

No. 670,410.

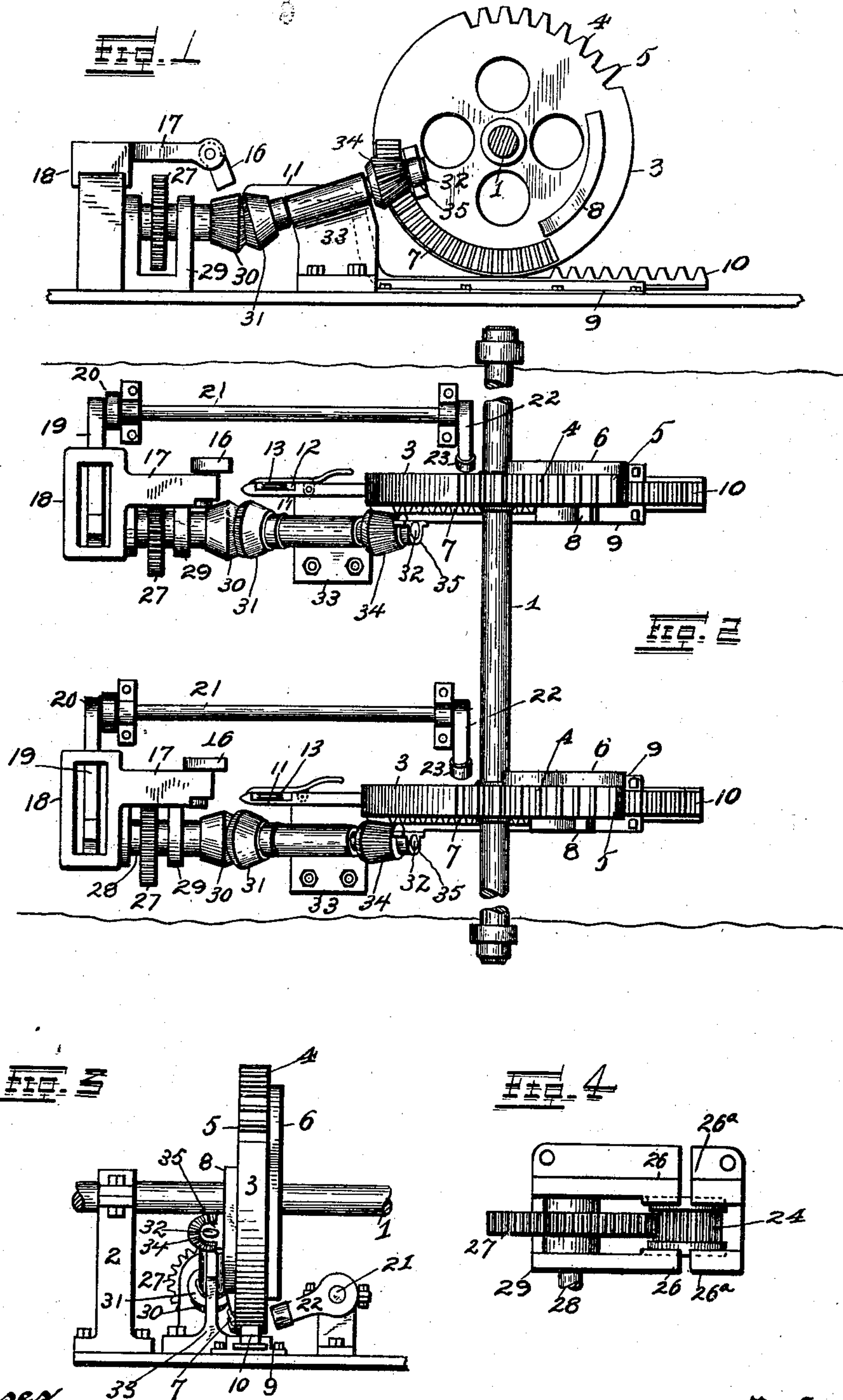
Patented Mar. 19, 1901.

