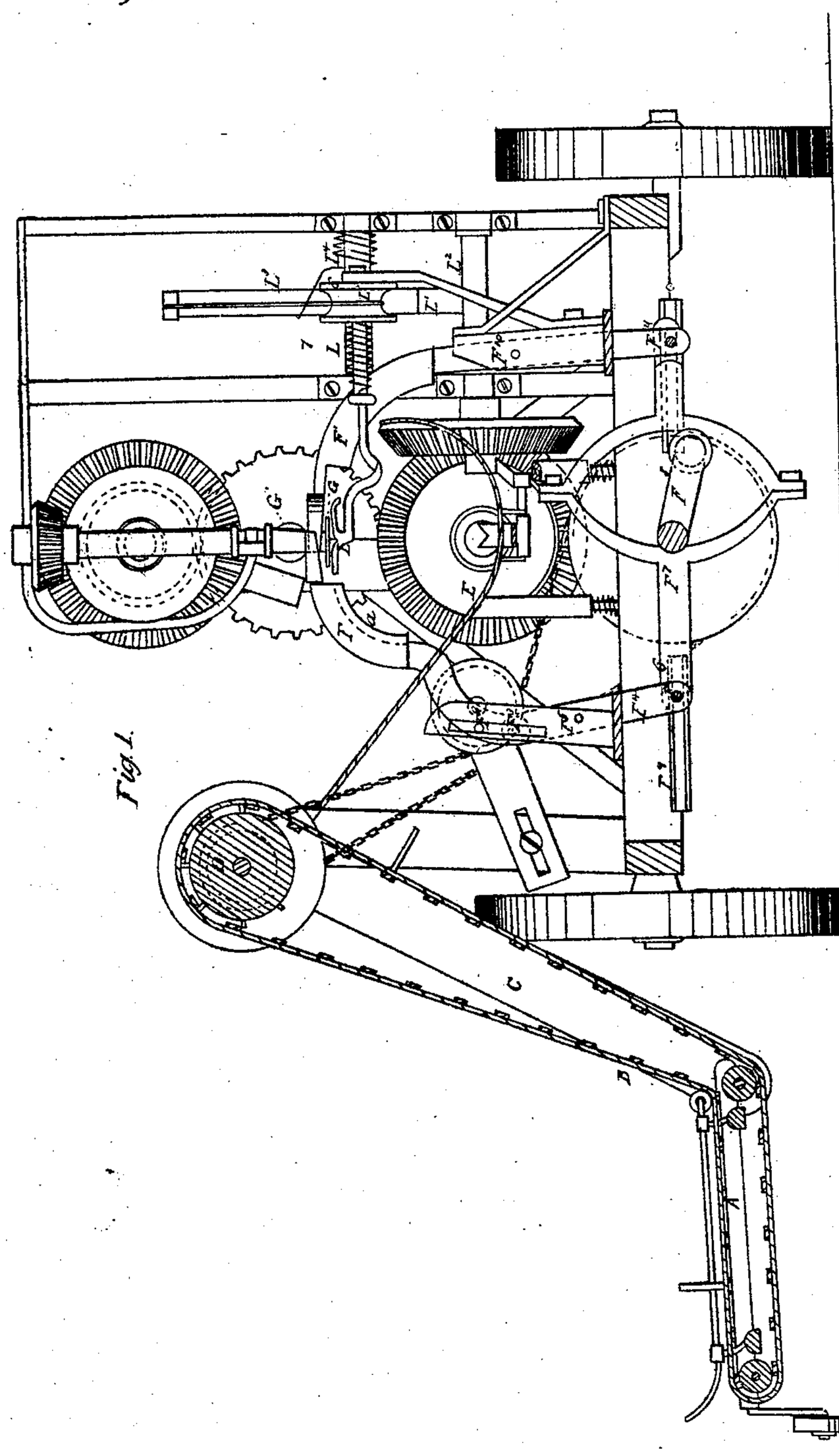
Sheet 1 – 2 Sheets

W. Lottridge.

Grain Binder.

No. 93,458. Patented Aug. 10, 1869.



Witnesses:

John F. Brooks

Wm. H. Clark

Inventor:

W. Lottridge

per Munn & Co

Attorneys

Sheet 2_2 Sheets.

W. Loftridge.

Grain Binder.

No. 93458. Patented Aug. 10 1869.

