

No. 889,848.

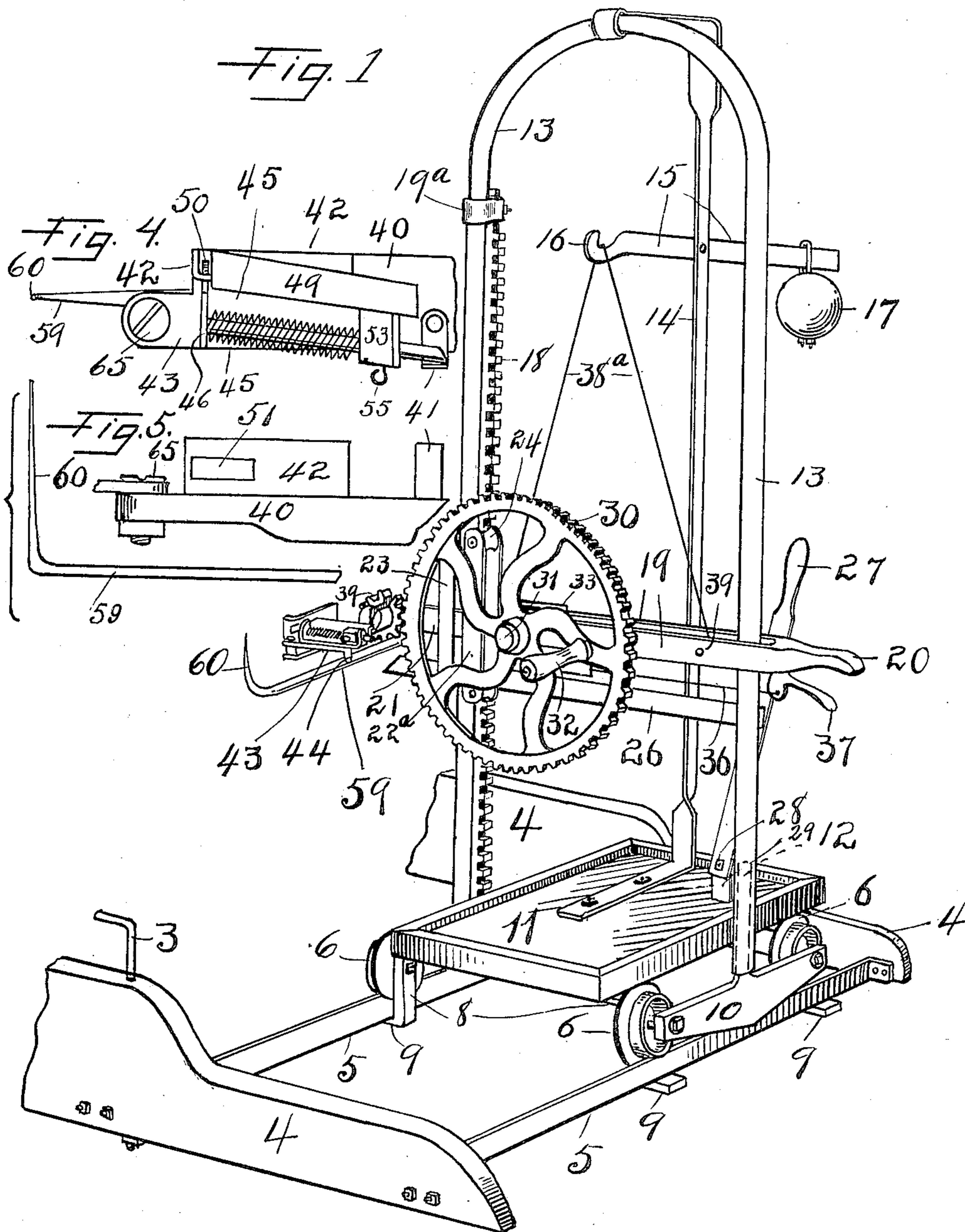
PATENTED JUNE 2, 1908.

