J. N. SMITH.

Devices for Forming and Fastening Bale-Ties.

No. 157,354. Patented Dec. 1, 1874.

Fig. 1.

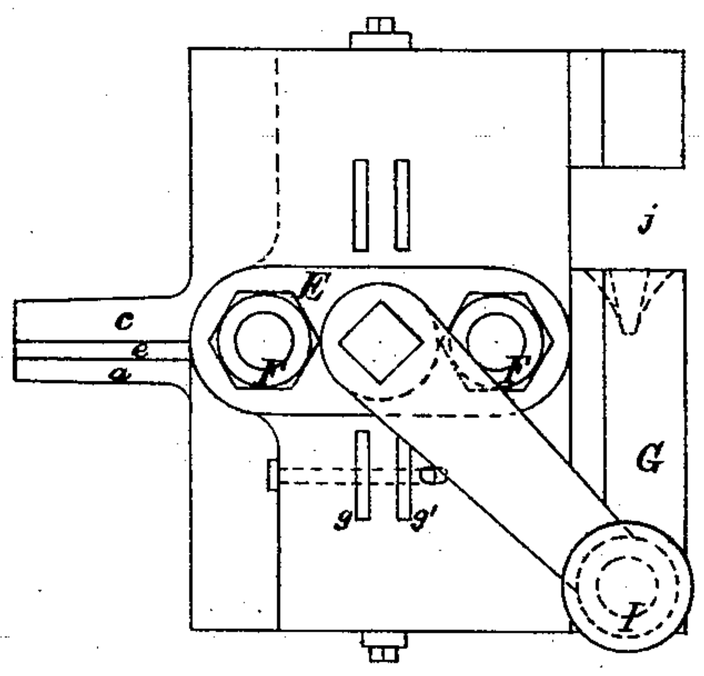

Fig. 4.

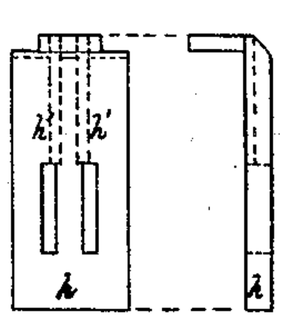

Fig. 6.

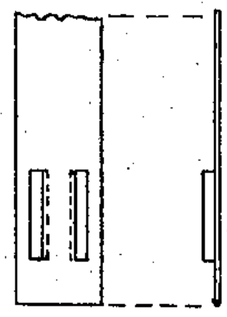

Fig. 5.

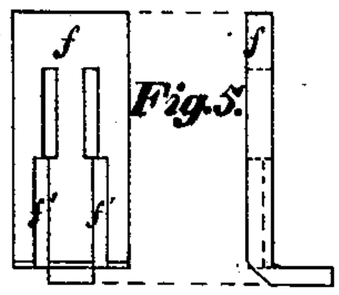

Fig. 7.

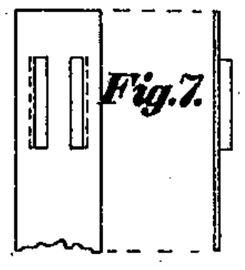

Fig. 8.

Fig. 9.

Fig. 2.

Fig. 3.

Witnesses:
P. W. Weston.
Ma L. Henry.

J. Nottingham Smith
By H. James Weston
Atty.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

J. NOTTINGHAM SMITH, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN DEVICES FOR FORMING AND FASTENING BALE-TIES.

Specification forming part of Letters Patent No. **157,354**, dated December 1, 1874; application filed October 19, 1874.

To all whom it may concern:

Be it known that I, J. NOTTINGHAM SMITH, of Jersey City, in the county of Hudson and State of New Jersey, have invented a certain Machine for Forming and Applying Bale-Ties, of which the following is a specification:

My invention relates to a small, compact, and portable machine or tool for cutting, piercing, and locking together the ends of the straps or bands, commonly used on cotton and other bales for securing the contents thereof, whereby a strong, simple, and effective bale-tie is formed and applied without the use of any buckle or other extra piece of metal.

