

No. 628,809.

Patented July 11, 1899.

J. A. JEWELL, Dec'd.

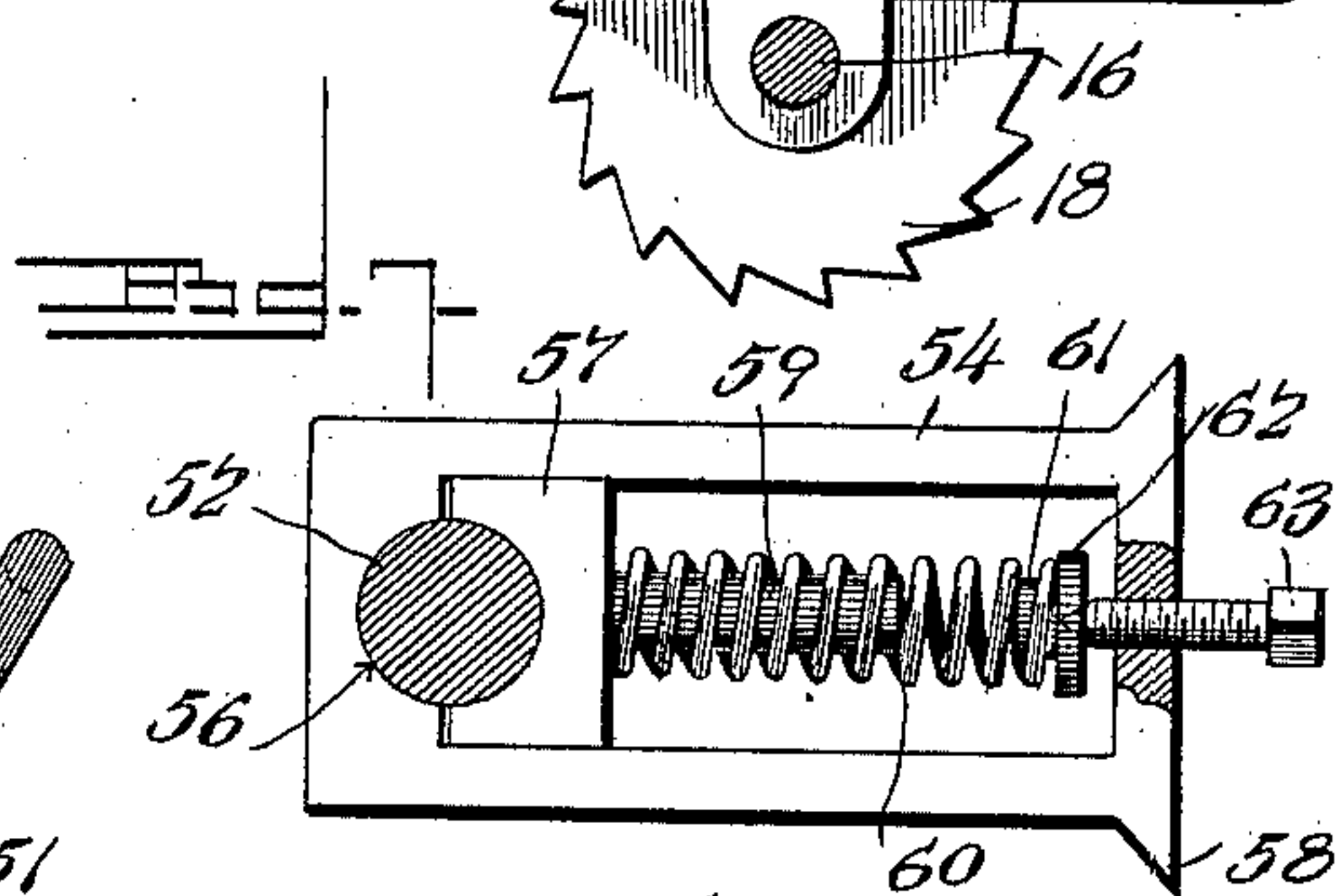