F. M. GIDDINGS.

APPARATUS FOR SECURING COMPRESSED BALES WITH WIRE.

APPLICATION FILED NOV. 23, 1907.

2 SHEETS—SHEET 1.



WITNESSES:

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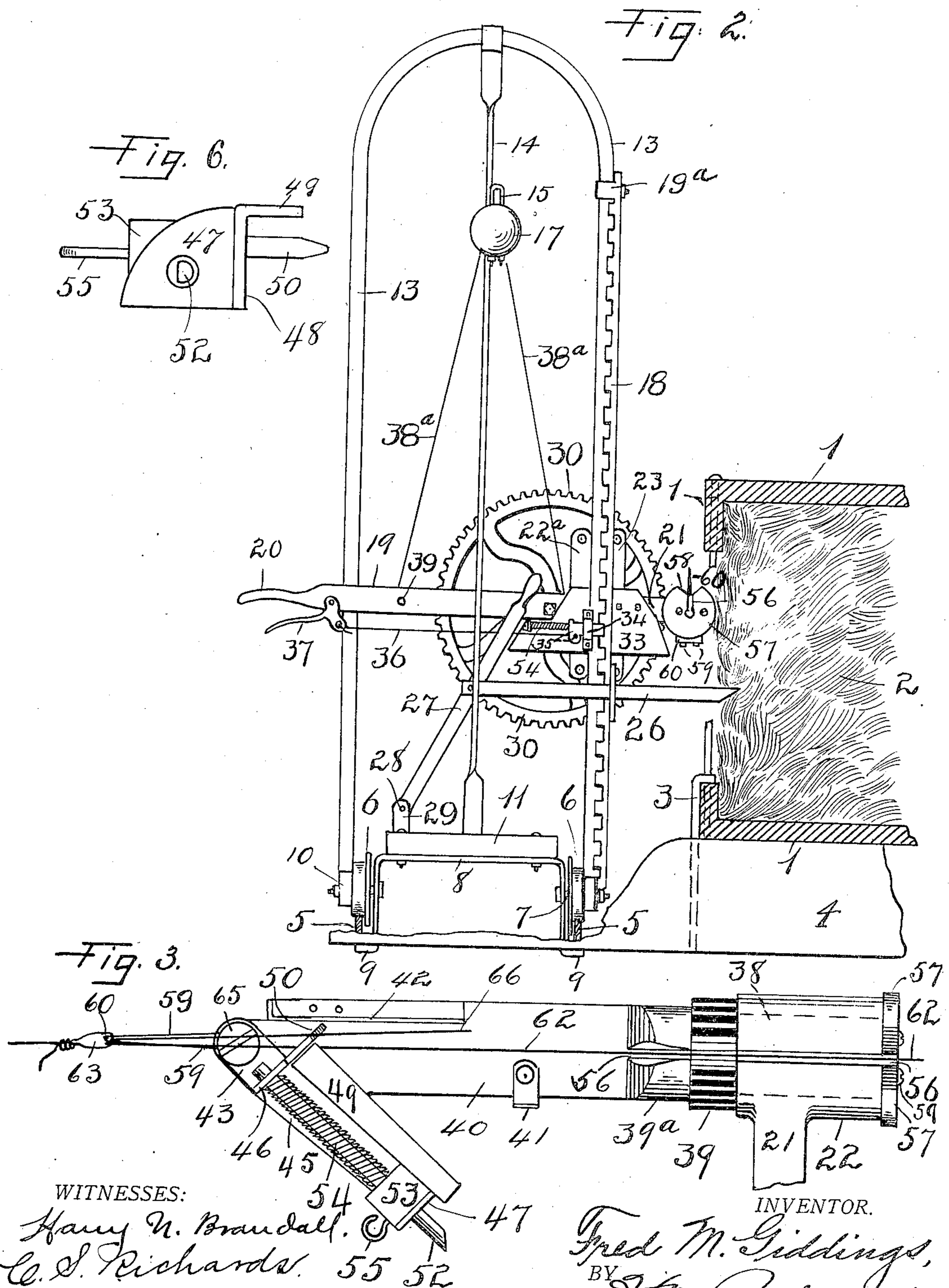
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UNITED STATES PATENT OFFICE.

