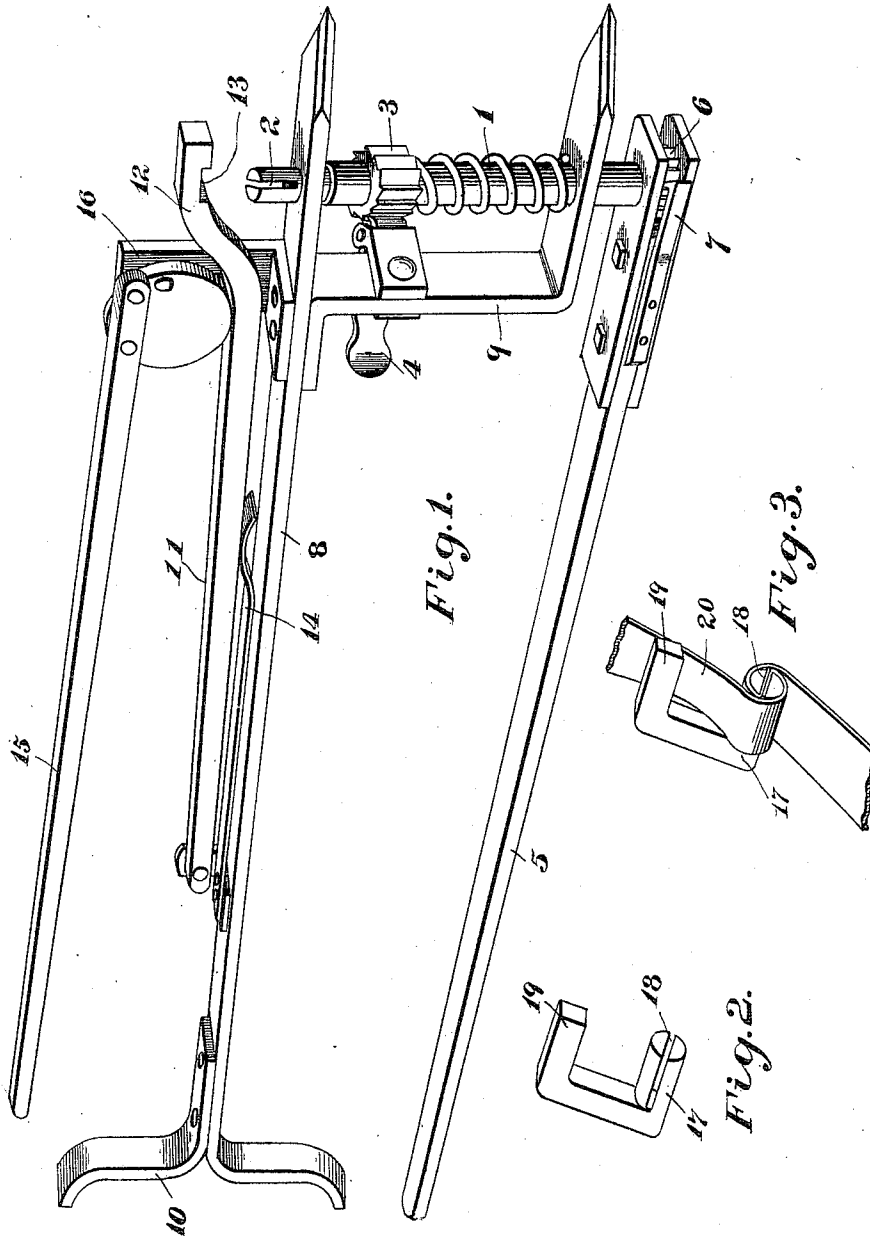


W. E. MORELAND.
BALE TYING MACHINE.
APPLICATION FILED FEB. 28, 1911.

995,276.

Patented June 13, 1911.

2 SHEETS—SHEET 1.



Witnesses
Thos. F. Knox,
V. B. Hilliard.

