

No. 630,010.

Patented Aug. 1, 1899.

G. E. SMART.
ROD FEEDING DEVICE.

(Application filed Mar. 29, 1899.)

(No Model.)

Fig. 1.

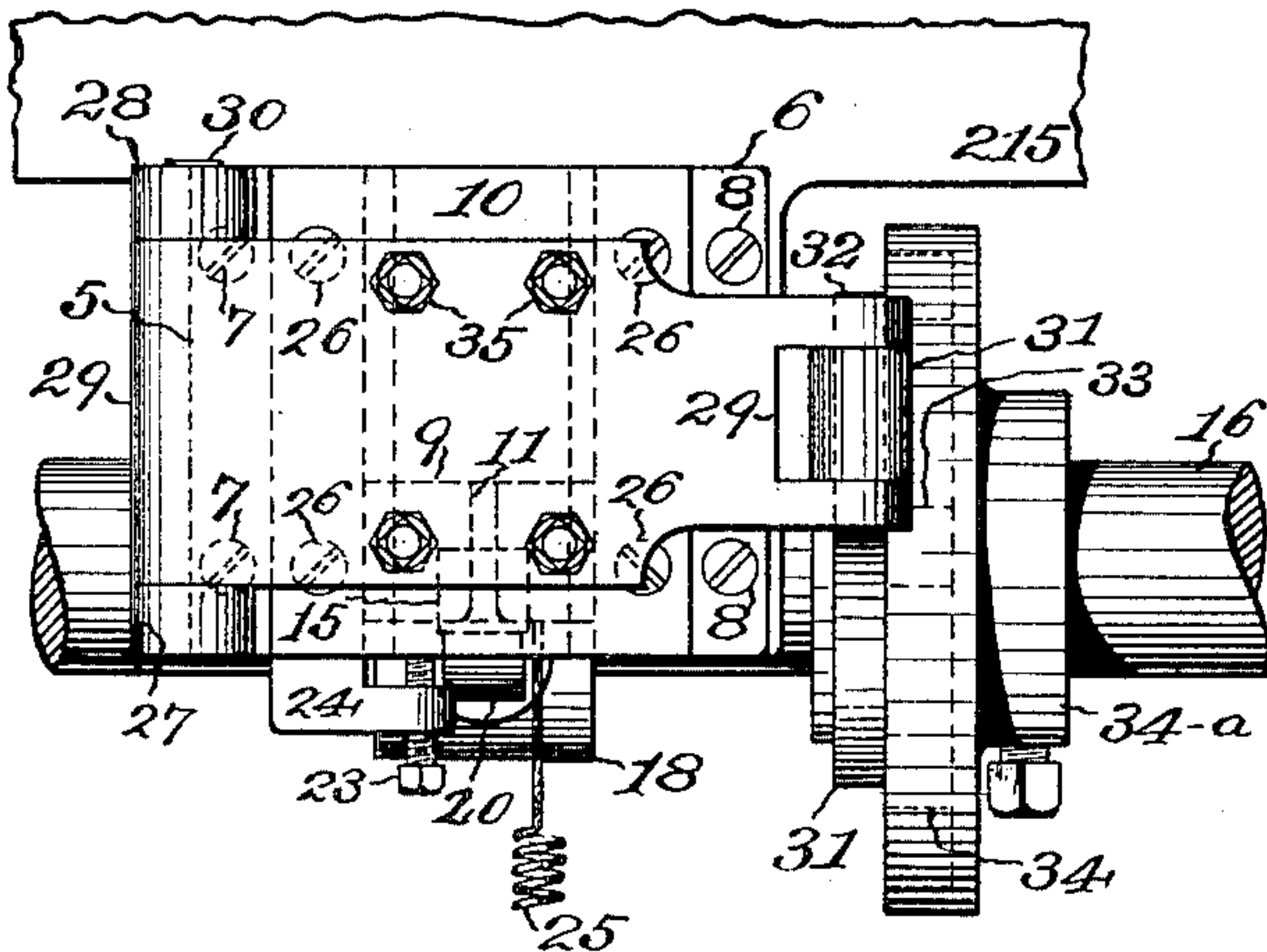


Fig. 4.