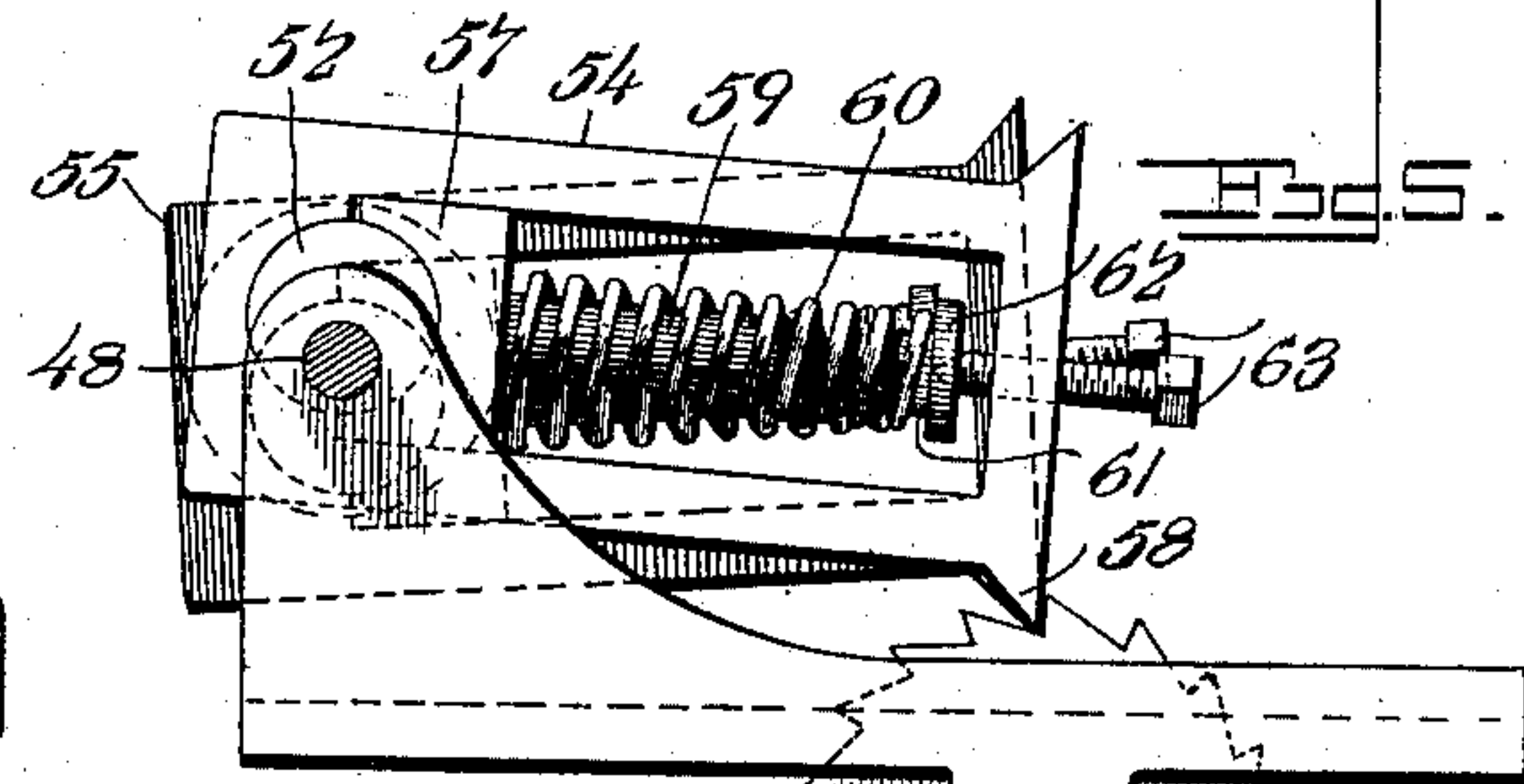
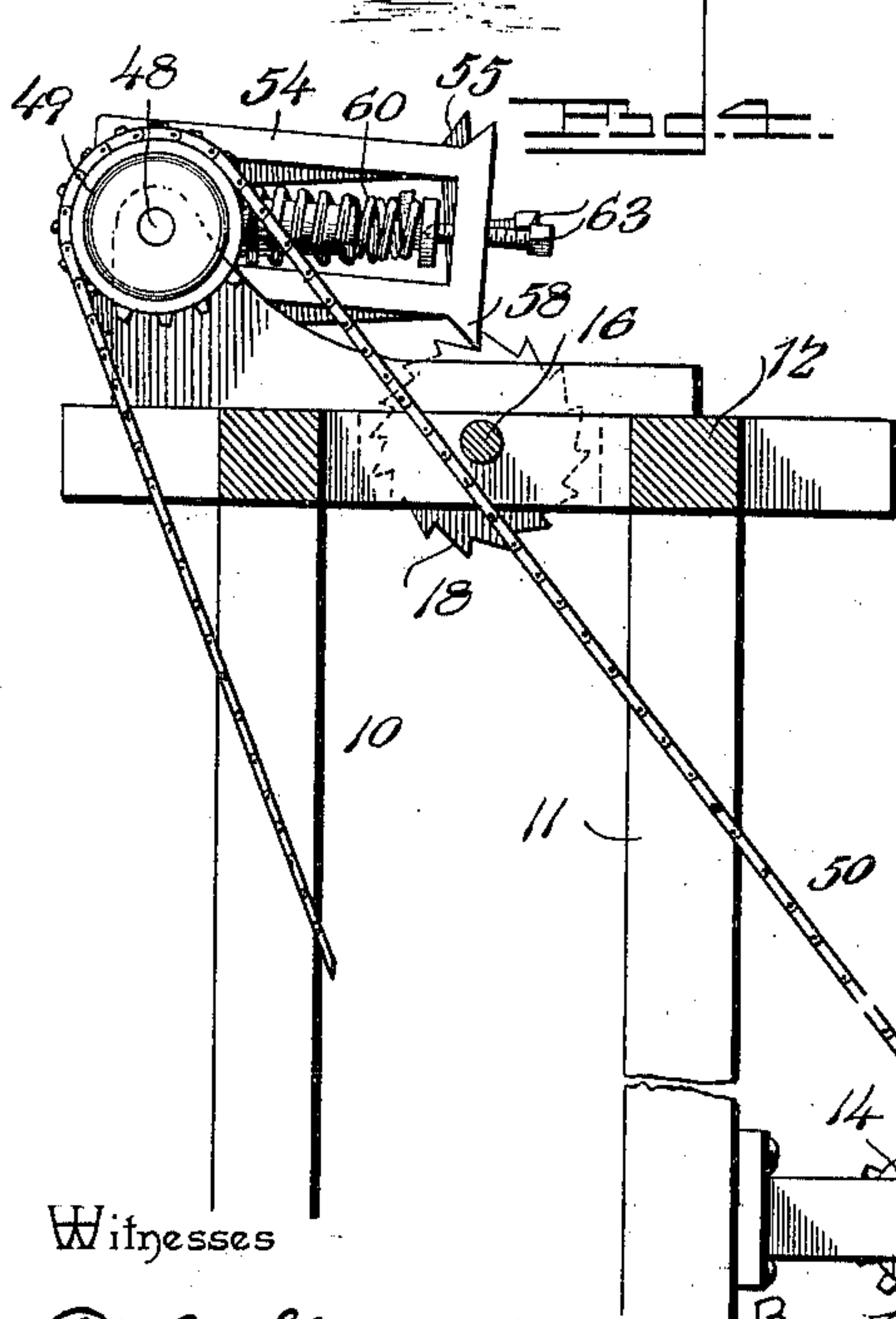