Inventor
William E. Moreland

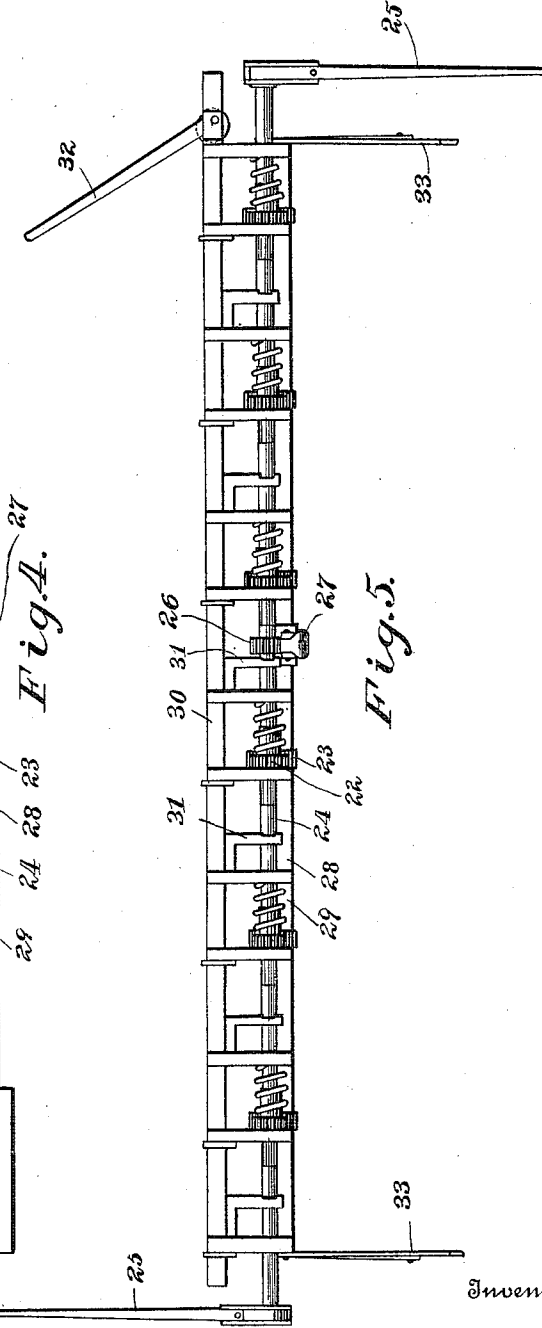
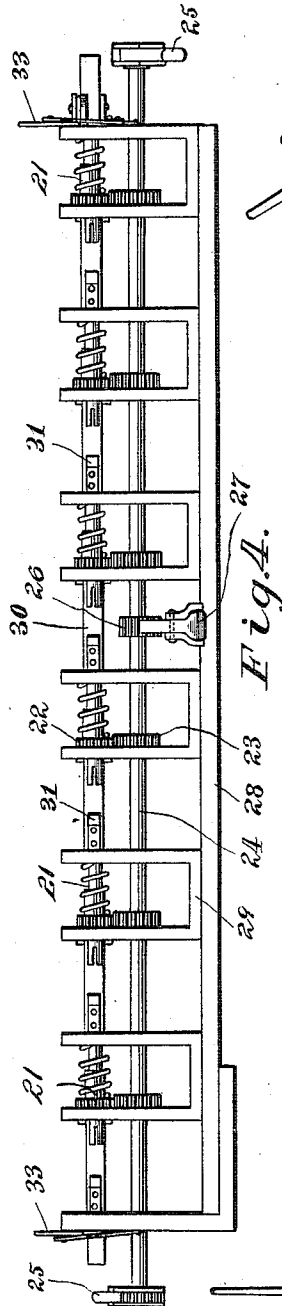
By *Victor J. Evans*
 Attorney

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UNITED STATES PATENT OFFICE.

WILLIAM E. MORELAND, OF UNION CITY, GEORGIA.

BALE-TYING MACHINE.

995,276.

Specification of Letters Patent. Patented June 13, 1911.

Application filed February 28, 1911. Serial No. 611,381.

To all whom it may concern:

Be it known that I, WILLIAM E. MORELAND, a citizen of the United States, residing at Union City, in the county of Campbell and State of Georgia, have invented new and useful Improvements in Bale-Tying Machines, of which the following is a specification.

The present invention provides means for tying and securing the ends of binders after the same have been passed around bales of cotton, burlap, paper and the like, the invention relating more particularly to means for securing the ends of strap iron when used as bale ties.

The invention contemplates a mechanism whereby the ends of a bale tie may be secured by winding, the winding operation serving the two-fold purpose of drawing the binder close about the bale and securing the ends of the binder.

The invention also has in view the provision of a tie for securing the ends of the binder after the same have been wound.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claims.

Referring to the drawings, forming a part of the specification, Figure 1 is a perspective view of a machine embodying the invention. Fig. 2 is a perspective view of the tie. Fig. 3 is a perspective view of the joint formed between the end portions of a binder after the same have been wound and made secure by means of the tie. Fig. 4 is a front view of a modification, showing an adaptation of the machine for operating upon a number of binders at the same time. Fig. 5 is a top plan view of the modification.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawings, by the same reference characters.

As herein stated the invention provides a mechanism for winding the ends of a binder to be secured by rolling said ends upon and about each other.

The machine embodies a winding spindle 1, which is mounted in a suitable frame, said spindle having a slot 2 in one end to receive the overlapping ends of the binder. A

ratchet wheel 3 is secured to the winding spindle and its teeth are adapted to be engaged by means of a pawl 4 so as to prevent backward rotation of the spindle after the ends of the binder have been wound thereon. The spindle is mounted to receive both a rotary and a longitudinal movement, the rotary movement serving to wind the overlapping ends of the binder and the longitudinal movement enabling the spindle to free itself from the ends of the binder when wound.

Any suitable means may be employed for rotating the spindle 1 to wind the overlapping ends of the binder around the slotted end thereof and as shown a lever 5 is employed and has a ratchet connection with the spindle, thereby admitting of rotating the spindle upon imparting an oscillatory movement to said lever. A ratchet wheel 6 is secured to the winding spindle 1 and its teeth are engaged by means of a pawl 7 carried by the lever 5.