FRED M. GIDDINGS, OF GALESBURG, ILLINOIS.

APPARATUS FOR SECURING COMPRESSED BALES WITH WIRE.

No. 889,848.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed November 23, 1907. Serial No. 403,533.

To all whom it may concern:

Be it known that I, FRED M. GIDDINGS, a citizen of the United States, and a resident of Galesburg, Knox county, Illinois, have invented a new and useful Improvement in Apparatus for Securing Compressed Bales with Wire, of which the following is a specification.

My invention relates to apparatus for securing compressed bales with wire, and particularly to that type or class thereof which are employed as attachments to presses for baling hay, straw and similar materials or products of the field or factory; and it is particularly adapted for use in connection with presses which are not equipped with a reel or like device on which the baling wire is wound and from which it is fed, but rather with presses in which the wire is first cut into suitable lengths and then placed about the bale in process of formation.

In presses not equipped with automatic tying mechanism much difficulty has been met with in drawing the binding wires sufficiently taut to firmly secure the bales.

One object of the invention is, therefore, to provide a simple, strong and reliable mechanism which may be manually operated and which will effectually secure the several flakes or portions of the bale from disunion.

A further object is to provide means in the employment of which the securement of the ends of the wire may be made at any suitable place at the side of the bale.

A further object is to provide means whereby such securement may be made with great rapidity.

Another object is to provide means for instantly freeing the wire from the twisting and other mechanism after the bond or "tie" has been effected, and for as quickly and readily moving the mechanism to another place for the purpose of uniting the ends of another wire on the same bale, it being understood that a plurality of wires are generally required and employed on each bale.

Still another object is to provide for ready detachment or detachment of the parts of the device, either from each other or from the press.

Subsidiary objects will appear as the nature of the invention is disclosed.

To the above noted ends and objects it consists in mechanism hereinafter described which is adapted for attachment to an ordinary baling press of the type before stated, a

portion of which mechanism is in fixed relation with the compression chamber of the press, and another portion of which has longitudinal movement with relation thereto and carries devices having vertical movement on those or with relation to those last named.

Mechanism showing the structural features, arrangement, connection and mutual relationship of the several parts of my improvements, and the adjacent parts of a baling-press compression-chamber with which the improvements may be incorporated, is shown in the accompanying drawings, in which:—

Figure 1 is a perspective, portions of the supporting bolsters being broken away; Fig. 2, an end elevation, partly in section and partly broken away, showing also a portion of a press-box; Fig. 3, a plan of the twisting mechanism, enlarged, showing the gate opened for the placement of the wire; Fig. 4, a detail, enlarged, a plan of the gate in closed position; Fig. 5, a detail, enlarged, a side elevation of parts shown at Fig. 4, the gate in closed position; and Fig. 6, an end view of part of the twisting mechanism.

Reference being now had by numerals to the drawings just described, the same one indicating the same part in the different figures thereof, 1 indicates the compression chamber of an ordinary type of horizontal baling press having at each side a longitudinal opening through which access may be had to the bale 2 in process of formation. Supported by bolts 3 or in any other suitable manner are bolsters 4, one near the median portion of the box and one near its discharge end, on which bolsters is mounted a track running alongside said box.

The foregoing parts may be constructed in any suitable and preferred manner and need not be further herein described than to state that they support the devices comprising my improvements.

Adapted to travel back and forth on the rails 5 is a truck comprising flanged wheels 6 mounted on stub-axles 7 carried by inverted U-shaped beams 8, the feet 9 of which are turned outwardly and project beneath the rails to prevent displacement of the mechanism supported by said truck, the axles being connected by trusses 10 secured thereto in any suitable manner, and provided near their midlengths with upwardly extending arms 12 for a purpose presently explained.

