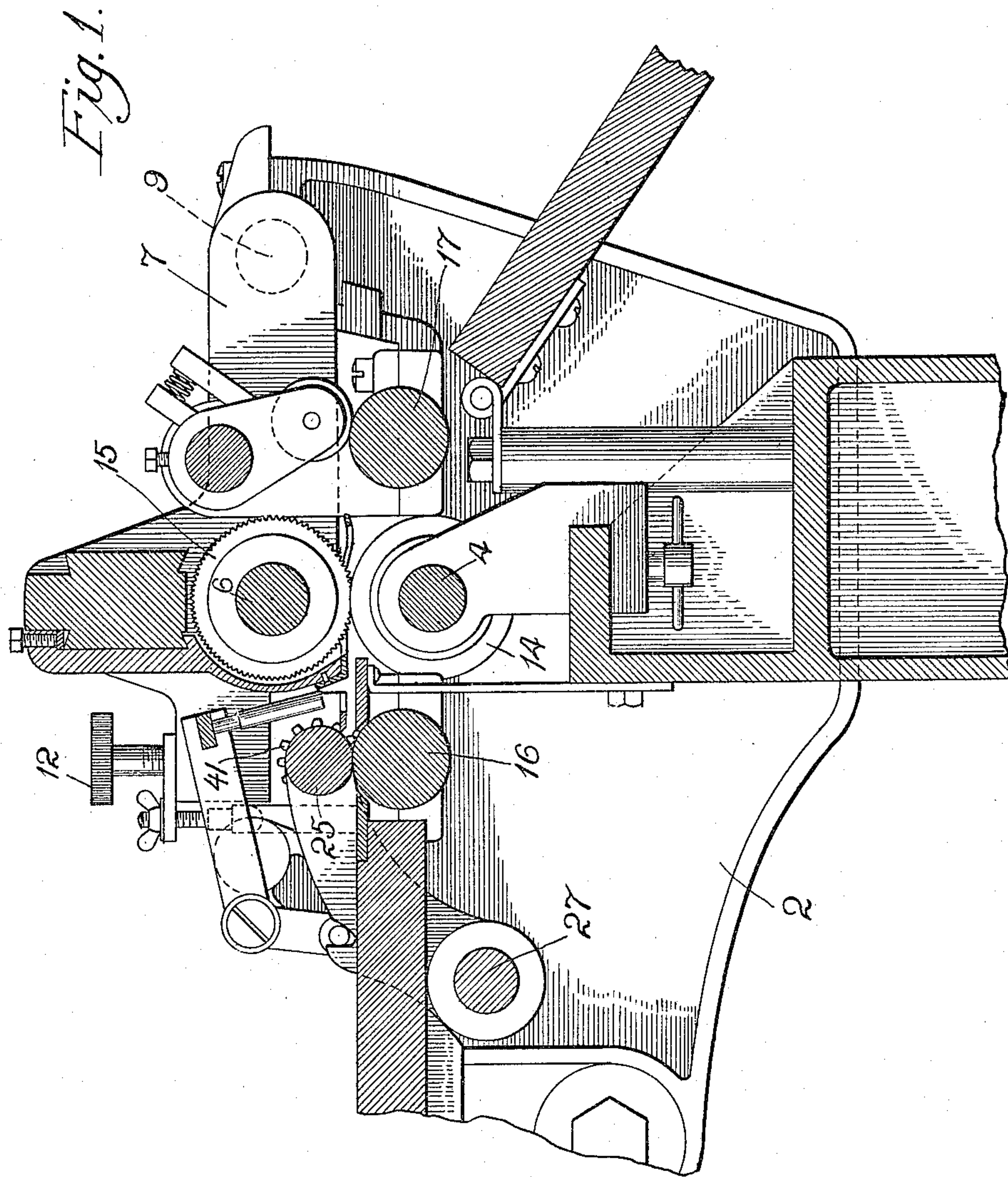


C. A. BURTON.
PERFORATING MACHINE.
APPLICATION FILED DEC. 8, 1913.

1,155,129.