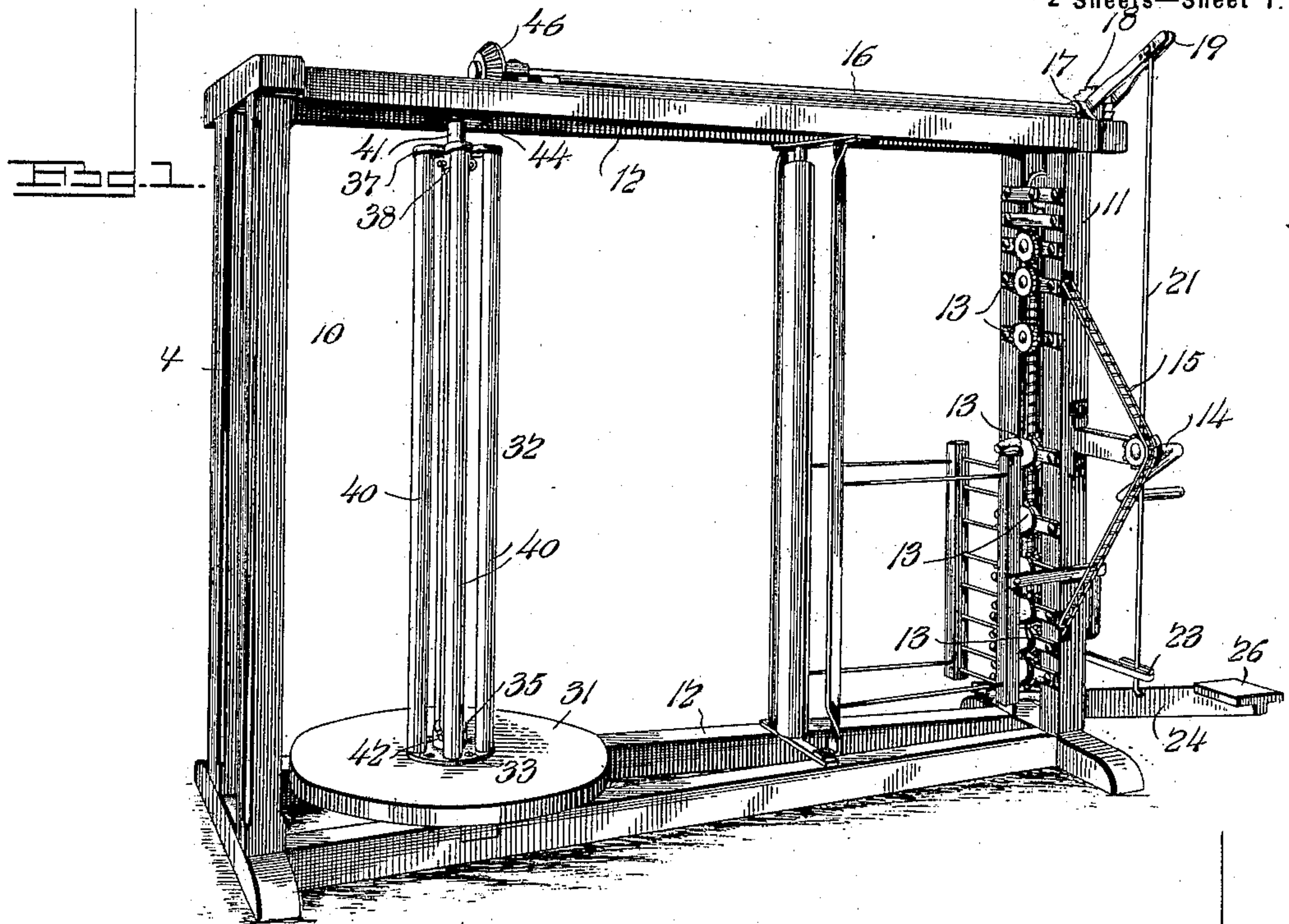
S. E. JEWELL, Administratrix.