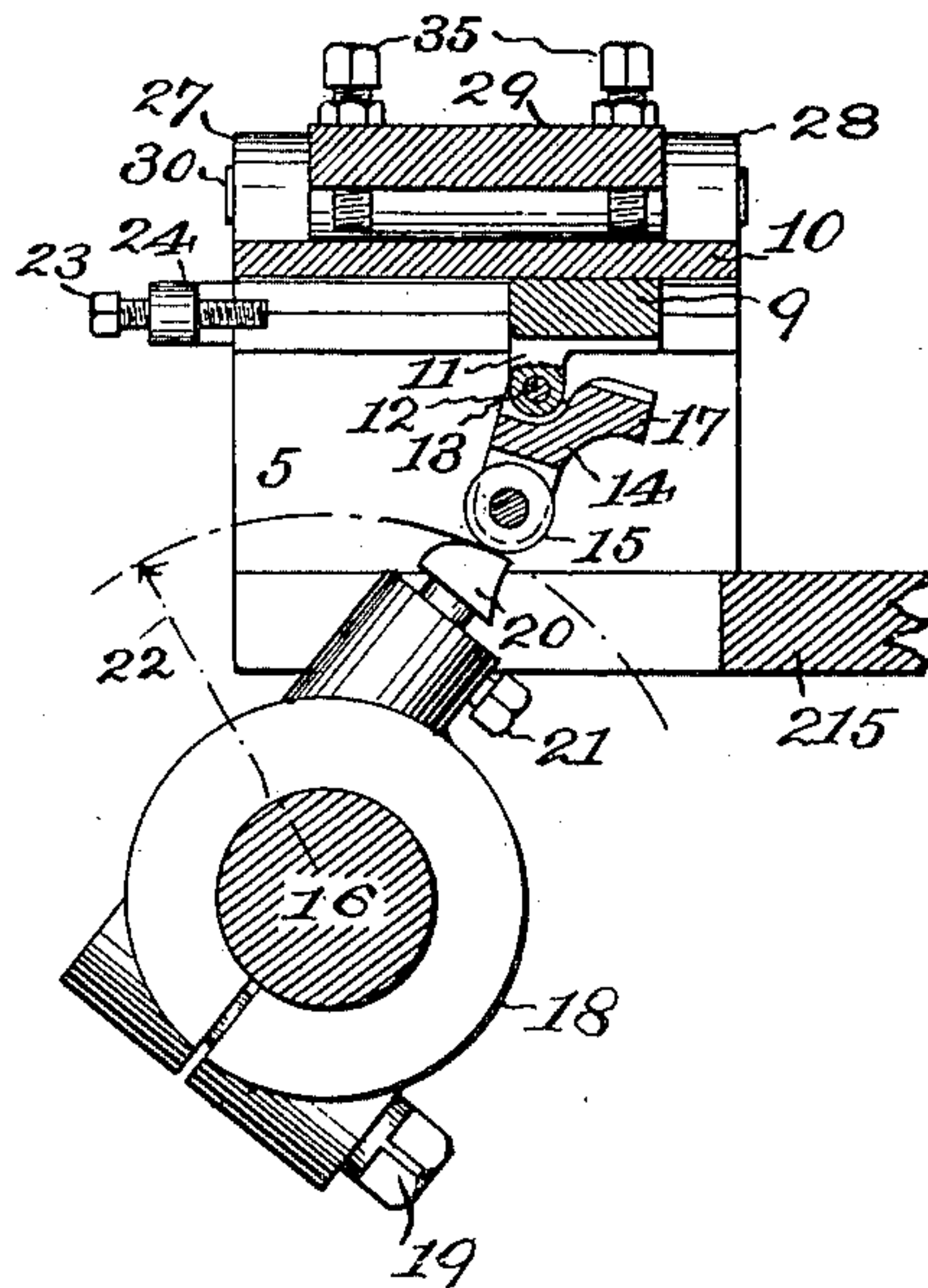


Fig. 2.