Patented Sept. 28, 1915.
2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

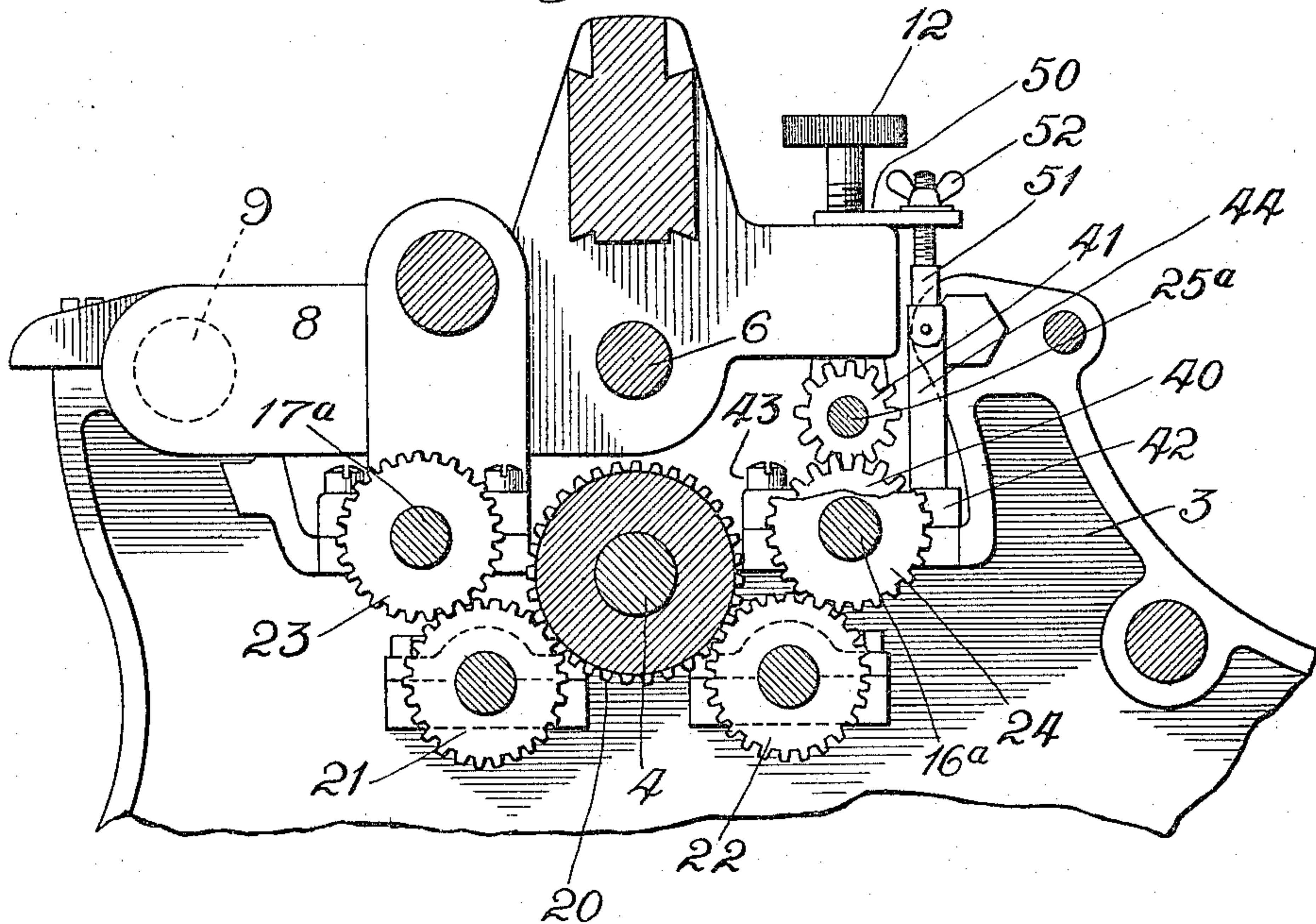


Fig. 3.

