S. N. DRAKE.

MANUFACTURE OF BALE-TIES.

No. 183,382. Patented Oct. 17, 1876.

Fig. 1

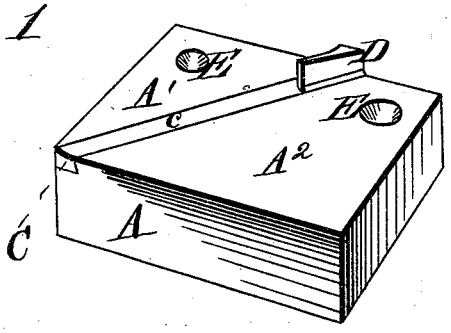


Fig. 3.

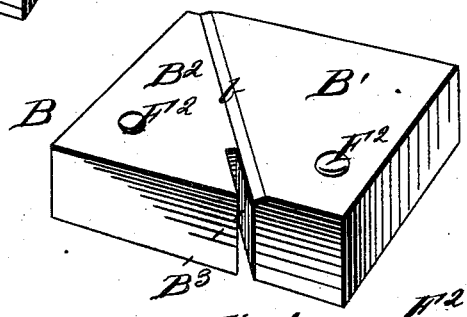


Fig. 2

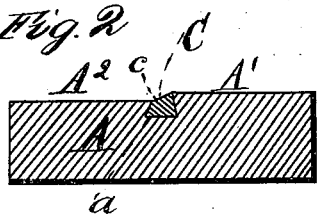


Fig. 5.

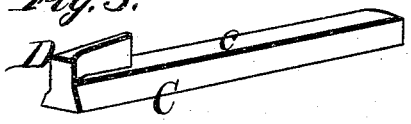


Fig. 4.

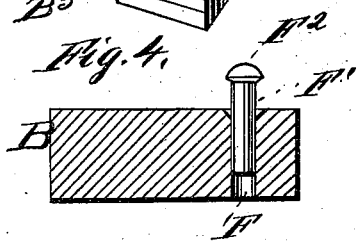


Fig. 6.

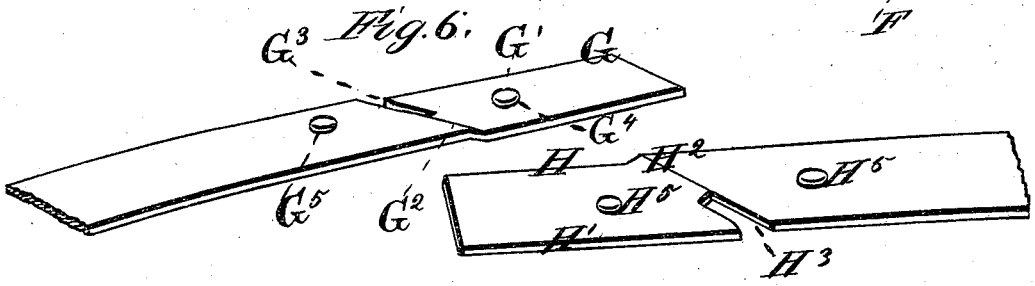
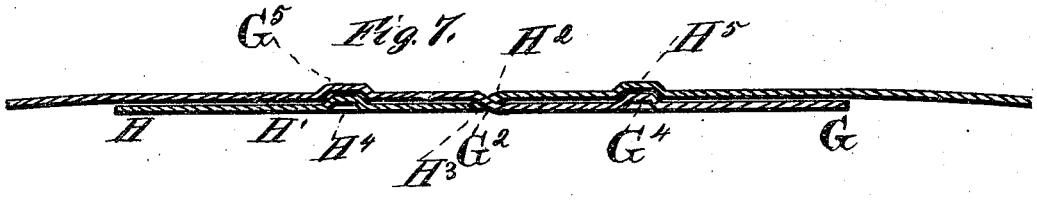


Fig. 7.



WITNESSES

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UNITED STATES PATENT OFFICE.