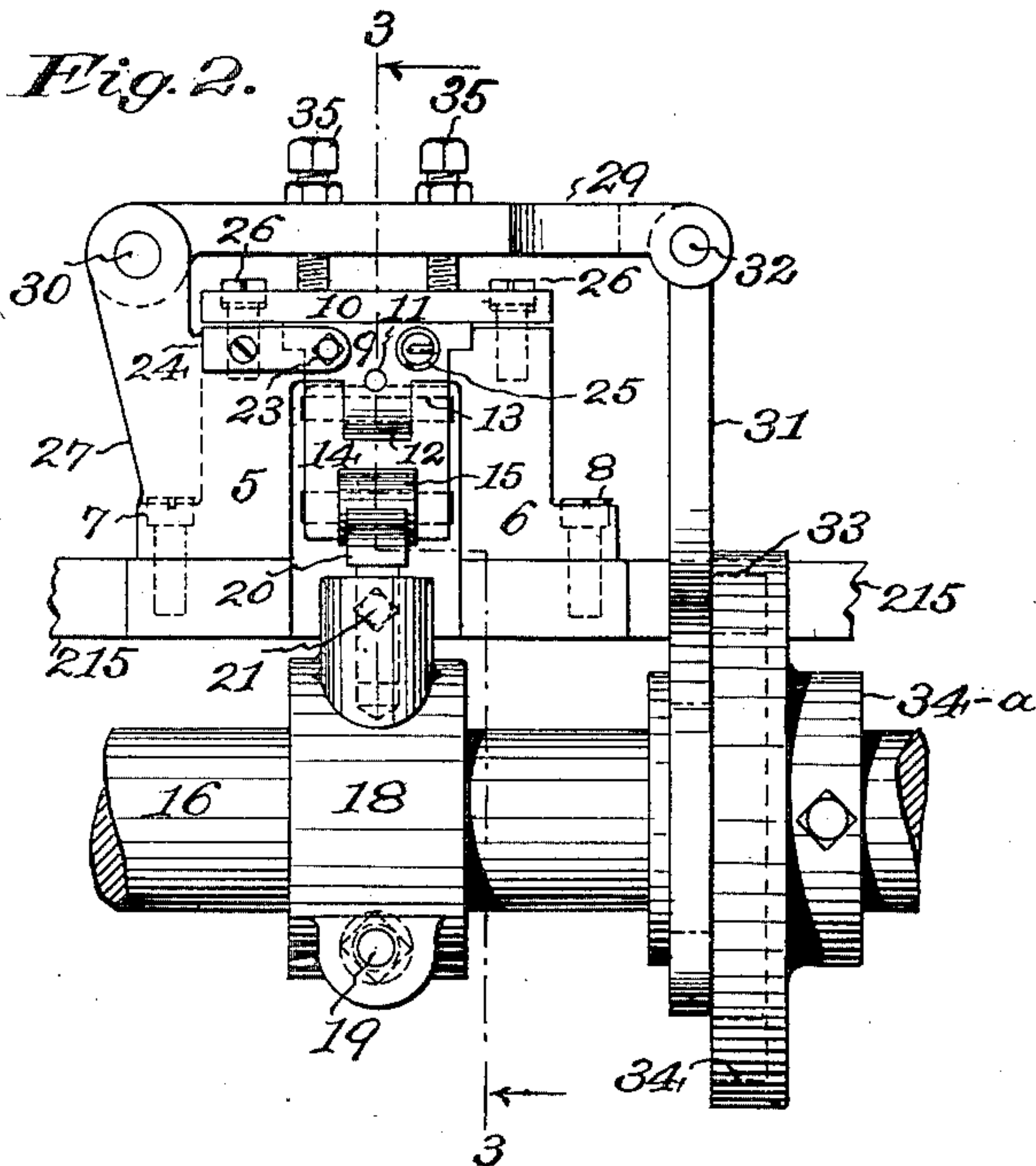
