C. VAN DERZEE.

MACHINE FOR MAKING BALE-TIES.

No. 184,448. Patented Nov. 14, 1876.

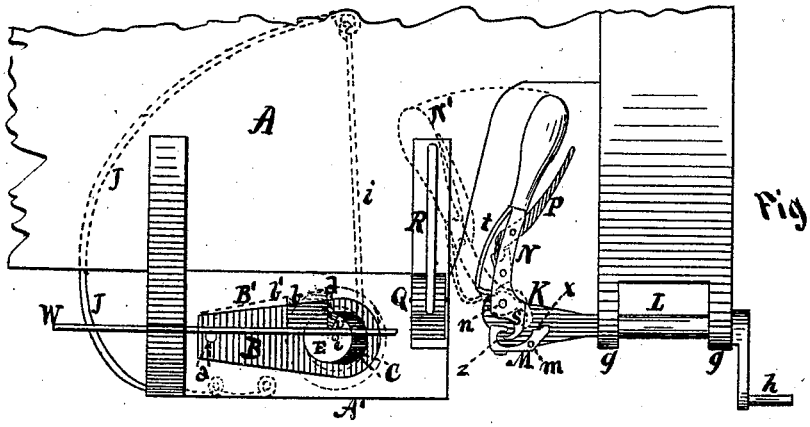

Fig. 1.

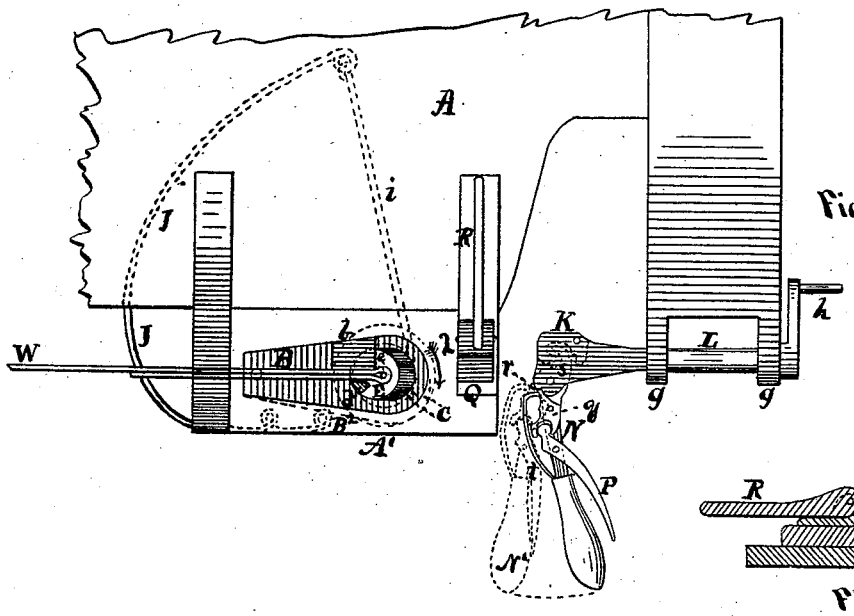

Fig. 2.

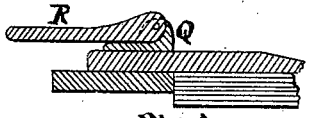

Fig 4.

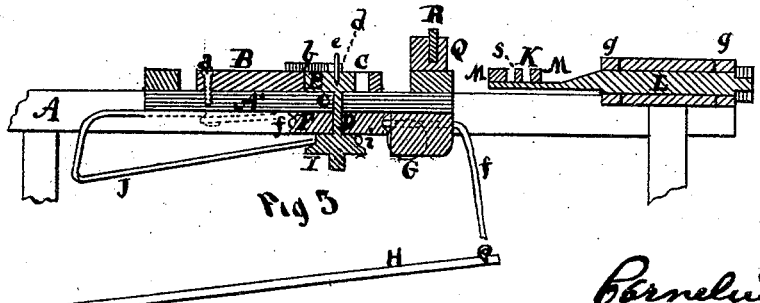

Fig 3

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR MAKING BALE-TIES.

Specification forming part of Letters Patent No. **184,448**, dated November 14, 1876; application filed October 4, 1876.

To all whom it may concern:

Be it known that I, CORNELIUS VAN DERZEE, of the city and county of Albany, and State of New York, have invented certain Improvements in Machines for Forming Hook-Ends of Bale-Ties; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a view, from above, of the machine with the face side of the hook-forming tool presented. Fig. 2 is a view, from above, of the machine with the rear side of the hook-forming tool presented. Fig. 3 is a sectional elevation of the machine, showing the several parts. Fig. 4 is a sectional view of the holding-lever.

My invention relates to a machine for forming double-strand hook-ends of bale-ties; and consists in the several parts and their combinations, hereinafter described.

The object of this invention is to turn the wire for forming a double strand preliminary to the forming of the hook and twisting the neck of the same, and to form the hook-end previous to the twisting of the neck of the same, and then twisting the neck without a removal of the hook from its former, that the said end may be completed when removed from the hook forming and twisting device.

To enable others skilled in the art to make and use my invention, I will proceed to describe it in reference to the drawings and the letters of reference marked thereon, the same letters indicating like parts.