REELING MECHANISM FOR FENCING MACHINES.

(Application filed Feb. 6, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

E. F. Stewart.
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C. A. Snow & Co.

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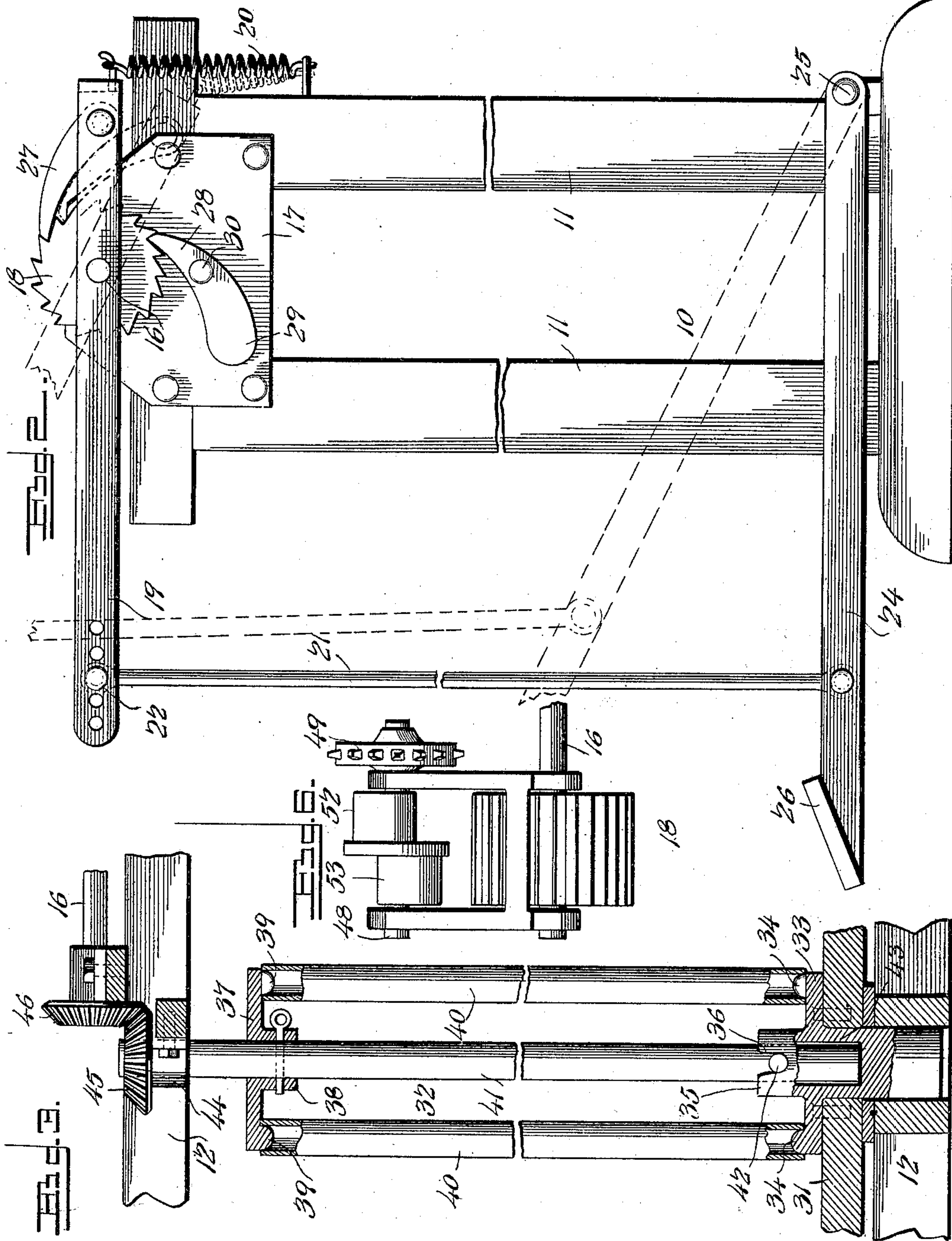
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UNITED STATES PATENT OFFICE.