The top portion 11 of the truck constitutes a platform or table on which the tools and other appliances ordinarily used about a baling press may be conveniently placed. Endlong movement (to too great an extent) of the truck is prevented by the bolsters 4 in an evident manner.

An arch, 13, preferably of piping, is supported on the vertical truck-arms 12. A standard 14 is fixed at its lower end to the table and extends thence vertically to and is bent inwardly at a height approximating the highest point of the arch, where it is secured. A beam 15 provided at one end with a hook 16 and at its other end with a movable counterweight 17 is fulcrumed near its midlength to the standard 14.

Fixed by clips 19^a to one side of that one of the legs of the arch which is contiguous to the press is a rack-bar 18, the teeth of which project in the direction of the other leg of the arch and the purpose of which will be hereinafter set forth.

The securing mechanism proper is mounted on and carried by a carriage comprising parallel horizontal bars 19 straddling the arch 13 and provided at their proximal ends with a handle 20 and at their distal ends with an extension 21 to which is fixed a slotted journal-box 22, shown best at Fig. 3. The bars 19 are fitted with transverse vertical guide-plates 22^a, 23 in pairs, each of which pairs is equipped with concave spools 24 at its ends, the spools being closely fitted to roll on the corresponding faces of the distant leg of the arch 13 to prevent sagging of the carriage with relation thereto, while tipping of the arch on the track-rails is prevented by the feet 9 before described.

Fixed near the forward end of the bars 19 is a plate 33 to which is secured a guide 34 through which passes the nose of a spring-latch 35 which is adapted to engage the teeth of the rack 18, its heel being connected by a wire 36 to a hand lever 37 pivoted to the bars 19 in such position and manner as to be within easy grasp of the operator, as will be seen best at Fig. 2. A rod or cable 38^a is passed beneath that portion of the journal 31 which lies beneath the bars 19, and beneath a pin 39 seated in said bars, and its upper portion slipped over the hook 16. A spur wheel 30 is journaled on a bearing 31 fixed in any suitable manner to the rods 19, and is provided with an ordinary crank-handle 32.

A needle-bar 26 extends across the legs of the arch, its point projected a distance and adapted for engagement with the material being operated upon, and its heel apertured and pivoted to a lever 27 fulcrumed at 28 to a casting 29 fixed to the table 11.

Seated to revolve in the journal-box 22 is a base-casting comprising a longitudinally slotted journal 38, slotted pinion 39, slotted shoulder 39^a and extended reduced portion

40 on which is fixed a latch-pin stop 41 and the apertured stationary member 42 of my wire-end separating, retaining and releasing device, the other members of which I shall now proceed to describe. A plate 43 is pivoted on the upper face and near the outer end of the base-casting and its free end projected downwardly to form a stop 44 (Fig. 1,) which limits the movement of the plate in one direction to prevent its contacting the stationary member 42. Fixed by rivets, not shown, to the plate 43 is a sheet metal frame comprising a horizontal base portion 45, the ends of which are bent upwardly to form latch-holding members 46, 47, a vertical member 48, and a horizontal cover 49. The outer end of the member 48 is extended to form a dividing-finger 50 which projects, when the pivoted means just described is in closed position, through the slot 51 in the vertical plate 42. An ordinary latch comprising a pin 52, lug 53, spring 54 and handle 55 is mounted, as hereinbefore stated, in the members 46 and 47. The mechanism indicated by numerals 43 to 55 inclusive shall hereinafter be termed a gate.

To hold the casting in place within the bearing 22 and to facilitate placement of the baling wire within the slot 56 which extends longitudinally through said bearing and through the journal the pinion and the shoulder, a cap-plate 57 provided with a slot registering with the last described one and the mouth 58 of which is greatly enlarged, is bolted on the end of the journal and forms a flange therefor. A loop-retaining bar 59, provided with a vertical point 50 is fixed to the lower portion of the bearing 22 by screws 61, see Figs. 1, 2 and 3.