My said invention consists in the combination of the devices for performing the various operations involved in fitting and securing the band to the bale in a single machine or tool, so arranged as to be readily applied and used, and of such size and shape that it may be conveniently carried in and operated by the hand.

In the accompanying drawings, which illustrate my invention, Figure 1 is a plan of the machine or tool. Fig. 2 is an end elevation of the same. Fig. 3 is a side elevation of the same. Fig. 4 shows a top and an edge view of one of the dies used for perforating and forming tongues on the end of the strap or band. Fig. 5 shows similar views of the die used for the same purpose on the other end of the said strap or band. Fig. 6 shows a top and an edge view of the end of the band after it has been operated upon by the die (shown in Fig. 4) and the corresponding punches. Fig. 7 shows similar views of the other end of the band after it has been operated upon by the die (shown in Fig. 5) and its corresponding punches. Fig. 8 shows a top and an end view of one of the closing-dies. Fig. 9 shows the bottom and an end view of the other closing-die.

The body of the machine or tool consists of a plate or bed, A, in which are rigidly set two upright guide-rods, B B. On these guide-rods the gate or slide C works freely up and down, being driven by the screw D. This screw finds its bearing in the bar E, which is secured to the guide-rods B B by the nuts F F. A projection, *a*, from one side of the bed A, has one blade, *b*, of a pair of shears bolted to it, and a similar projection, *c*, from the slide C carries the other blade *e* of these shears, which are used to cut the band or strap to the proper length. The die *f*, Fig. 5, is inserted in a hole or slot in the plate A, as shown in Fig. 2; and two wedge-shaped punches or counter-dies, *g g'*, are secured in the slide C, so as to work in conjunction with said die *f*, and form holes and tongues in the strap, as seen in Fig. 7. Slots *f' f'* in the die *f* permit the tongues on the strap to pass out of the die, and out of the slot or hole in the bed A. The die *h* is similarly inserted in a hole or slot in the slide C, and the corresponding or counter-punches *i i'* are secured in the plate A. These latter punches and their die *h* operate together to produce the holes and tongues in the end of the strap, as shown in Fig. 6, and slots *h' h'* permit the withdrawal of the strap after the tongues are formed. On the side of the tool opposite to the shears two flanges, G and H, are formed, one, G, being attached to, or forming part of, the slide C, and the other, H, being attached to, or forming part of, the plate A. These flanges are each divided into two parts by the slot or opening at *j*. At the inner end of one of these parts the dies shown in Figs. 8 and 9 are formed, Fig. 8 showing the top and an end view of the lower die, and Fig. 9 the bottom and an end view of the upper die.

The operation of the tool is as follows: The strap or band being placed around the bale, and its proper length marked, one end is inserted between the blades *b e* of the shears and cut-off. The two ends of the strap are then inserted, the one into the hole or slot in the plate A, in which the die *f* is secured, and the other in the hole or slot in the slide C, in which the die *h* is secured, and the slide C being operated by the handle I and screw D, the two ends of the strap are cut and formed as shown in Figs. 6 and 7. The slide is next raised, and the two ends of the strap are brought into the opening *j*, and the tongues on Fig. 6 placed in the holes in Fig. 7, and the tongues on Fig. 7 placed in the holes in Fig. 6. By bringing the dies G H nearly together, then drawing the lap partly between

them and closing the dies, and repeating this operation, the die, Fig. 8, will spread and bend the tongues on Fig. 7 outward; and the die, Fig. 9, will bend the tongues on Fig. 6 inward, and thus the strap will be firmly locked together. The plane part of the dies G H may then be used to give a finishing pressure and "set" to the joint or tie.

I claim as my invention—

The combination of the shears *b e*, the dies *f h*, and punches *g g' i i'*, and the dies G H, the whole forming a single machine or tool, whereby a strap may be rapidly prepared, fitted, and tied on the bale without removing either it or the tool, substantially in the manner hereinabove set forth.

J. NOTTINGHAM SMITH.

Witnesses:

J. F. McGEE,

J. R. BAKER.