L. M. MEDLIN.
KNOTTER FOR BALING PRESSES.

(Application filed Apr. 21, 1900.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

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By Higdon & Longan Attys

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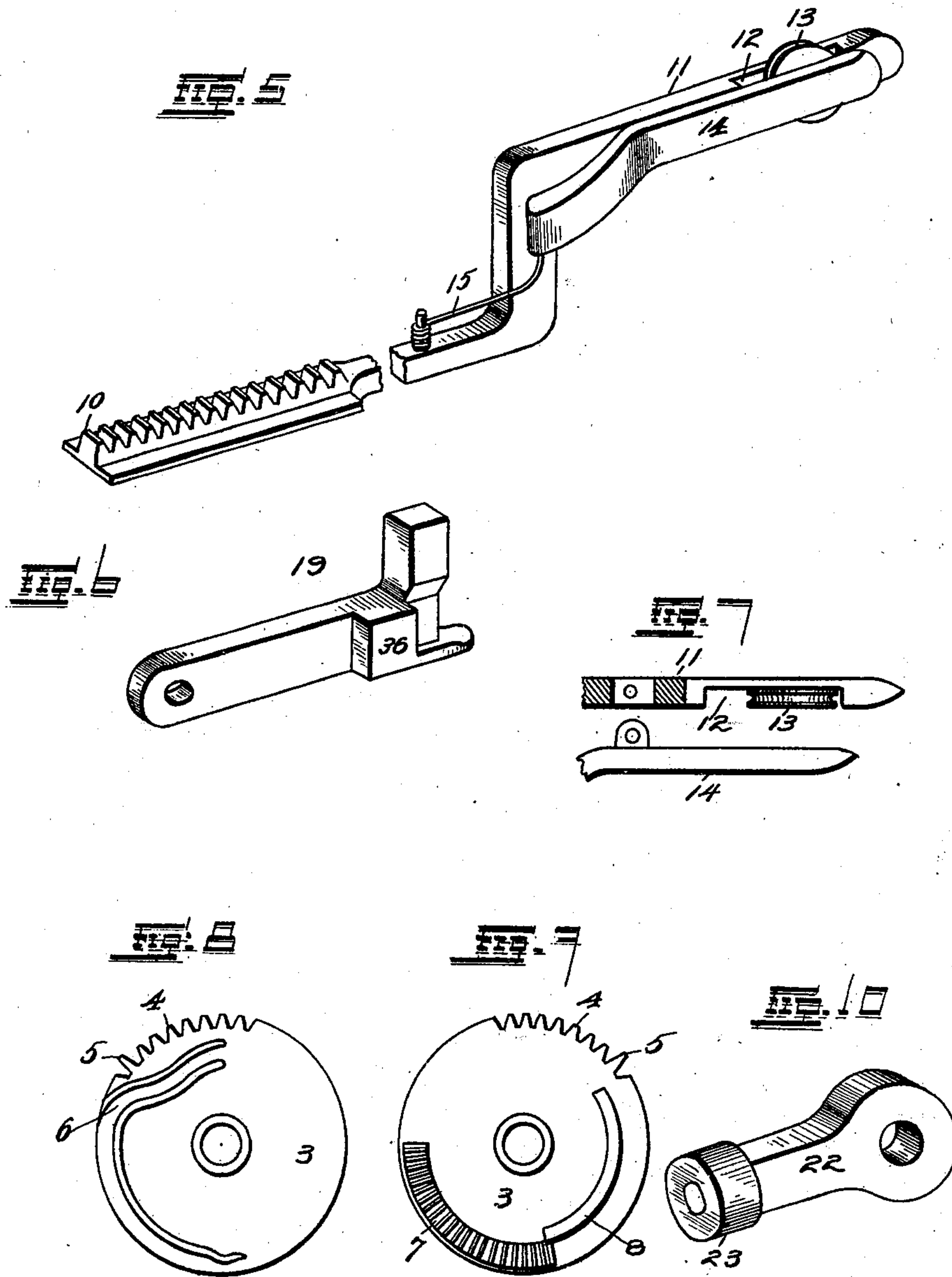
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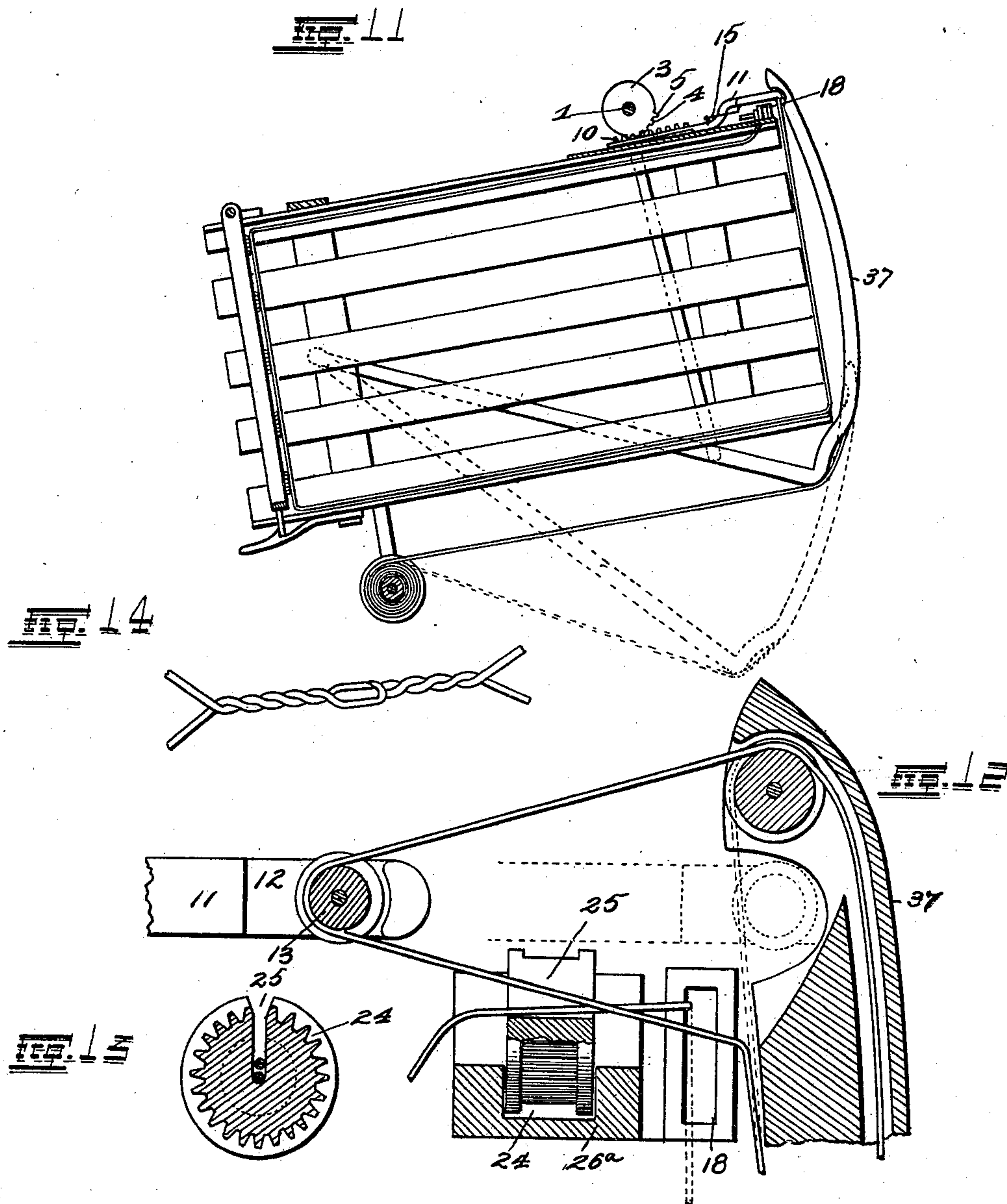
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3 Sheets—Sheet 3.