SIMEON N. DRAKE, OF NEW ORLEANS, LOUISIANA, ASSIGNOR OF ONE-FOURTH HIS RIGHT TO WILLIAM W. TOTTEN, OF NASHVILLE, TENN.

IMPROVEMENT IN THE MANUFACTURE OF BALE-TIES.

Specification forming part of Letters Patent No. **183,382**, dated October 17, 1876; application filed August 26, 1876.

To all whom it may concern:

Be it known that I, SIMEON N. DRAKE, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and valuable Improvement in the Manufacture of Bale-Ties; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a perspective view of the upper die, and Fig. 2 is a transverse vertical section. Fig. 3 is a perspective view of the lower die, and Fig. 4 is a transverse vertical sectional view thereof. Fig. 5 is a detail view, and Fig. 6 is a perspective view of my bale-tie, and Fig. 7 is a longitudinal vertical sectional view of the same.

The nature of this invention consists in improved dies for the manufacture of bale-ties; and it also consists in the novel construction of an improved bale-tie, as will be hereinafter more fully set forth and pointed out in the claims.

In the annexed drawings, A, Figs. 1 and 2, designates the upper die of a pair of dies used for manufacturing cotton-bale ties. B, Fig. 3, designates the lower die of the same pair. Die A is provided on its operating-face with a raised portion or shoulder, A^1, and a depressed portion, A^2. These parts A^1 and A^2 are separated by an oblique channel or groove, *a*, which extends across the face of said die from side to side. In said oblique groove is dovetailed a detachable metal strip, blade, or bar, C, provided with a beveled surface, *c*, which forms an incline from the raised part A^1 of the die to the lower part A^2. It is also provided near one end with a raised blade or biting-flange, D, which is straight on one side and curved on the other. Said die A is also provided with concave depressions E E, one of which is in the lower part A^2, and one upon the upper or raised part A^1 of said die. The lower die B is constructed with a raised portion, B^1, corresponding to the lower portion A^2 of upper die A, and with a depressed portion, B^2, corresponding to the raised portion A^1 of said die A. These two parts B^1 B^2 are separated by a longitudinally oblique incline, *b*, which corresponds to the beveled surface *c* of detachable bar or blade C. Near one end of said longitudinally-oblique incline *b*, at the bottom thereof, and in line therewith, is a slot, B^3, corresponding to the raised blade or biting-flange D on bar C. Said slot extends through die B, from face to face, and out to the nearer side thereof. Said die B is also provided with cylindrical perforations F F, in which set cylindrical pins F^1 F^1, having convex heads F^2 F^2, that correspond to the concavities E E in the upper die A.

The process or method of using said dies A and B for the manufacture of my improved bale-tie consists simply in securing said dies in any suitable stamping apparatus, the lower one being preferably stationary, and the upper one movable vertically, and stamping an ordinary flat metal bale-tie between them, said tie being laid so that the blade or biting-flange D will cut through said tie at one of its edges.

Fig. 6 shows, respectively, ends G and H of my improved bale-tie, constructed as above described. Said tie is provided at its end G with a depressed portion, G^1, and a beveled surface, G^2, leading thereto, and extending from one edge of said bale-tie obliquely backward toward the other. From the inner end of said incline extends a slot, G^3, in line therewith, to the other edge of said tie. The side of said slot which is the nearer to the end of said tie is slightly curved at the outer edge to facilitate fastening, as hereinafter described; and for the same purpose the said side of said slot is lower than the other side of said slot. Beveled surface G^2 and slot G^3 are produced by the action of the surface *c* and biting-flange D on blade or bar C, and the action of incline *b* and slot B^3 in die B. There is, therefore, opposite beveled surface G^2 a corresponding incline or bevel on the opposite face of said tie. In other words, said tie is obliquely struck up at this point. G^4 G^5 are concavo-convex "spuds," struck up on the said tie by the action of concavities E E and convex heads F^2 F^2. Said spuds or hollow studs G^4 G^5 are convex on the upper side and concave

on the lower one. End H is similarly constructed, as hereafter described.