In the drawings, A represents any proper form of table or bench that may be capable of supporting the apparatus. B is the block-carrying piece, pivoted at *a*, and capable of a slight vibration from full lines in Fig. 1 to dotted lines in same, Fig. 2. To the said carrier is secured the block *b* in a firm manner. Made in the carrier B is the oblong opening C. In the table A′, on which the carrier rests, is made the vertical bearing *c*, in which works the shaft D, on the upper end of which is secured the eccentric E, carrying pin *e*, standing vertical, and with the axis of the shaft D, as shown in Fig. 3. Secured to the horizontal face of the eccentric E is the brake *d*. F is a pulley or wheel, secured to the vertical shaft D below the table A′. Attached to the said pulley at some point in its periphery is the cord, band, or chain *f*, which cord is passed, with one turn, around the said pulley over a second pulley, G, to a foot-lever, H, below, which lever, when pressed on, will draw on the said cord, and cause the pulley F to revolve and thereby rotate the shaft D and the eccentric E, and cause the brake *d* to be moved in the direction of arrow in Fig. 2 from position shown in Fig. 1 to that shown in Fig. 2, while the eccentric E will oscillate the carrier B, as the throw of the eccentric moves the carrier to dotted lines B^1, Fig. 1, and subsequently to position of dotted lines B^2, Fig. 2. The strain on the cord *f* being continued, the eccentric will carry the face *v* of the brake *d* against the wire W, and bend the same from the form shown in Fig. 1 to that shown in Fig. 2. There is a second wheel or pulley, I, with cord *i* attached, and capable of being coiled around the said pulley when the cord *f* of pulley F is being pulled on and uncoiled from said pulley. The opposite end of the cord *i* is attached to the end of the spring J, and draws on the same when being coiled around the pulley I, to reverse the movement of the shaft D, carrying the eccentric E.

In operating this part of my invention the wire W is placed in position shown in Fig. 1, and the foot-lever H is pressed down, when the eccentric will be revolved through the means of the cord *f* and pulley F, and the face *v* of the block *d*, carried by the eccentric, will carry the end of the wire projecting past the pin *c* around said pin, and set it parallel with the body of the wire, as shown in Fig. 2. When the lever H is relieved of its pressure, the spring will reverse the operation, and carry the eccentric to its original position for another operation. The double-strand end of the wire being formed, the said end is to be moved forward to the hook-former K, attached to the shaft L, supported in proper bearings *g g*, and provided with a crank, *h*, by which the said hook-former may be revolved. The said hook-former consists, in one part, of a vibrating jaw, M, made with a configuration of

form on its inner surface side *z*, to correspond with the shape of the hook to be formed, and is pivoted to the head of the shaft L at *m*, so as to be capable of a slight vibration in either direction, and in the other part by the lever N, carrying the jaw *s*, and capable of working in the vibrating jaw M, as shown by full lines in Fig. 1, with a space between its surface and the surface *z* of said vibrating jaw equal throughout with the thickness of the wire employed. The said lever is pivoted to the head of the shaft at *n*, and is capable of being thrown from position shown in full lines to that shown by dotted lines in Figs. 1 and 2. Made with the jaw M at its rear end is the gage *x*, against which the end of the loop previously formed is carried, to gage the length of the double wire for forming the hook. On the rear side of the lever N is pivoted the finger-lever P and dog *q*, for operation with the said lever M and the head of the hook-former K, by means of the catch *r*, made in the said head, as shown in Fig. 2. A spring, *t*, secured in a proper manner to the lever M, and bearing against the dog *q*, holds the said dog in the catch *r*. A pressure on the finger-lever P will operate to throw the dog *q* out from the catch *r*, and permit the hand-lever N to be thrown in position N′, (shown by dotted lines in Fig. 1,) when the jaw *s*, carried by said hand-lever, will be thrown from position shown by full lines in same figure to that shown by dotted lines, and permit the hook formed between to be removed. Secured to the table A′ is the holding-block Q, to which is pivoted the holding-lever R, intended to be thrown over the double strand of the hook end of the wire W, and hold the same, as in Fig. 4, while the shaft carrying the hook-former is being revolved to form the twist of the neck of the said hook.

The manner in which the several parts of this machine is to be operated is as follows: The wire W is placed against the block *v* with its end projecting to or near the end of the carrier B, when the foot-lever H is to be pressed down, so as to cause the cord *f* to revolve the eccentric E through the pulley F, and thereby carry the brake *d* against the portion of the wire projecting past the central pin *e*, and bend it around said pin until the said end will be made to lie parallel with the body of the wire bearing against the block *b*, the movement of the carrier to dotted lines in Fig. 1, and thence to dotted lines in Fig. 2, with the brake *d* pressing the double strands, as shown in Fig. 1. The double-strand wire thus formed is then shoved forward with its turned end against the gage *x*, the lever N having been previously thrown to position of N′ in Fig. 1. The hand-lever N is then thrown back to position of full lines in Fig. 1, and the lever R is thrown down over the double strand of the wire on the block Q, and there held by the operator by one of his hands, when the crank *h* is operated, and the shaft L, with its head carrying the several parts of the hook-former, is revolved to twist the double strands and form the neck of the hook. When the said neck is properly twisted, the lever P is pressed against the handle of the lever N, which throws the dog *q* from the catch *r*, and permits the lever N to be thrown to position N′, when the hook-forming jaws M and S open, and permit the completed hook to be removed.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The eccentric E, carrying pin *e* and brake *d*, in combination with the pivoted carrier B, carrying the block *b* and mechanical device for operating said eccentric, substantially as and for the purpose set forth.

2. The combination, with the vibrating jaw M, of the lever N, carrying the jaw *s*, substantially as and for the purpose set forth.

3. The combination, with the lever N, carrying the jaw *s*, operating with the vibrating jaw M, of the finger-lever P, dog *q*, and catch *r*, substantially as and for the purpose set forth.

4. The combination, with the shaft L, provided with crank *h*, and carrying the vibrating jaw M, and the jaw *s*, carried by lever N, of the block Q and lever R, substantially as and for the purpose set forth.

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Witnesses:
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