SUSAN E. JEWELL, OF OTTAWA, KANSAS, ADMINISTRATRIX OF JOHNSON A. JEWELL, DECEASED, ASSIGNOR TO L. N. STACHER, OF SAME PLACE.

REELING MECHANISM FOR FENCING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 628,809, dated July 11, 1899.

Application filed February 6, 1899. Serial No. 704,716. (No model.)

To all whom it may concern:

Be it known that I, SUSAN E. JEWELL, a citizen of the United States, residing at Ottawa, in the county of Franklin and State of Kansas, and administratrix of the estate of JOHNSON A. JEWELL, late a citizen of the United States, residing at Ottawa, in the county of Franklin and State of Kansas, (as by reference to the duly-certified copy of letters of administration hereto annexed will more fully appear,) do hereby declare that JOHNSON A. JEWELL invented a new and useful Improvement in Fence-Machines, of which the following is a specification.

This invention relates to a machine for making wire fences, and more especially is an improvement on the fence-machine patented to J. A. Jewell on November 23, 1897, No. 594,337.

One object of the invention is to provide an improved reel on which the roll of fence fabric may be wound, said reel having separable members adapted to be removed from the reel-heads for the purpose of facilitating the removal of the fabric-roll from the machine without the labor of lifting said roll out of said machine.

A further object of the invention is to provide novel feed mechanisms for operating the fabric-winding reel. The reel-actuating mechanism is adapted to be operated manually for the purpose of winding the fabric on the reel as rapidly as the fabric is produced by the machine.

With these ends in view the invention consists in the novel combination of elements and in the construction and arrangement of parts which will be hereinafter fully described and claimed.

To enable others to understand the invention, it is illustrated in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a fence-machine embodying the present invention. Fig. 2 is a front elevation of the frame having the means for manually actuating the driving-shaft of the winding-reel. Fig. 3 is a vertical sectional elevation of the winding-reel. Fig. 4 is a front elevation of part of the machine with the automatic feed mechanism

for actuating the reel-driving shaft. Fig. 5 is a side view of the ratchet-and-pawl devices of the automatic feed mechanism. Fig. 6 is a detail view of the cam-shaft in its relation to the feed-ratchet. Fig. 7 is a detail view of one of the feed-pawls embracing the spring-tension device.

Like numerals of reference denote like and corresponding parts in each of the several figures of the drawings.