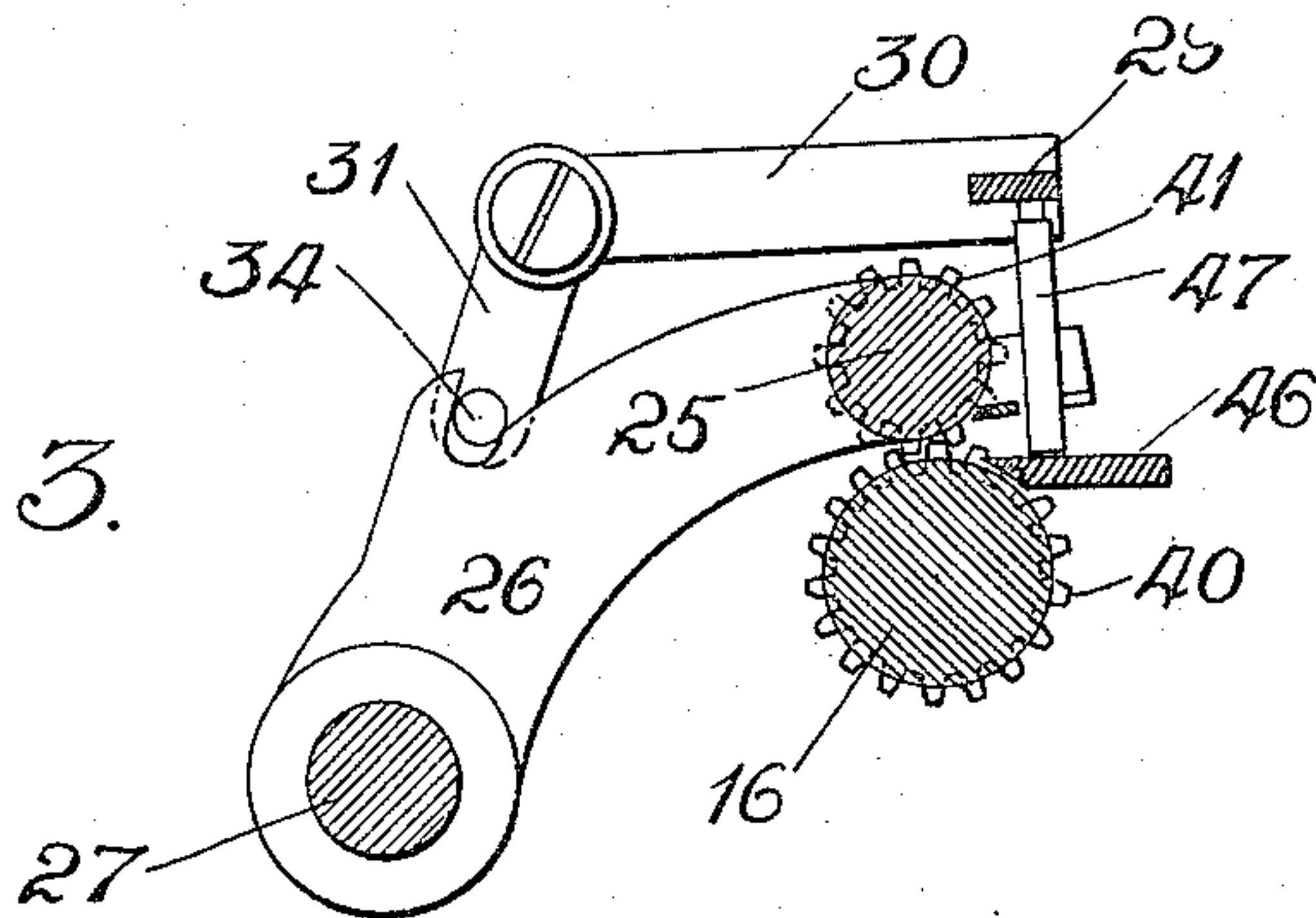
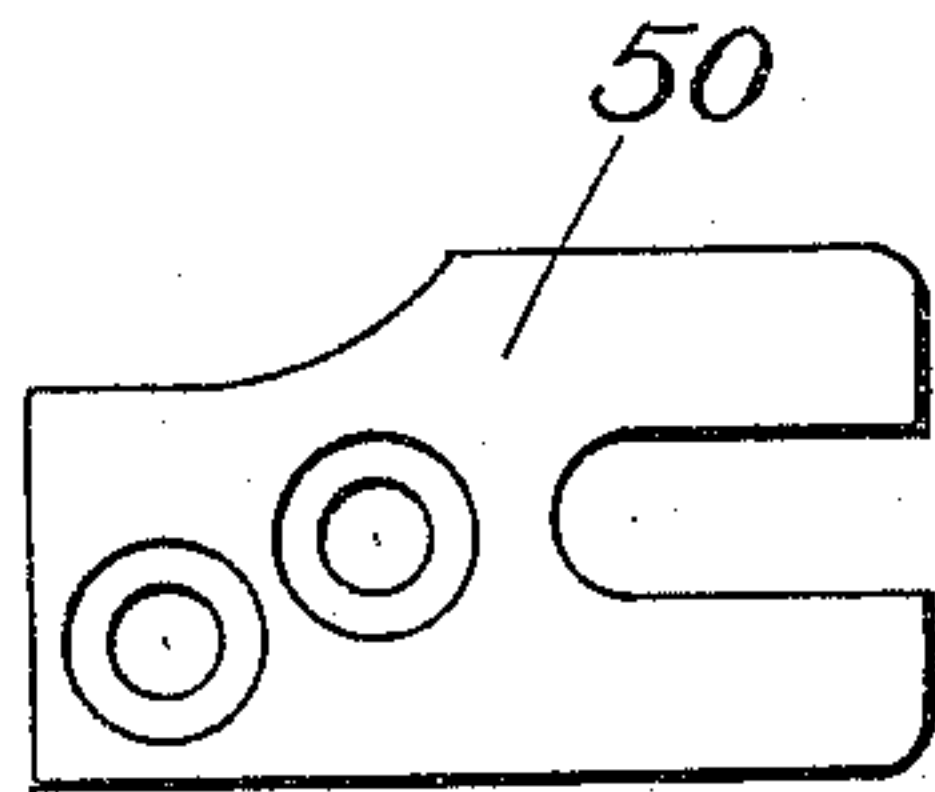