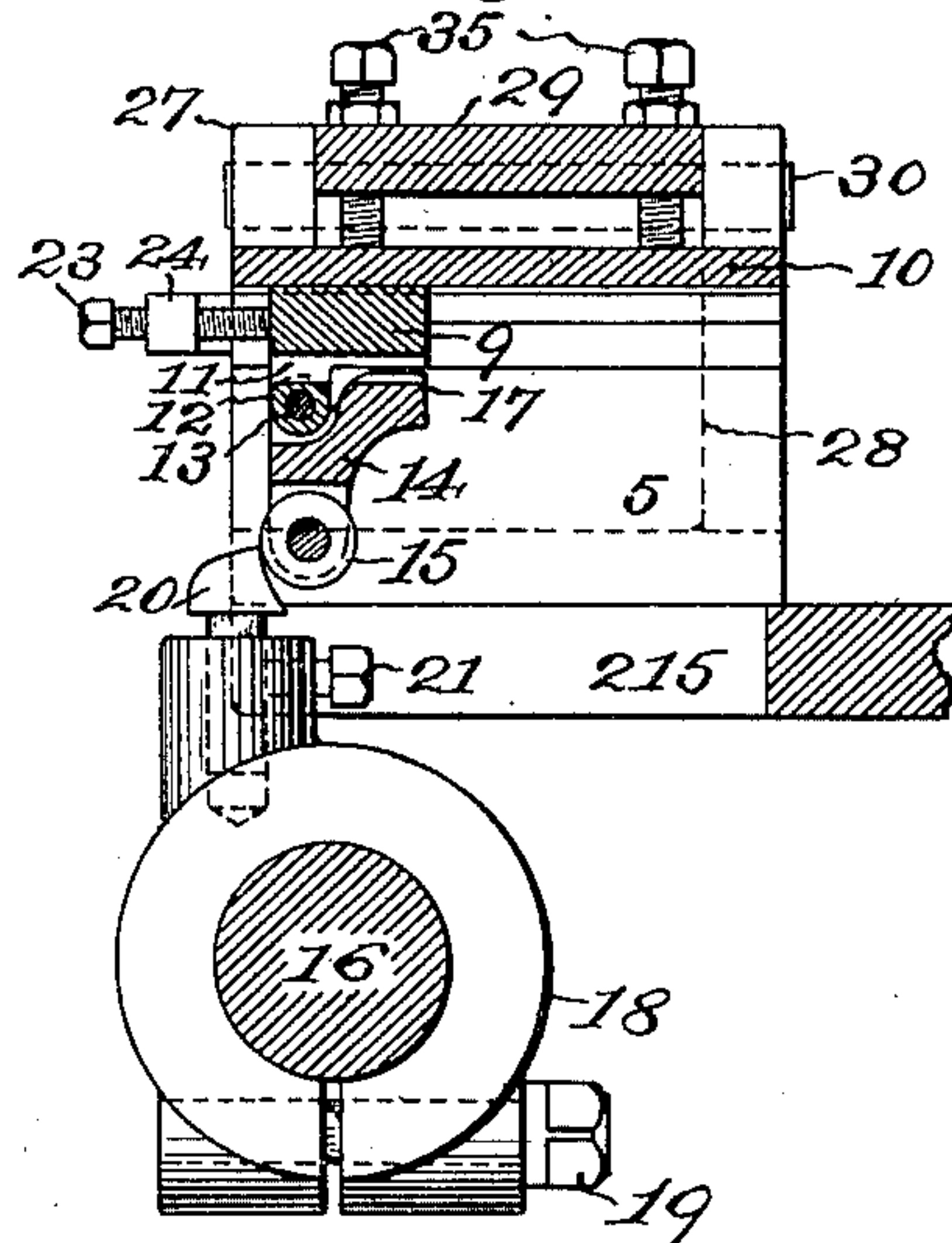