The main frame 10 of the improved fence-machine consists of the upright posts 11 and the rails 12, which are arranged parallel to each other and are firmly joined to the posts. The posts and rails are arranged in pairs suitably joined together, and the pair of posts at one end of the frame support the devices that carry the series of twistors 13. On an arm of the main frame is supported a bearing for the crank-shaft 14, which is equipped with a sprocket-gear adapted to drive an endless sprocket-chain that engages with the sprocket-wheels on the series of twistors 13.

The mesh-forming mechanism of the machine may be constructed substantially as disclosed in the patent to which reference has been made, and the twistors of said mesh-forming mechanism are operated by the endless drive-chain 15, as heretofore indicated.

The mesh-forming mechanism forms no part of the present invention, and it is not therefore considered necessary to describe or illustrate said mechanism in detail.

16 indicates a reel-driving shaft which is arranged in a horizontal position on the pair of upper rails 12 of the frame, said shaft being journaled in proper bearings. On the pair of posts at the front end of the machine in which the mesh-forming mechanism is supported a bearing-plate 17 is firmly secured, and through this bearing-plate extends one end of the reel-driving shaft 16. On this protruding end of the reel-driving shaft 16 is firmly secured a ratchet-wheel 18, which is adapted to be rotated intermittently by the feed mechanism which is associated with the driving-shaft for the winding-reel. In Figs. 1, 2, and 3 of the drawings is represented a driving or feed mechanism adapted to be operated by an attendant stationed at the ma-

chine, and one element of this manually-operative feed mechanism is a lever 19. Said lever is fitted at a point intermediate of its length loosely on a protruding end of the driving-shaft 16, so as to lie contiguous to the feed-ratchet 18, or said lever may be slotted for the purpose of embracing the ratchet. The lever is supported on the shaft to provide long and short arms, and to the short arm thereof is connected one end of a tension-spring 20, the opposite end of which is fastened to the posts of the frame 10. A vertical pitman or rod 21 has a shiftable connection by means of a pin 22 with any one of the series of holes in the long arm of the lever, and said pitman or rod is arranged in a vertical position for its lower end to pass through the loop of a guide 23, which is fixed to the frame-posts near the base of the machine. Said lower end of the vertical rod 21 is pivoted to a treadle-lever 24, which is fulcrumed at 25 to the frame-posts, and the free end of said treadle-lever has a foot-piece 26, that lies at an angle to the axis of the lever and affords a broad bearing-surface, on which the operator may place his foot. On the short arm of the lever 19 is pivoted a gravity-pawl 27, the nose of which engages with one of the teeth of the ratchet 18, and this ratchet-pawl is carried with the lever when it is operated by pressing the treadle so as to turn the ratchet and the shaft 16 a limited distance. The spring 20 returns the lever, the pitman, and the treadle to their normal positions when pressure is removed from the treadle 24, and the pawl 27 is thus actuated to take a fresh hold on the ratchet for the purpose of continuing the feed of the ratchet and the shaft 16 on the succeeding depression of the treadle. A gravity check-pawl 28 has operative engagement with the feed-ratchet 18 to prevent the shaft 16 from reverse rotation under the strain of the fence fabric on the winding-reel. Said check-pawl is arranged to engage with the opposite side of the ratchet from the feed-pawl 27, and the check-pawl is weighted at one end, as at 29, the pawl being pivoted by a pin or stud 30 to the bearing-plates 17. In the preferred arrangement the feed-pawl overhangs the ratchet, while the check-pawl is held by its weighted end in a position to engage the ratchet-teeth in a manner for the ratchet to rotate freely in one direction under the action of the feed-pawl; but the check-pawl prevents the ratchet from rotating in the opposite direction under the strain of the fence fabric on the winding-reel.

The described construction of the feed mechanism for the shaft 16, that rotates the winding-reel, is adapted to be operated by the attendant at proper intervals and according to the production of the fence fabric by the mesh-forming mechanism within the machine. It will be understood that the crank-shaft 14 is actuated by the operator for the purpose of driving the twist-ers of the fabric-