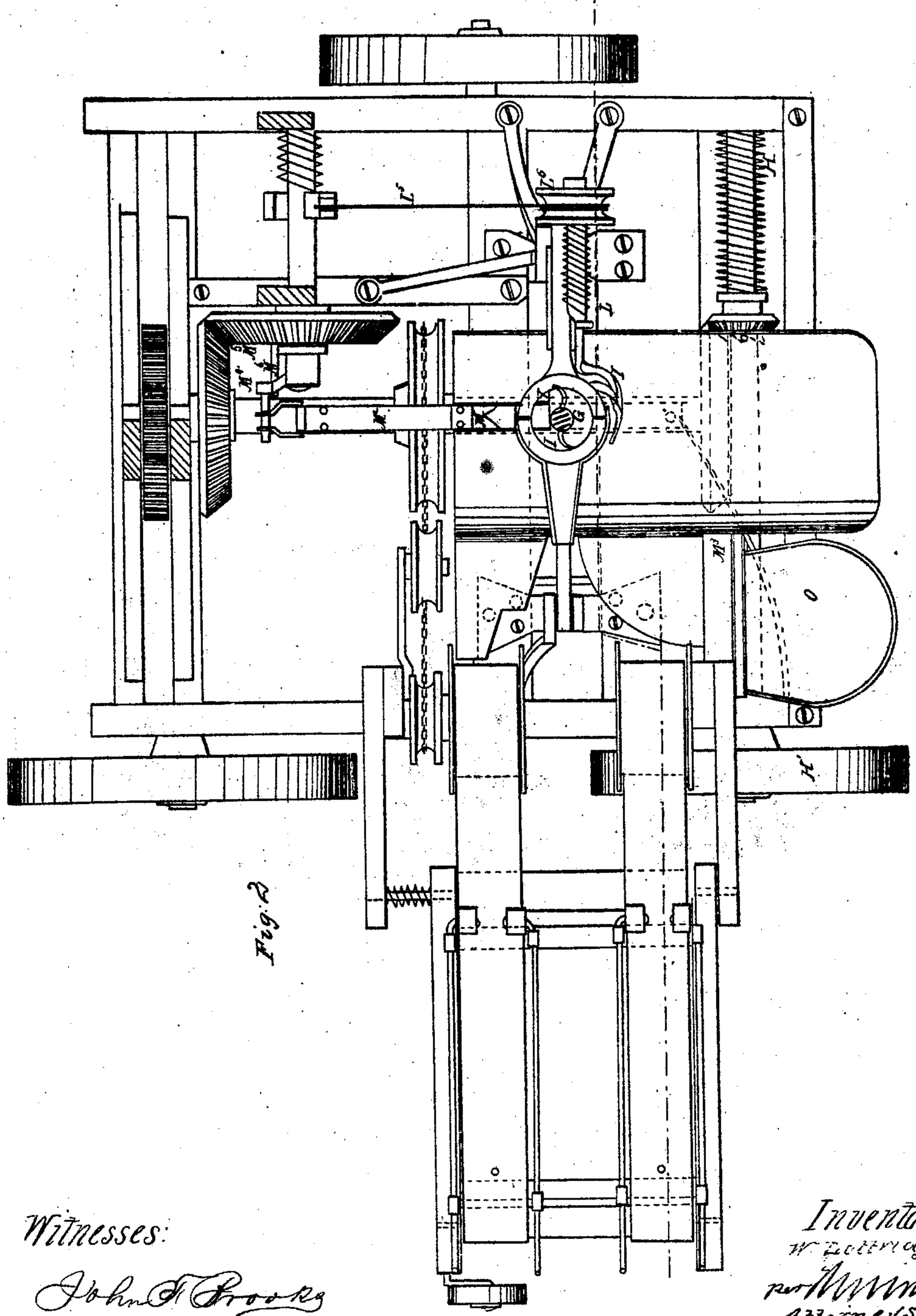


Fig. 2

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UNITED STATES PATENT OFFICE.

WILLIAM LOTTRIDGE, OF CHARLES CITY, IOWA.

IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. **93,458**, dated August 10, 1869.

To all whom it may concern:

Be it known that I, WILLIAM LOTTRIDGE, of Charles City, in the county of Floyd and State of Iowa, have invented a new and Improved Grain-Binder; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in grain-binding machines, the object of which is to provide a machine capable of binding the sheaves with bands of straw, to be made and placed in position by the attendant.