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES A. BURTON, OF CHICAGO, ILLINOIS.

PERFORATING-MACHINE.

1,155,129.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed December 8, 1913. Serial No. 805,229.

To all whom it may concern:

Be it known that I, CHARLES A. BURTON, a citizen of the United States, residing at Chicago, county of Cook and State of Illinois, have invented a certain new and useful Improvement in Perforating-Machines; and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Generally speaking, my invention relates to machinery for perforating or creasing paper such as illustrated in my prior Patent 1,061,979 granted May 20th, 1913, and has for its object to improve some of the structural details of the same.

In the machine of my prior patent, the paper to be worked upon is fed between primary feed rollers, one of which is positively driven, while the other is driven simply through its frictional contact with the paper; it sometimes happens that the frictionally driven roller slips a little, preventing the paper being fed with the perfect accuracy desired in some class of work.

One of the objects of the present invention is to improve the primary feeding mechanism so that the feeding of the paper will always be positive and accurate.

It is usual to arrange perforating machines in such a way that the lines of perforations may be made continuous or be interrupted at intervals; it being customary to provide for this variation in operation by mounting the upper perforating cutter on a swinging frame which may be raised or lowered as desired.

A further object of my invention is to produce a simple and convenient means for locking the swinging frame down when it is desired to put the machine under a heavy load.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with full particularity in the claims; but, for a full understanding of my invention and of its various objects, including those heretofore enumerated, reference may be had to the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is a vertical section through a perforating machine arranged in accordance with a preferred form of my invention; Fig.

2 is a section taken at the opposite end of the machine from that illustrated in Fig. 1; Fig. 3 is the detail of the primary feed mechanism; and Fig. 4 is a plan view of the jaw forming part of the lock for the swinging frame.

Referring to the drawings, 2 and 3 represent the side members of the main frame of the machine; and 4 is the main shaft extended transversely of the frame. Above the main shaft is a shaft, 6, mounted in swinging frame members 7 and 8, each of these latter members being hinged at one end as indicated at 9. The swinging frame may be moved angularly above its hinge axis, so as to carry the shaft 6 from and toward the main shaft. Downward movement of the free end of the swinging frame is regulated and limited by suitable adjusting screws 12. The shafts 4 and 6 carry complementary cutting or creasing devices 14 and 15 respectively. In front of the main shaft is a primary feed roller 16, and behind it is a smoothing or ironing roller 17. The rollers 16 and 17 are driven in any suitable way from the main shaft. In the arrangement shown, the main shaft has a gear wheel 20, meshing with idlers 21 and 22 which in turn mesh with gears 23 and 24 mounted on shafts 16^a and 17^a, connected to or forming parts of the rollers 17 and 16 respectively. Just above the roller 16 is a cooperating roller 25, mounted upon the free ends of arms 26 which are fixed at their other ends to an oscillatory shaft 27 mounted in the frame of the machine. A striker comprising members 29, 30, 31 and 34, actuated by the swinging arms 26, has fingers 47 extending down behind the roller 25 and movable from and toward a table 46. When the arms 26 are moved to lift the roller 25 out of engagement with the roller 16, the striker fingers are lowered into engagement with the table 46, and these fingers are raised out of the way when the roller 25 is lowered upon the roller 16.