Witnesses

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UNITED STATES PATENT OFFICE.

LOGAN M. MEDLIN, OF LATHAM, MISSOURI, ASSIGNOR OF ONE-HALF TO H. W. LATHAM, OF SAME PLACE, AND HENRY HERFURTH, JAMES L. BUCHANAN, AND H. E. BLAKEMAN, OF CALIFORNIA, MISSOURI.

KNOTTER FOR BALING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 670,410, dated March 19, 1901.

Application filed April 21, 1900. Serial No. 13,824. (No model.)

To all whom it may concern:

Be it known that I, LOGAN M. MEDLIN, of the city of Latham, Moniteau county, State of Missouri, have invented certain new and useful Improvements in Knotters for Baling-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

10 This invention relates to knotters for baling-presses and the like; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

15 Figure 1 is a side elevation of my improved knotter. Fig. 2 is a plan view. Fig. 3 is a rear view of a part of my improved knotter. Fig. 4 is a plan view of the knotting-wheel and shows the means by which the same is operated. Fig. 5 is a view in perspective of the device which I make use of for drawing the wire into the knot-tying mechanism. Fig. 6 is a perspective view of the knife which cuts the wire after it has been tied. Fig. 7 is a detail view of a part of the device which draws the wire into the knotter. Figs. 8 and 9 are side views of a combined cam and gear wheel which I make use of in carrying out my invention. Fig. 10 is a perspective view of a crank which is made use of to operate the knife. Fig. 11 is a view showing my improved knotter secured upon the box of a baling-press. Fig. 12 is a detail view showing the manner in which the wire is drawn into the knotting mechanism. Fig. 13 is a sectional view of the knotting-wheel. Fig. 14 shows the form of knot tied by my improved knotter.