The arrangement of the machine is such that the grain is delivered upon a raking device attached to the side thereof, which conveys the grain in gavels in a lateral direction up an incline and delivers it into a trough, across which a band has been previously placed by the operator, with the ends to be tied around the sheaf in the notched or grooved ends of a pair of curved compressing-jaws, which move up from each side and condense the sheaf between them, and present the said ends of the band to a twister, which twists the ends together, and from which the twisted end of the band is taken and tucked between the band and the sheaf by a tucker, in a manner similar to that practiced when bound by hand. After the tucking is accomplished a discharger actuated by a spring strikes the sheaf at the end and drives it out of the trough, all as hereinafter more fully specified.

Figure 1 represents a transverse sectional elevation of my improved machine, and Fig. 2 represents a horizontal section of the same.

Similar letters of reference indicate corresponding parts.

A represents a laterally-projecting apron, whereon the grain is delivered from the reaping-machine, or by any other means. An endless carrier or raking device, B, working over the said apron and up the incline C, over the roller D, gathers the grain into gavels, and carries it to and delivers it into the trough E, across which a band of straw, previously formed by the operator, who occupies the seat O, has been laid, with the ends in the curved grooves *a* of the vertical griping-jaws F F^1. These jaws are arranged to embrace the grain and condense it into a bundle, and also to present the ends of the band to the twister G. The jaw F is pivoted in slotted bearings at F^2, and jointed at F^3 to a lever, F^4, pivoted at F^5, and connected to the end F^6 of a yoke, F^7, deriving a reciprocating motion from the crank F^8 of the driving-shaft. The said end F^6 of the yoke works in a grooved support, F^9. The jaw F^1 is pivoted at F^{10} to fixed bearings, and jointed at F^{11} to the opposite end of the said yoke, also working in a groove. By this arrangement the griping-jaws are opened and closed by one revolution of the crank-shaft. The said crank-shaft derives motion from the shaft H of the driving-wheel H′ by suitable gear-wheels, so arranged that when the machine is moved backward they cannot rotate the crank-shaft. These griping or condensing jaws are provided with semicircular recesses or grooves I in their upper ends, which meet together around the shaft of the twister G, and hold the ends of the band while they are engaged by the curved arms of the twister, the shaft G′ of which is supported vertically in the axis of the central opening formed by the junction of the ends of the jaws F F^1, so as to suspend the twister immediately below the ends of the jaws. The said twister is kept in constant motion by a system of gear-wheels connecting with the crank-shaft. When the ends of the band have been sufficiently twisted together a crotched tucker, L, located in bearings upon the jaw F^1, so as to be in the right position when the jaws are closed to strike the twisted band immediately below the twister, is set into motion by a tappet, L^1, on a shaft, L^2, constantly moving and deriving motion from the crank-shaft, which tappet strikes the end of a lever, L^3, supported on an axis, L^4, and connected at its opposite end by a cord, L^5, to a pulley, L^6, on the shaft of the said tucker. The said shaft is provided with a retracting-spring, L^7, to restore it to its normal position after having performed the tucking operation, which consists in detaching the said twisted end of the band from the twister and the jaws, and tucking it between the band and the straw of the bundle, in the manner commonly practiced by hand.

After this operation has been performed the final discharging operation is effected in the following manner: A discharger, M, attached to a strap, M^2, connected at one end to a dis-

charging-spring, M^3, and at the other end to a loose crank, M^4, on the shaft of a constantly-revolving wheel, M^5, is retracted by a fixed pin, M^6, projecting from the face of the wheel M^5, which forces the said loose crank in the backward direction until it rises above the axis of the hub, when the discharging-spring will cause the strap to fly forward, carrying the discharger M against the end of the bundle, ejecting it from the mouth of the receiver, a slot being formed in the bottom thereof to allow the discharger to move a sufficient distance for the purpose.

I do not desire to limit myself to the arrangement of the machinery which I have herein shown for actuating the essential elements of my invention, which I consider to be the receiver, griping-jaws, twister, and tucker, when combined and adapted for tying the bands of straws, as other arrangements may be employed with good results for operating these principal elements.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The arrangement of the receiver E, griping or condensing jaws F F^1, twister G, and tucker L, as herein described, for the purpose specified.

2. The discharger M, constructed as described, in combination with the spring M^3, loose crank M^4, pin M^6 on the wheel M^5, and the slotted receiver E, substantially as described, for the purpose specified.

3. The arrangement of the griping-jaws F F^1 with relation to each other, and the lever F^4, yoke F^7, crank F^8, grooved supports, and slotted and fixed bearings, substantially as herein shown and described, for the purpose specified.

4. The arrangement of the twister G G′ with reference to the griping-jaws F F^1 and tucker L, whereby it is adapted to operate in the manner described, for the purpose set forth.

WILLIAM LOTTRIDGE.

Witnesses:
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