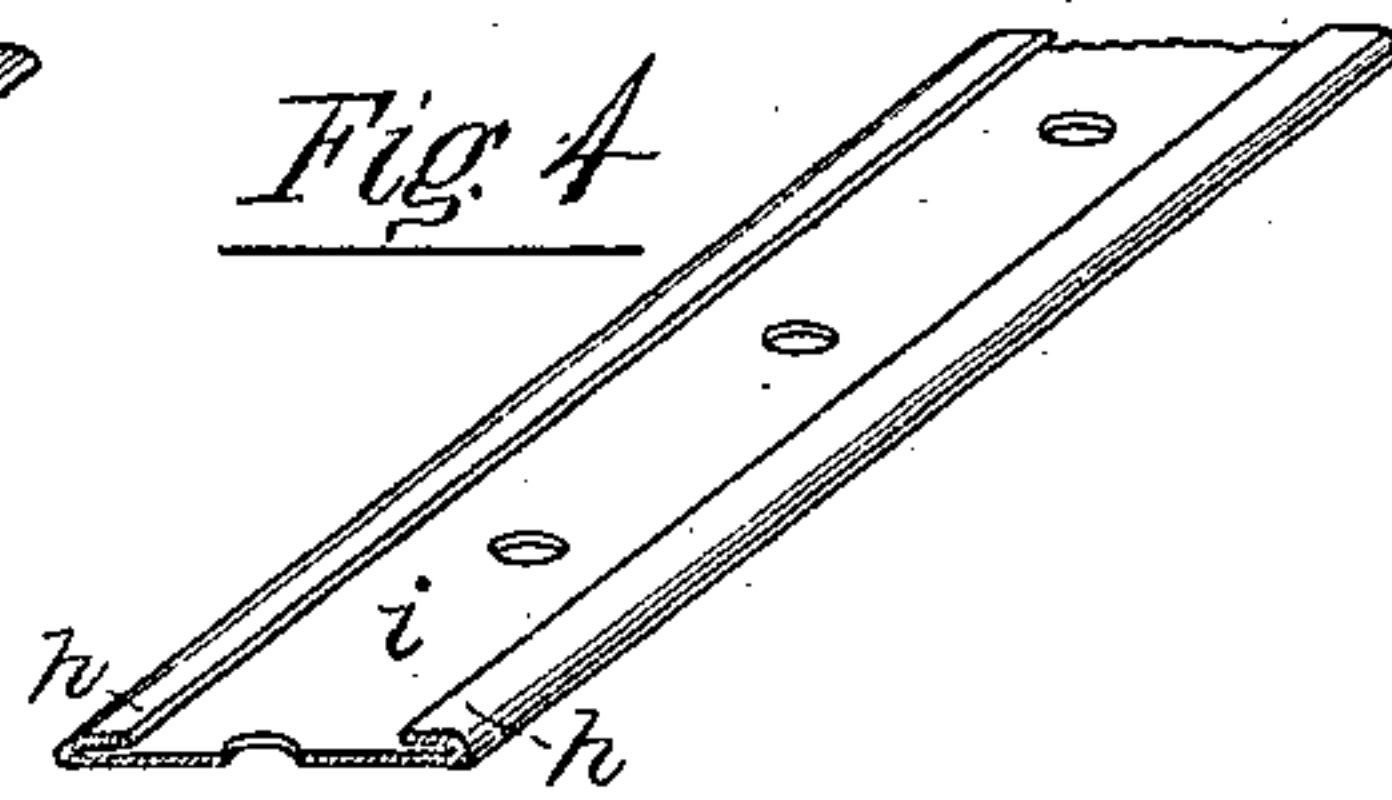
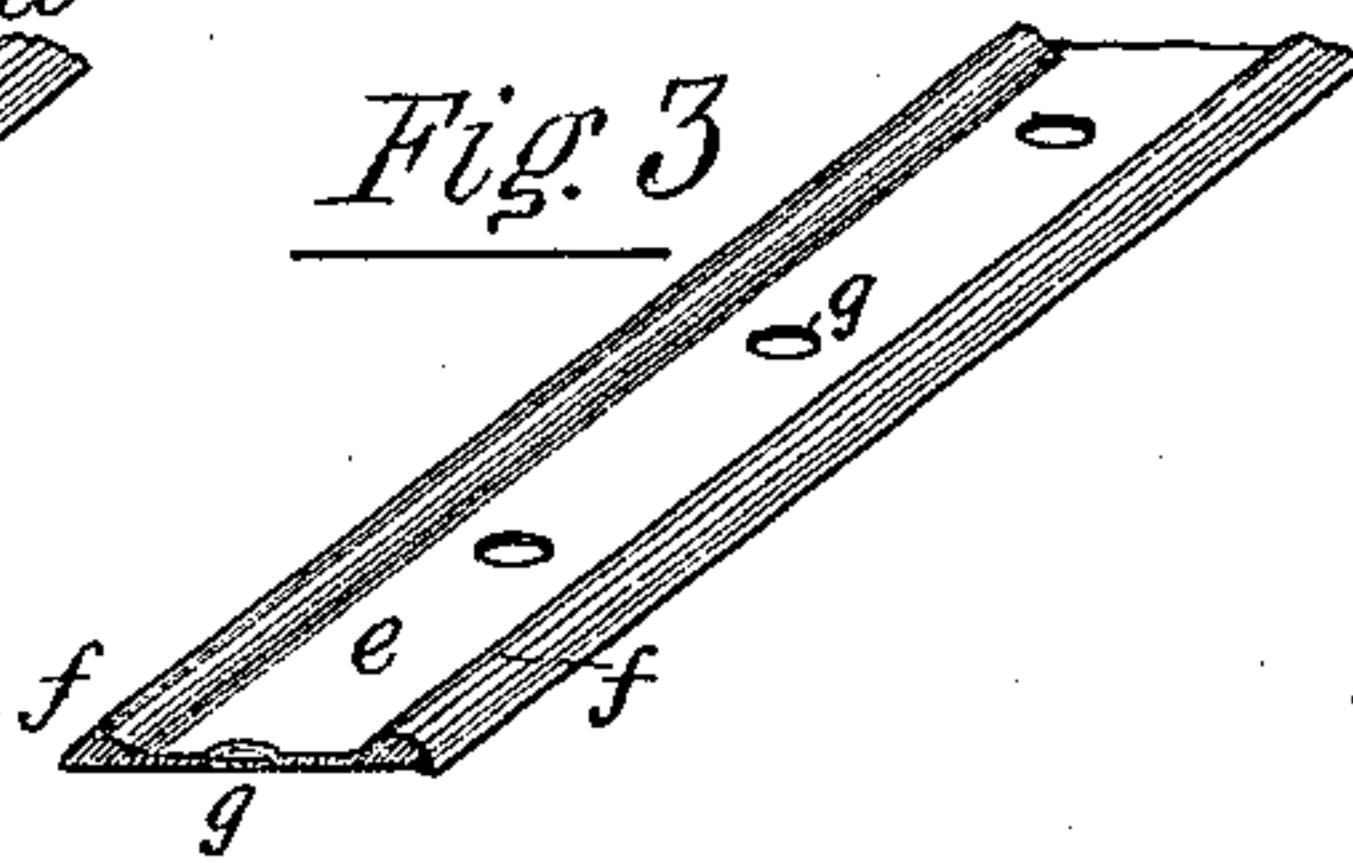
