermittently rotatable shell carrying dial, means for rotating said dial, spring actuated shell-gripping fingers carried by said dial, means for temporarily holding said fingers out of engagement with a shell until after said shell has been deposited in the dial, a reciprocating trimming-tool, gripping-jaws adapted to hold the shell against rotation while the trimming-tool is operating, for the purpose set forth.

2. In a cartridge trimming machine, a rotatable shell carrying dial, a slide and means for reciprocating the same, toggle-arms pivotally supported at their inner ends to the slide, pivotally supported levers pivoted on the outer end of said arms, slides carrying shell gripping jaws, sliding blocks adjustably connected to the slides of said gripping-jaws, said blocks operatively connected at the free ends of said levers, for the purpose set forth.



3. In a machine of the character described,  
the combination with shell feeding mech-  
anism, of an intermittently rotatable shell  
carrying dial having openings in its periph-  
5 ery to receive the head of a shell, spring ac-  
tuated fingers on said dial adapted to pre-  
vent accidental discharge of the shells, a  
taper head spring actuated pin for tempo-  
rarily holding said fingers out of engagement  
10 with the shells when the dial is receiving a  
shell, an overlying spring adapted to engage

said fingers and temporarily hold them out  
of contact with the shells at the discharging  
point, for the purpose set forth.

Signed at Bridgeport in the county of 15  
Fairfield and State of Connecticut this 5th  
day of Apl., A. D. 1905.

HOBERT J. HURD.

Witnesses:

S. J. CHAFFEE,  
G. W. FINN.