40 In carrying out this invention I provide a shaft 1, to be supported in bearings 2, the same to be secured upon the top of the box of the baling-press. Keyed upon the shaft 1, near each end thereof, is a wheel 3, each of which is provided on a part of its periphery with a plurality of teeth 4, which normally occupy a position as shown in Fig. 1. The lowest one, 5, of the teeth on each of these wheels is made to project a slight distance beyond the others for a purpose hereinafter set forth. On one face of each of the wheels is a cam 6, and on the other side, diametrically opposite from the teeth 4, is a plurality of

gear-teeth 7, and a raised surface 8 extends from the last of the said teeth to a point even with the tooth 5 on each of the wheels. 55

Under each of the wheels 3 is a guide 9, operating in each of which is a rack 10, and integral with the forward end of each of said racks is an upwardly and forwardly projecting finger 11, the end of each of which is wedge-shaped. In each of the fingers, slightly to the rear of the point thereof, is a groove 12, in each of which is rotatably mounted a small pulley 13. To the rear of the groove 12 in each of the fingers is pivotally secured a metallic strip 14, the forward ends of which are held against the sides of the pulleys 13 by means of suitable springs 15. 65

The shaft 1 is to be rotated by any preferred means, and when so rotated the racks 10 are advanced forwardly. This operation takes place by the long tooth 5 on each of the said wheels coming in contact with the foremost tooth on the rack 10, and thereby causing the remaining teeth to mesh and advance forwardly a suitable distance. When the shaft 1 is turned backward, the racks 10 will again be forced into their former position, and the short teeth 4 being the last to come out of mesh with the racks 10 the said racks are in such positions that the long teeth 5 will again engage them when the shaft 1 is rotated forwardly. When the racks 10 are advanced forwardly, the rear ends of the strips 14 are pressed inwardly by the fingers 16, the same projecting downwardly from the frames 17, supported on the forward end of the baling-box. The forward ends 18 of the said frames are rectangular in plan view, (see Fig. 2,) and within the rectangular portion of each operates a knife 19, each of which is pivotally secured to a crank 20, keyed upon the forward end of a shaft 21. The shafts 21 are provided on their rear ends with cranks 22, upon the free end of each of which is a small roller 23. As the wheels 3 are rotated the cams 6 contact with the rollers 23 and rotate the shafts 21, and thereby operate the knives 19 within the frames 18. 75 80 85 90 95

In alinement with each of the fingers 11, near the forward end of the baling-box, is a small knotter-gear 24, each having an elongated slot 25, the said slots being parallel with the axis of the wheels 24. The said wheels 100

are supported in bearings of two parts 26 26^a, the said parts being spaced a suitable distance apart in order that the wire being pressed rearwardly within the baling-box may enter the slots 25 in the knotter-gears 24 and be tied. From this it may be noted that the slots 25 when in a vertical position are in alinement with the slots or spaces between the two parts of the bearings referred to.

The knotter-gears 24 mesh with other gears 27, keyed upon the shafts 28, the same being rotatably journaled in bearings 29, secured to the top of the baling-box. Upon the rear ends of the shafts 28 are beveled gears 30, which mesh with like gears 31, keyed upon the shafts 32. The shafts 32 are supported in bearings 33 and are provided with gears 34 on their rear ends, which mesh with the gear-teeth 7 on the sides of the wheels 3. Upon the end of each of the shafts 32 is a cam 35, which slides upon the raised surfaces 8 after the gears 34 have passed out of mesh with the gear-teeth 7, which operation stops the rotation of the shafts 32 and also stops the operation of the knotter-gears 24.

Each of the knives 19 is provided with an integral lug 36, which lugs operate directly against the sides of the frames 18 and which hold the free ends of the wires rigidly after the same have been cut by the said knives. This serves as a kind of friction-clutch and has been found very efficient in holding the free ends of the wire under ordinary circumstances.