The construction, arrangement, assembly and disposition of the several parts of my improvements having been thus set forth, I shall now proceed to describe the operation of the device. It will be presupposed that a bale of material, already formed, is in the press-box and a parting-block of ordinary construction between it and the plunger, the parts of my improvements being in the relative positions shown at Figs. 1 and 3, with the gate thrown open. A length of binding wire 62 is then (or later, if preferred) placed in or through one of the usual channels in the parting block and the loop 63 which has already been formed at one of its ends, is dropped over the point 60 of the retaining-bar 59. Another wire is similarly placed in another channel in the parting board, its end hanging free, but readily accessible to the operator. After sufficient charges of material to constitute a bale have been compressed, the free end of the first named wire will be brought around the bale, dropped into the guide 58, thence through the slot 56, thence forwardly to and through the loop and thence, being first drawn taut,

doubled upon itself into a substantially U-shape. The gate is then swung on its pivot 65 to a closed position, the finger spacing the members of the U-shaped portion 62, 66 a distance apart. The operator by grasping the crank-handle 32 and turning the wheel 30 in either direction will cause the pinion 39 with which it is in mesh to revolve with speed, and because of its integrality with the other slotted members of the twisting mechanism its motion will be transmitted thereto in an evident manner and the members of the U-shaped portion be intertwined and interlocked with the loop 63. As shown at Fig. 2 the parts appear as in position for interlocking the ends of the upper wire; suppose, therefore, that wire to have been secured as last described. The operator, grasping the handle 20 of the carriage and at the same time raising the free end of the lever 37 will withdraw the latch 35 from its engagement with the rack-teeth. The weight of the carriage is counterbalanced by that of the weight 17; a very slight downward pressure on the handle will therefore lower the carriage and all parts supported or carried thereby to position for securement of the ends of the lower wire, in which position it is instantly locked by releasing the lever 37. A further operation as last described, to lower the carriage, will free the loop from the point 60, whereupon a reverse operation will place the parts in position for securement of the first wire on another bale, it being optional whether the upper or the lower one.

In rapid baling it is not convenient to accurately place the wires when positioning them in the channels in the parting-block. In other words, the loop will sometimes be placed several inches further from the end of the block than at other times. To obviate delay or loss of time because of this, the operator will by means of the lever thrust the needle-point into the most convenient part of the material being baled, the truck and all parts of the device being thus moved along as is the bale. When the latter is of sufficient dimension the operator can draw the wire very taut by reason of the loop being engaged with the hook or point 50 and said loop forming a sort of pulley on which to double and draw the free end of the wire.

Other ways than the one hereinbefore described may be utilized in placing the wire. For instance, the quantity sufficient to form a bale may be compressed before the wire is inserted through the channel in the parting board. The wire is then brought entirely around the material, the loop dropped over the hook, the free end dropped into the slot 56, through the loop, thence backward and divided by the finger. It will be manifest that the traveling means may be manually moved to any desired position.

Should it be desirable to separate the truck from the arch and parts mounted thereon, it is quickly accomplished by removal of the bolts secured to the former, whereupon the tubular legs of the arch may readily be lifted from the truck extensions.

While I have illustrated and described the preferred embodiment of the invention, it will be understood that without departing from the essential spirit and scope, or sacrificing any of the advantages thereof, it is susceptible of change as regards form, detail, construction, organization, and the mutual relationship, coöperation and combinations of parts. It will be further understood that certain parts of the invention may be used without the others and in machines differing in construction and even purpose from the one shown.