forming mechanism to produce the fence fabric, and at proper intervals the treadle 24 is actuated to rotate the shaft 16 through the lever, pawl, and ratchet, so as to rotate the winding-reel 32, which coils the fabric into a roll. This roll of fabric coiled on the reel rests on end upon a bed or disk 31, which is journaled on a bearing secured to the lower sills or rails of the machine-frame, as shown by Fig. 3. The winding-reel 32 has a lower head 33, which is provided with an annular series of studs 34, that project at right angles from the plane of the head, and the head is further provided with a central hollow stud 35, the upper extremity of which is formed with a transverse key-receiving notch 36. At its other end the reel 32 has a head or spider 37, which is constructed with a central hub 38, and said spider is provided with a series of studs 39, that lie in positions coincident to the studs 34 of the lower reel-head. Between the two heads 33 37 is arranged a series of reel bars or members 40, which are preferably tubular, as shown by Fig. 3, and the open ends of these tubular members are fitted to the studs 34 39 on the reel-heads, whereby the members 40 are engaged detachably with the heads to be supported in fixed relation thereto. The reel 32 is arranged in a vertical position within the frame, and it is revoluble with a shaft 41, which extends centrally through the heads 33 37. The lower end of this central shaft passes through the central hollow stud 36 of the lower head 33, and said shaft has a radial key or pin 42, which is adapted to fit in the notch 36 of the stud 35 for the purpose of making the lower head 33 fast with the shaft and detachable therefrom by elevating the shaft in order to withdraw its key 42 from the notch of the stud. The upper head or spider 37 of the reel has its hub 38 fastened to the reel-shaft in any suitable way—as, for instance, by a set-screw or a key—and both heads of the reel are thus fastened removably to the shaft to insure rotation of the reel-heads with said shaft. The ends of the shaft protrude beyond the heads, and the lower end is supported in a step-bearing 43, provided on the plate or disk 31, mounted on the sills of the frame. The upper protruding end of the shaft fits in a bearing 44 of the main frame, supported, preferably, on the upper pair of rails for the shaft to be removed therefrom, and said upper end has a beveled gear 45, which meshes with a similar gear 46, secured to the inner end of the driving-shaft 16.

From the foregoing description it will be seen that the winding-reel is constructed of parts which are connected separably together, and this is advantageous because the shaft and the reel bars or members 40 may be withdrawn from the roll of fabric in a manner to permit said roll to be removed from the plate or disk 31 and the machine-frame by slipping the roll sidewise from the machine, thus obviating the necessity for lifting the

roll out of the machine. In disconnecting the reel from the roll of fabric the shaft 41 is raised to withdraw the upper head or spider 37 from the bars 40 and to disengage the key 42 from the notched stud or boss 35 on the lower head 33, and the bars 40 are thus freed from engagement with the two heads 33 37, so that the bars may readily be lifted out of the fabric-roll. It will thus be seen that the shaft and the bars 40 may be withdrawn from the roll and the latter removed from the plate or disk 31. The elements of the winding-reel may readily be connected together and the reel arranged in the machine-frame in operative relation to the driving-shaft 16 and the fabric-forming mechanism.

The machine of the present invention is equipped with an automatic feed mechanism for rotating the driving-shaft 16 of the winding-reel, and this automatic feed is designed to be used interchangeably with the manually-operative feed devices. The machine is thus supplied or equipped with two sets of feed mechanisms, either of which may be used, at the option of the operator, for the purpose of rotating the winding-reel, and to this end the elements of the feed devices are designed to be connected detachably to the shaft 16 and the machine-frame.

In Figs. 5 to 7, inclusive, of the drawings the automatic feed mechanism is represented in active relation to the machine and by enlarged detail views, and said automatic feed mechanism embraces a counter-shaft 48, which is adapted to be connected operatively with the crank-shaft 14, that actuates the fabric-forming mechanism, and which counter-shaft controls automatically a set of feed-pawls that engage alternately with a ratchet on the reel-driving shaft 16. The counter-shaft 48 is journaled in a suitable bearing provided on the upper part of the machine-frame, preferably in a plane above and parallel to the driving-shaft 16, and said counter-shaft has a sprocket-gear 49, around which passes an endless sprocket-chain 50, that is propelled by a sprocket-gear 51, which is fast with the crank-shaft 14, as represented by Fig. 4, thus rotating the counter-shaft 48 in unison with the crank-shaft 14. Said counter-shaft is furthermore provided with the double eccentric 52 53, and on the eccentrics of this counter-shaft are fitted the feed-pawls 54 55, which are arranged side by side, parallel with each other, for engagement with a common ratchet 18, the width of which is sufficient to accommodate the lips of the two pawls. Each pawl is separate or independent of the other pawl, and said pawl is constructed, preferably, in the form of an open rectangular frame, as shown by Figs. 5 and 7 of the drawings. Each pawl is provided at one end thereof with a curved face 56, which forms a seat adapted to fit one of the eccentrics on the counter-shaft, and opposite to the curved face or seat of the pawl is a slidable bearing 57, one face of which is curved and arranged to