Fig. 7 shows the manner of attaching the ends of said bale-tie. In this figure, G indicates one end, having the parts above described, and H indicates the other end, having a depressed part, H^1, slot H^3, bevel H^2, and spuds H^4 H^5, all corresponding respectively to the complementary parts already described as pertaining to end G.

The attachment is effected as follows: The ends G H are brought side by side, with the outer ends of slots G^3 H^3 opposite one another or connecting. Said ends G H are then moved sidewise obliquely toward one another, until the upper edge of slot H^3 lies against bevel or incline G^2, touching the whole length thereof, and the upper edge of slot G^3 touches the whole length of bevel or incline H^2. The convex upper side of spud G^5, which is on the lower part G^1 of bale-tie end G, then enters the concave under side of spud or hollow stud H^4, which is on the upper or undepressed part of bale-tie end H; and the convex upper side of spud H^5, which is on the lower part H^1 of bale-tie end H, enters the concave under side of spud or hollow stud G^4, which is on the upper or undepressed part of bale-tie end G. This interlocking of spuds G^5 and H^4 and G^4 and H^5 effectually rivets the device and relieves the inclined parts G^2 and H^2 of a part of the strain that would otherwise come upon them.

The tie produced by the above-described construction is very effectual, as an increase in the strain only causes the interlocking of said slots and bevels to become more complete. The size of the operative part of said bale-tie may be adjusted by increasing the number of said slots and inclines in each end of said tie. This may be accomplished by using at the same time several pairs of dies A and B, or by using said pair of dies several times over. When the fastening is complete its surface is almost plane and unbroken, while the ends below occupy very little space. Although effectually secured against casual detachment, said bale-tie is easily unfastened by reversing the fastening process already described. The relative positions of dies A and B may be reversed. The number of concavities E and convex-headed pins F^1 may also be increased. This will increase the number of concavo-convex spuds or studs in the bale-tie, and make its attachment much more secure. The object of making the perforations F extend through to the back of the die is to enable the pins F^1 to be displaced by simple pressure on their outer ends. This is useful whenever their convex heads F^2 have been worn out of proper shape by long use, and also in other cases. By making blade or bar C detachable, as described, a similar advantage is gained. Also, blades or bars of different sizes and shapes may be substituted for one another. The dovetail connection, with block or die A, prevents any accidental detachment of said blade or bar C. Said dies are, preferably, constructed of cast-iron, and said blade or bar C and pins F^1 of steel, but any other suitable materials may be substituted for any or all of them. The shape of said convexities F^2 and concavities E may also be varied at will, provided they remain capable of accomplishing the object designed. Thus they may be conical, pyramidal, or of any one of numerous other shapes. Of course the concavo-convex spuds or hollow studs on the bale-tie will be correspondingly changed. Various other modifications may be made in the devices described without departing from the spirit and scope of my invention.

The above-described bale-tie may also be applied as a hoop for barrels, kegs, casks, or other receptacles for liquids or other substances. It will be found useful as a fastening-band for aiding in retaining anything which has a tendency to expand or escape.

What I claim as new, and desire to secure by Letters Patent, is—

1. A die, A, having raised biting-flange D and concavities E E, in combination with a die-surface having a slot, B^3, and convex heads F^2, substantially as and for the purpose set forth.

2. The combination of die A, having bar C, oblique bevel *c*, biting-flange D, and concavities E E, with die B, having longitudinally-oblique bevel *b*, slot B^3, and convex heads F^2, substantially as set forth.

3. A bale-tie having depressed portion G^1, slot G^3, and spuds G^4 G^5 upon one end, and corresponding depressed portion H^1, slot H^3, and spuds H^4 H^5 on the other end, substantially as and for the purpose set forth.

4. A bale-tie having depressed portion G^1, oblique bevel G^2, slot G^3, and spuds G^4 G^5 upon one end, and corresponding depressed portion H^1, oblique bevel H^2, slot H^3, and spuds H^4 H^5 on the other end, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

SIMEON N. DRAKE.

Witnesses:

JOHN F. ACKER, Jr.,

GEORGE E. UPHAM.