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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ROD-FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 630,010, dated August 1, 1899.

Application filed March 29, 1899. Serial No. 710,881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. SMART, a citizen of the United States of America, and a resident of the city and county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Rod-Feeding Devices, of which the following is a specification.

This invention relates to rod-feeding devices as used on screw-machines, hinge-machines, and the like, one example of a hinge-machine wherein this improvement might be used to advantage being shown in United States Letters Patent to C. F. Smith and G. Mortson, No. 611,714, dated October 4, 1898.

The general object of this invention is to improve the mode of rod-feeding, making it very reliable and simple, to render parts of the device conveniently accessible for ready adjustment, and to provide mechanism which will effectively grip the wire and carry the same forward to the desired length and to the predetermined position.

Figure 1 of the drawings represents a plan view of the machine. Fig. 2 is a front elevation of what is shown in Fig. 1. Fig. 3 is a sectional side elevation taken on the broken lines 3-3 and in the direction of the arrow, showing the feed-carriage and the gripper-arm, the latter being engaged by the cam-finger, which is about to advance said parts. Fig. 4 represents a sectional side elevation similar to that of Fig. 3, but showing the carriage and gripper-arm in their forward position, the latter arm being free of the cam-finger and dropped to its normal wire-disengaging position.

So far as possible I have designated the parts in this machine that correspond to parts in the machine of the aforesaid Smith and Mortson United States Letters Patent with the same figures of reference used therein.

I will now describe the improved wire-feeding device made the subject-matter of this patent.

Upon the bracket 215 are securely mounted two uprights 5 and 6, held in position by the screws 7 and 8, respectively. To these uprights is fitted a longitudinal reciprocating feed-carriage 9, held in position by a suitable presser device 10. The feed-carriage 9 is provided with the central opening 11, of suffi-

cient size to admit the free and unobstructed passage of wire (not shown) to be fed through the machine. Integral with the feed-carriage 9 is a downwardly-projecting central hub 12, to which is hinged, by the pivot 13, the gripping-arm 14, the latter being preferably provided at its lower end with the antifriction-roll 15 and at its upper front end with a jaw 17, having a longitudinal groove of about the size of wire to be used. The construction of the gripping-arm 14 and the mode of hinging the same are such that as soon as the same is permitted to assume its normal position the jaw 17 will swing away from the feed-carriage and release its grip.

A cam-shaft 16, journaled for rotation below and in the rear of the bracket 215, carries the holder 18, preferably adjustably held in position by a set-screw 19. The holder 18 is also provided with a hub, having a socket into which projects the shank of a cam-finger 20. A set-screw 21 retains the cam-finger in its proper position and permits the longitudinal adjustment of the same. As the cam-shaft 16 is revolved the cam-finger 20 will intermittently engage the roll 15 and will swing the gripping-arm forward, whereby the jaw 17 is caused to clamp very tightly upon the wire when present. As the cam-finger continues its travel it pushes the gripping-arm, the feed-carriage, and the wire clamped thereto until the cam-finger becomes freed from the roll 15, at which instant the jaw 17 drops and the carriage and jaw may be retracted, for instance, by the spring 25. The amount of the forward movement of the feed-carriage is determined by the position of the cam-finger 20 in such a manner that the smaller the radius 22 the shorter will be the stroke of the feed-carriage, while the larger said radius the longer will be the forward movement of the feed-carriage. A set-screw 23, held in a block 24, serves as a back-stop and may be adjustable to determine the rearward position of the feed-carriage.

Mounted above the feed-carriage and held in position against end or side motion by the studs 26 is a plate 10, preferably adapted to be moved up and down a slight distance for the purpose of exerting a pressure from above on the feed-carriage.