All of the parts which I have heretofore described are fully disclosed in my prior patent and I refer to them now only for the purpose of clearly explaining the new features which constitute the present invention.

Instead of allowing the roller 25 to be driven through frictional contact with the roller 16 or the paper, I provide means for positively driving the roller 25 so that the paper will always be accurately fed without

slippage and the feeding will begin as soon as the two rollers come together. To this end, I have arranged on the roller 16, a gear wheel 40 meshing with the gear wheel 41 on the roller 25 or on extension 25^a of the latter roller, the teeth of the wheels 40 and 41 being so proportioned that they stay in mesh when the roller 25 is moved away from the roller 16, as indicated in Fig. 3, in order to admit a sheet of paper. One set of gear wheels will suffice or there may be a set at each end of the feed rollers, and the gear wheels may be entirely distinct from the other driving gears or they may form part of driving trains for other purposes.

With this arrangement, it will be seen that the roller 25 will be kept in rotary motion as long as the roller 16 revolves, even when raised, so that when the two rollers are brought together, it is not necessary to overcome the inertia of a stationary roller before the feeding can begin. Consequently the feeding will commence instantly when the rollers are brought together, there will be no slipping of the roller 25 on the paper, and the paper will always be fed positively.

For the purpose of locking the swinging frame down, I have provided the following simple devices; the ends of the members 16^a, which constitute the journals for the roller 16, are mounted in divided bearings on the side members, the upper half of each bearing being in the form of a cap 42 held down by bolts or screws. In the machine as heretofore made, each cap has been held down by two cap screws, one of which is indicated at 43 in Fig. 2. In the present machine, one of the screws is removed from each cap and its place is taken by a stud having a vertically elongated head 44 in the form of a rod or stem. One of these rods or stems extends upwardly in proximity to the free end of each swinging frame member, 7 and 8. Secured upon the free end of each of the members, 7 and 8 is a jaw 50 projecting directly above the corresponding rod or stem 44. Each of the members 44 has hinged to its upper end a member 51, screw threaded at its free end and provided with a suitable nut 52. The parts are so proportioned that when the swinging frame is down, the mem-

bers 51 may be swung to engagement with the jaws 50, the nuts 52, being screwed down until they rest upon the jaws. When it is not desired to have the swinging frame locked, the nuts 52 are loosened and the members 51 are swung outwardly out of the way. It will thus be seen that I have provided a simple and reliable means for locking the swinging frame down, without interfering with the vertical adjustments of the swinging frame necessary to bring the cutters or creasers in proper position relative to each other.

While I have illustrated and described in detail specific embodiments of the various features of my invention, I do not desire to be limited to these specific embodiments except to the extent indicated by the terms employed in the various definitions of my invention constituting the appended claims.

I claim;

1. In a machine of the character described, devices for acting upon a sheet passing through said machine, cooperating parallel feed rollers for delivering a sheet to said devices, means for driving one of said rollers, means for automatically moving the other roller into and out of engagement with the cooperating roller while maintaining the axes of the rollers parallel with each other, and gearing between said rollers for causing the rollers to travel at a common peripheral speed in all relative positions of the rollers.

2. In a machine of the character described, a main frame, rotary devices for acting upon a sheet passing through the machine, a swinging frame mounted on the main frame and carrying one of said devices, a jaw on said swinging frame, a stud on the main frame beneath said jaw, a screw threaded part hinged to the stud and adapted to be swung into and out of engagement with said jaw, and a nut on said screw threaded part adapted to engage with the upper side of the jaw.

In testimony whereof, I sign this specification in the presence of two witnesses.
CHARLES A. BURTON.

Witnesses:

WM. F. FREUDENREICH,
RUTH ZETTERVALL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."