Having thus set forth the invention, I claim as new and desire to secure by Letters-Patent the following, to-wit:—

1. In a device of the nature described, vertically and longitudinally movable wire-twisting means.
2. A device of the nature described including wire-twisting means adapted to have both vertical and longitudinal movement with relation to the press-box.
3. In a device of the nature described, vertically and longitudinally movable wire-twisting means, said means adapted to receive the last named movement from means actuated by the material being baled.
4. In a device of the nature described, vertically and longitudinally movable wire-twisting means, said means adapted to receive the last named movement from means actuated by means acted on by the plunger.
5. In combination, a carriage, twisting mechanism carried thereby, a support for the carriage, means whereby it may have vertical movement in either direction with relation to said support, and means whereby the support may have horizontal movement.
6. In combination, a carriage, wire-twisting mechanism carried thereby, a support for the carriage, and means whereby the latter may have vertical movement in either direction with relation to said support.
7. In combination, a carriage, wire-twisting mechanism carried thereby, a support for the carriage, means whereby the latter may have vertical movement in either direction with relation to the support, and means whereby the carriage may be locked in elective position.
8. In combination, a carriage, wire-twisting mechanism carried thereby, a support for the carriage, means whereby the latter may have vertical movement in either direction with relation to the support, a counterweight for the carriage, and means whereby the carriage may be locked in elective position.
9. A device of the nature described includ-

ing a support, a carriage including handle bars and guides adapted to engage and have vertical movement on the support, means for locking the carriage in elective position, 5 and a track whereon all the foregoing elements have movement longitudinally of the compression chamber.

10. The combination with wire-twisting mechanism, of means for rotating it, a carriage on which it is mounted, a support therefor, a latch carried by the carriage, and a rack-bar with which the latch is adapted for engagement.

11. The combination with wire-twisting mechanism, of means for rotating it, a carriage on which it is mounted, a vertical support on which the carriage has movement, a latch on the carriage, a rack-bar with which it is adapted for engagement, a needle adapted to be thrust into the material being baled, 20 and a track on which all of said elements are adapted to move in a direction rectangularly to that first named.

12. In a device of the character described, 25 a radially slotted journal, a bearing therefor, a pinion provided with a slot registering with that in the journal, a pivoted gate including a wire-dividing finger, and means for holding the looped end of the baling wire.

30 13. In a device of the character described, a base including a radially slotted journal and pinion at one end thereof and integral therewith, a radially slotted wire-guide fixed on the end of the journal, a stationary plate 35 at the other end of the base, and a baling-wire-retaining and releasing gate including a closing member, a wire-dividing member and a latch, pivoted to the other end of the base.

40 14. In combination with a track adapted to be fixed to a baling press, a wheeled truck, a supporting arch thereon, a carriage adapted to have vertical movement on the arch, said carriage including guides, twisting 45 mechanism carried by the carriage, a rack-bar, and a latch adapted for engagement

therewith, whereby the carriage may be locked in elective position.

15. In combination with a track adapted to be fixed to a baling press, a wheeled truck, 50 a supporting arch thereon, a carriage adapted to have vertical movement on the arch, said carriage including guides, twisting mechanism carried by the carriage, a rack-bar, a latch adapted for engagement there- 55 with whereby the carriage may be locked in elective position, and a counterweight for the carriage.

16. In combination with a track adapted to be fixed to a baling press, a wheeled truck, 60 a supporting arch thereon, a carriage adapted to have vertical movement on the arch, said carriage including guides, twisting mechanism carried by the carriage, a rack-bar, a latch adapted for engagement there- 65 with whereby the carriage may be locked in elective position, and a needle engaged with a suitable one of said elements and adapted to be thrust into the material being baled.

17. In combination, a truck, a track on 70 which it has horizontal movement, an arch supported on the truck, a carriage adapted to have vertical movement on the arch, wire-twisting means including a pinion journaled in bearings on the carriage, a spur wheel 75 journaled on the carriage, adapted to impart rotatory movement to the pinion and thereby to the twisting means, a counterweight for the carriage, a rack-bar, a spring latch connected to the carriage and adapted for 80 engagement with the rack, and means connected with the truck and adapted to engage the means being baled, whereby the truck will receive movement on the track.

In witness whereof I have hereunto signed 85 my name in presence of two witnesses, at Galesburg, in the county and State aforesaid, this 6th day of November, 1907.

FRED M. GIDDINGS.

Witnesses:

CHAS. J. LAVRON,
H. M. RICHARDS.