In operation the mechanism is secured upon the box of a baling-press near the forward end thereof. The free ends of the wire are then secured firmly between the lugs 36 and the sides of the frames 18. The material to be baled is then fed into the baling-box and is forced rearwardly therein by any well-known means, and the upper end of the wire is forced into the slots 25 of the knotters 24 between the bearings 26 26^a, the said slots being turned downwardly by the ratio of the gearing all the time during which the knotter is not in operation. The wire may be mounted on spools secured to the under side of the baling-box, as shown in Fig. 11, which would necessitate that the wires be drawn vertically across the forward end of the baling-box in order to attach the free ends in the manner above set forth. This being done, the material is fed into the baling-box and unwinds the spools of wire and forces the wire rearwardly around three sides of the bale. After a sufficient amount of material has been fed into the box the wire is drawn across the forward end of the bale by any well-known means, as by needles 37, and at the same time the shaft 1 is rotated by means of suitable crank connections, thereby advancing the racks 10 and the fingers 11 in the manner described, and at the same time the knotters 24 are rotated and the slots 25 are turned upwardly. The needles 37 may be operated by any known means, such as by rods and cranks connecting them to the

shaft, or, if preferred, they may be operated by hand. In either event all that is necessary is that they be operated at the required time to present the wire to the knotter, and the specific means by which they are to be operated is largely one of preference. In Fig. 11 the needle is shown up in position to present the wire to the knotter. The wire is then engaged behind the pulleys 13, and the shaft 1 is turned backward as the needles 37 descend, which draws the wire into the slots 25 over the other ends of the wire, which had been drawn into the said slots by the pressure of the bale. As soon as the wire is drawn into the slots the gears 34 are in mesh with the gear-teeth 7, by which means the wheels 24 are rotated, thereby twisting the wire into a knot, a form of which is shown in Fig. 14. The knives 19 by this time have been operated and have cut the wire and have engaged the free ends of said wire between the lugs 36 and the sides of the frames 18. The ratio of the gearing is such that after the knots have been tied the slots 25 of knotters 24 have been turned downwardly, allowing the wire which has just been tied to be drawn out and the wire of the next succeeding bale, which, as explained, is held drawn across the forward end of the baling-box, to be pressed therein, after which the operation of the knotting mechanism is repeated.

A knotter constructed as above described ties a very strong knot which under no circumstances will come untied, and a minimum amount of mechanism is required in its construction. The knives perform the double function of holding the free ends of the wire and of cutting the wire after it has been tied in the proper knot.

I claim—

1. A knotter for baling-presses and the like, consisting of a single wheel having a slot, a knife-frame adjacent to said wheel, a knife operating in said frame and adapted to engage one end of a wire, means for guiding the retained end of the wire into the slot by the pressure of the bale, a separate device for drawing the other end of the wire into the slot, a wheel supported in a suitable position relative to the said parts mentioned, which wheel is adapted to be rotated, and means whereby the said parts mentioned will be operated when the wheel is rotated, substantially as specified.

2. A knotter for baling-presses and the like, consisting of a wheel having a slot, a knife-frame adjacent to said wheel, a knife to be moved, in said frame, means for engaging one end of a wire between the said knife and frame, means for guiding the retained end of the wire into the said slot by the pressure of the bale, and a separate device for drawing the opposite end of the wire into the said slot, in combination with a combined gear and cam wheel having suitable connections for controlling the movements of the said parts mentioned.

3. In a knotter for baling-presses and the like, a wheel having a slot, means whereby one end of the wire may be pressed into said slot by the pressure of the bale, a rack, a
5 finger carried by said rack, means for operating said rack and thereby the finger, means whereby the other end of the wire is drawn into the said slot whenever the said finger is operated, and means for rotating said wheel
10 and thereby twisting the wire, substantially as specified.

4. A knotting mechanism for baling-presses and the like comprising a wheel, means for rotating said wheel, a rack, a finger carried
15 by said rack, means whereby the said rack and finger are operated whenever the wheel is rotated, a wheel having a slot, means for holding one end of a wire adjacent to the said slotted wheel, means whereby the retained
20 end of the wire is drawn into the slot by the pressure of the bale, means whereby the opposite end of the wire is drawn into the slot by the operation of the finger, and means for rotating the wheel and thereby twisting the
25 wire, substantially as specified.

5. A knotter for baling-machines and the like, comprising a gear having a slot for re-

ceiving the wire, means for guiding one end of the wire into said slot by the pressure of the bale, a finger, means for operating said
30 finger, means for drawing the other end of the wire into the slot by the operation of the finger, means for rotating the said slotted gear to twist the wire, a knife, means for operating the knife to cut the wire, and means
35 for holding the end of the wire, substantially as specified.

6. In a knotter, the combination of a wheel having a slot for receiving the wire, the wheel
3 having the teeth 4 and the tooth 5 longer
40 than said teeth 4, a rack to be operated by said wheel, a finger carried by said rack, means for rotating the said slotted wheel after it has received the wire, a knife operating in the frame for cutting the wire, and means for
45 holding the free end of the wire after it has been cut, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

LOGAN M. MEDLIN.

Witnesses:

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