The frame for supporting the operating parts comprises a bar 8 and a bracket 9, the latter having a portion spaced from the bar 8, the winding spindle being mounted in the spaced parts of the bar and bracket. The ends of the members of the frame are preferably beveled to form edges so as to readily enter the sides of the bale to admit of the winding spindle coming close to the side of the bale so that the overlapping ends of the binder may snap into the slot 2.

A rest 10 is formed at the outer end of the bar 8 to engage a part of the person of the operator, such as the thigh, to admit of the application of pressure for forcing the inner ends of the frame into the bale when adjusting the machine to the bale after securing the binder.

A pressure bar 11 is pivoted to the bar 8 and its free end is offset, as indicated at 12, and spaced from the slotted end of the winding spindle 1, a notch 13 being formed in the end of the bar opposite the winding spindle to receive the tie and hold the same in proper position when transferring the wound ends of the binder from the winding spindle to the tie. A spring 14 normally exerts a pressure upon the pressure bar to hold the free end thereof spaced from the winding spindle to admit of placing the ends of the binder or the tie in proper position. A cam

lever 15 is pivoted to a bracket 16 forming a part of the frame and engages the pressure bar 11 and is adapted when operated to force the free end of the pressure bar toward the winding spindle and to move the latter longitudinally to disengage the wound ends of the binder therefrom and cause the same to be transferred to the tie.

The tie, as indicated most clearly in Fig. 2, is substantially of U-form, one of the members, as 17, being round and having a slot 18 and the other member 19 being of any cross sectional form, since its purpose is simply to form a stop to prevent turning of the tie and unwinding of the ends of the binder received upon the member 17. The member 17 corresponds in diameter approximately to the diameter of the slotted end of the winding spindle and the slot 18 is of a depth to receive the overlapping ends of the binder from the slot 2 of the winding spindle.

The binder is indicated at 20 and consists of strap iron, the overlapping end portions of which are placed in the slot 2 of the winding spindle and wound therearound so as to secure the binder and at the same time draw it tight about the bale. After the binder has been made secure the tie is applied to the joint by placing the same between the slotted end of the winding spindle 1 and the notched end of the pressure bar 12, the member 17 being placed in line with the winding spindle and in position with its slot 18 in register with the slot 2 of the winding spindle, after which the lever 15 is operated to move the outer end of the pressure bar 11 toward the winding spindle, thereby causing the member 17 of the tie to pass into the space inclosed by the wound ends of the binder and simultaneously with this movement the winding spindle is moved longitudinally and is gradually withdrawn from the wound ends of the binder. After the tie has been properly applied to the binder the machine may be removed from the bale and again applied for securing the next binder, as will be readily understood.

The machine illustrated in Fig. 1 is designed for use in connection with a single binder, but when a number of binders are to be secured at the same time a machine substantially as illustrated in Fig. 4 may be employed, the same comprising a plurality of winding spindles 21, each winding spindle having a spur gear 22 to mesh with a spur gear 23 fastened to a shaft 24 common to the series of winding spindles and adapted to be operated by means of one or more levers 25 having ratchet connection therewith. The shaft 24 is prevented from backward rotation by means of a ratchet wheel 26 secured thereto and a pawl 27 arranged to co-operate with the teeth of the ratchet of said

ratchet wheel. The framework may be of any construction and as shown comprises a bar 28 and a series of U-shaped brackets 29, one bracket being provided for each winding spindle which is mounted therein to receive a combined rotary and longitudinal movement to permit of winding the ends of a binder thereon and stripping the wound ends therefrom when applying the tie. A bar 30 is slidably mounted in the brackets 29 of the frame and is provided with pressure members 31, which terminate about opposite the slotted ends of the winding spindles to exert pressure upon the ties when placing the same in position. A cam lever 32 is arranged to admit of moving the bar 30 longitudinally so as to simultaneously operate the series of pressure members 31. The frame may be secured to the press by means of arms 33 in a manner to admit of swinging the binder securing mechanism out of the way when operating the press and applying the binders.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

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

1. In a machine for securing the overlapping ends of a binder by winding, a winding shaft mounted to receive both a rotary and a longitudinal movement and having an end portion slotted to receive the overlapping ends of the binder, means for imparting a rotary movement to the winding shaft, and independent means for imparting a longitudinal movement to the winding shaft to admit of application of a tie and the stripping of the wound ends of the binder from the winding shaft.

2. In a machine for winding the overlapping ends of a binder, the combination of a winding shaft having an end portion formed with a slot, means for imparting rotary movement to the winding shaft, means for preventing backward rotation of the winding shaft, and means for stripping the wound ends of the binder from the winding shaft.

3. In a machine for winding the overlapping ends of a binder, the combination of a winding shaft mounted to receive a combined rotary and longitudinal movement and

having a slotted end to receive the overlapping ends of the binder, a spring normally exerting a longitudinal pressure upon the winding shaft to hold the same in given position, and a pressure member arranged opposite the slotted end of the winding shaft to receive the tie and apply pressure thereto for forcing the tie into position and at

the same time stripping the wound ends of the binder from the winding shaft.

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

WILLIAM E. MORELAND.

Witnesses:

WALTER ROBERTSON HOWARD,
ROBERT H. MUNG.

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