Integral with the upright 5 are two upwardly-projecting arms 27 and 28, to which are pivoted, by means of the stud 30, a presser-arm 29. On the opposite end of the
5 presser-arm is attached, by a pivot 32, a connecting-yoke 31. This yoke carries a projection 33, engaging the cam-groove 34 of the cam 34^a, fastened on the cam-shaft 16. The presser-arm 29 may be provided with set-screws 35 to
10 adjust the position of the presser-plate 10 relatively to the feed-carriage.

The pressure of the plate 10 on the feed-carriage is exerted for two reasons—first, for determining the grip of the jaw 17 upon the
15 wire, and, second, to prevent the feed-carriage from moving forward until the wire is properly and sufficiently gripped.

The timing of the cam-groove 34 in relation to the position and movement of the
20 cam-finger 20, which operates the gripping-arm, with its jaw 17, is such that, first, the operative position of the presser-plate will be determined before said cam-finger 20 engages the roll 15, and, second, its pressure will
25 be released at the same time or directly after the cam-finger 20 becomes free of the roll 15.

The operation of the device is obvious from the foregoing description, and it will therefore be described very briefly. Wire of the
30 proper diameter to be used is taken from a coil, passed in the ordinary manner through a straightener, and delivered into the feeding device through the opening 11 in the feed-carriage. As the cam-shaft 16 is rotated the
35 cam-finger 20 will engage the roll 15 of the gripping-arm 14, thereby swinging the latter forward on its pivot 13, thus clamping the jaw 17 tightly against the under side of the wire, since the other side of the wire bears in
40 a suitable groove in the feed-carriage 9. As the gripping-arm is arrested against its swinging motion the further rotation of the cam-finger 20 will cause the feed-carriage to slide forward until the cam-finger becomes free of
45 the roll 15, at which instant the wire is freed and the spring 25 will cause the feed-carriage to return to its rearward position against the back-stop 23.

It is obvious that various constructions may
50 be employed to exert a pressure on the feed-carriage or the jaw 17, and I therefore do not wish to limit myself to the exact construction shown.

Having thus fully described the invention,

what I claim, and desire to secure by Letters Patent, is—

1. In combination, a feed-carriage adapted for longitudinal reciprocation, a gripping-arm pivoted to the feed-carriage and adapted for the combined purpose of gripping the wire
60 and of actuating the feed-carriage, a cam-finger for operating the gripping-arm, a pressure-plate upon said feed-carriage and means for exerting a pressure thereon.

2. In a device of the class specified, in combination, a feed-carriage, a gripping-arm pivoted thereto and provided with a clamping-jaw, an adjustable cam-finger for operating the gripping-arm with its jaw and for actuating the feed-carriage, a pressure-plate and
70 means for exerting a pressure thereon.

3. In combination a feed-carriage adapted for longitudinal reciprocation, a pressure-plate, a gripping-arm pivoted to the feed-carriage and adapted for the combined purpose
75 to grip the wire and to actuate the feed-carriage, a cam-finger for alternately engaging and releasing the gripping-arm, and means to return the feed-carriage to its starting position.
80

4. In a device of the class specified in combination, a sliding feed-carriage, a gripping-arm pivoted to the feed-carriage and provided with a clamping-jaw, an adjustable cam-finger for operating the gripping-arm
85 with its jaw and for actuating the feed-carriage, an adjustable pressure-plate, a presser-arm, and means for operating the same.

5. In combination, a feed-carriage adapted for longitudinal reciprocation, means to exert
90 a pressure against one side of said feed-carriage to hold it in a given plane of movement, a gripping-arm adapted to exert a pressure upon the other side of the feed-carriage, said arm being fulcrumed to said carriage, means
95 independent of said arm for intermittently engaging and releasing the said arm thereby gripping the wire and feeding the same longitudinally and means for releasing the grip of the arm and returning the carriage and
100 arm to the starting position.

Signed by me, at Hartford, Connecticut, this 25th day of January, 1899.

GEORGE E. SMART.

Witnesses:

AUSTIN BRAINARD,
ED. E. CLAUSSEN.