oppose the face 56 in order to form an opening which conforms in diameter to the eccentric or cam on the counter-shaft. At its free end the pawl is provided with one or more lips 58, which are adapted to engage with the ratchet, and the pawl is actuated by the eccentric on the counter-shaft to move in a forward and upward direction for the lip 58 to partly turn the ratchet 18 for the operation of the shaft 16. The slidable bearing 57 of each pawl is equipped with a stud or short post 59, that serves to retain a coiled spring 60 in active relation to the bearing 57, and one end of this spring is seated directly against the bearing, while its other end receives the boss 61 on a pressure-plate 62, that is held normally in engagement with the spring by a set-screw 63, fitted in a suitable threaded opening provided centrally in the pawl at the free end thereof.

It will be understood that each pawl is held by the spring in close frictional engagement with the proper eccentric or cam on the counter-shaft and that the tension of the spring may be regulated by the adjusting-screw to maintain the necessary frictional contact between the pawl and the cam. These cams are arranged with their longer radii to project from opposite sides of the counter-shaft in order that the throw of one cam may actuate the pawl associated therewith alternately with respect to the other pawl which is controlled by the cam, and thus the two pawls are actuated for one to engage with the ratchet when the other pawl is free from said ratchet. The springs hold the pawls firmly in engagement with the cams, and they resist the strain on the reel and driving shafts exerted by the fabric as the roll increases in diameter.

Changes may be made in the form and proportion of some of the parts, while their essential features are retained and the spirit of the invention embodied. Hence it is not desired to limit this invention to the precise form of all the parts as shown, the right to vary therefrom being reserved.

Having thus described the invention, what is claimed as new is—

1. In a fence-machine, a separable fabric-reel comprising a single shaft, a head keyed to one end of the shaft for rotation therewith and adapted, on an endwise adjustment of said shaft, to become detached therefrom, another head fast with said shaft for rotation and slidable adjustment therewith, and bars confined between the heads and around said shaft, substantially as described.

2. In a fence-machine, a separable winding-reel comprising a revoluble non-slidable head having a tubular notched stud or boss, a shaft fitted in said boss or stud and removable therefrom on an endwise adjustment of the shaft, a key fast with the shaft and fitting removably in the notch of the boss or stud to make the head revoluble with said shaft, another head clamped to the shaft for rotation and slidable adjustment therewith in relation to

the first-named head, and bars or members clamped between said heads, substantially as described.

3. In a fence-machine, the combination with
5 a frame, of a separable winding-reel having a single shaft, and a series of bars arranged parallel to said shaft and clamped removably thereon by suitable heads, a reel-driving shaft geared to the reel-shaft, a pawl-and-ratchet
10 feed mechanism in active relation to said reel-driving shaft, and a treadle operatively connected to said feed mechanism, substantially as and for the purposes described.

4. In a fence-machine, the combination with
15 a reel, and a driving-shaft therefor, of a ratchet fast with said shaft, a lever fitted loosely on the shaft and carrying a feed-pawl which engages with said ratchet, a check-pawl also engaging with the ratchet a treadle
20 linked to said lever, and a spring connected to the lever, substantially as and for the purposes described.

5. In a fence-machine, the combination with
25 a frame, of a roll-supporting plate or disk connected to said frame, a driving-shaft journaled on the opposite sides of the frame from said plate or disk, and a winding-reel between the plate and the driving-shaft and having its members connected separably for with-

drawal from a fabric-roll which is adapted to
30 rest on the plate or disk, substantially as described.

6. In a fence-machine, the combination with a reel-driving shaft, of a ratchet fast therewith, a lever mounted idly on said shaft, a
35 feed-pawl pivoted to a short arm of the lever and arranged to engage with said ratchet, a treadle linked to a long arm of said lever, and a retractile spring connected to the short lever-arm to hold the treadle normally in a raised
40 position, substantially as described.

7. In a fence-machine, the combination with a reel-driving shaft having a ratchet, of a spring-controlled lever carrying a feed-pawl which engages with said ratchet, a treadle
45 linked to said lever, and a weighted check-pawl engaging with the ratchet, substantially as described.

In testimony that I claim the foregoing as
the invention of J. A. JEWELL I have hereunto
50 affixed my signature in the presence of two witnesses.

SUSAN E. JEWELL,
Administratrix of estate of J. A. Jewell, deceased.

Witnesses:

J. F. JEWELL,
MAME JEWELL.