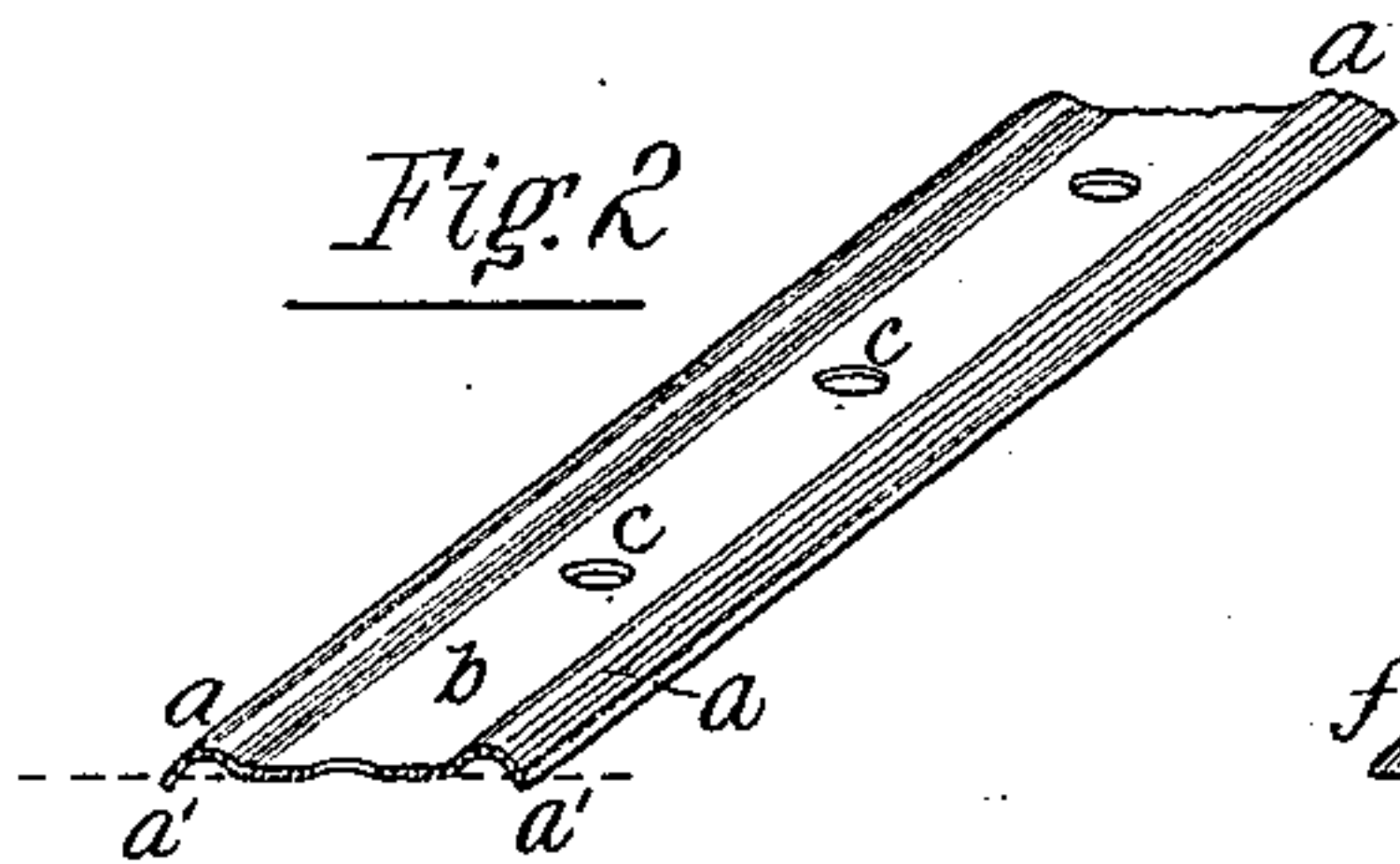
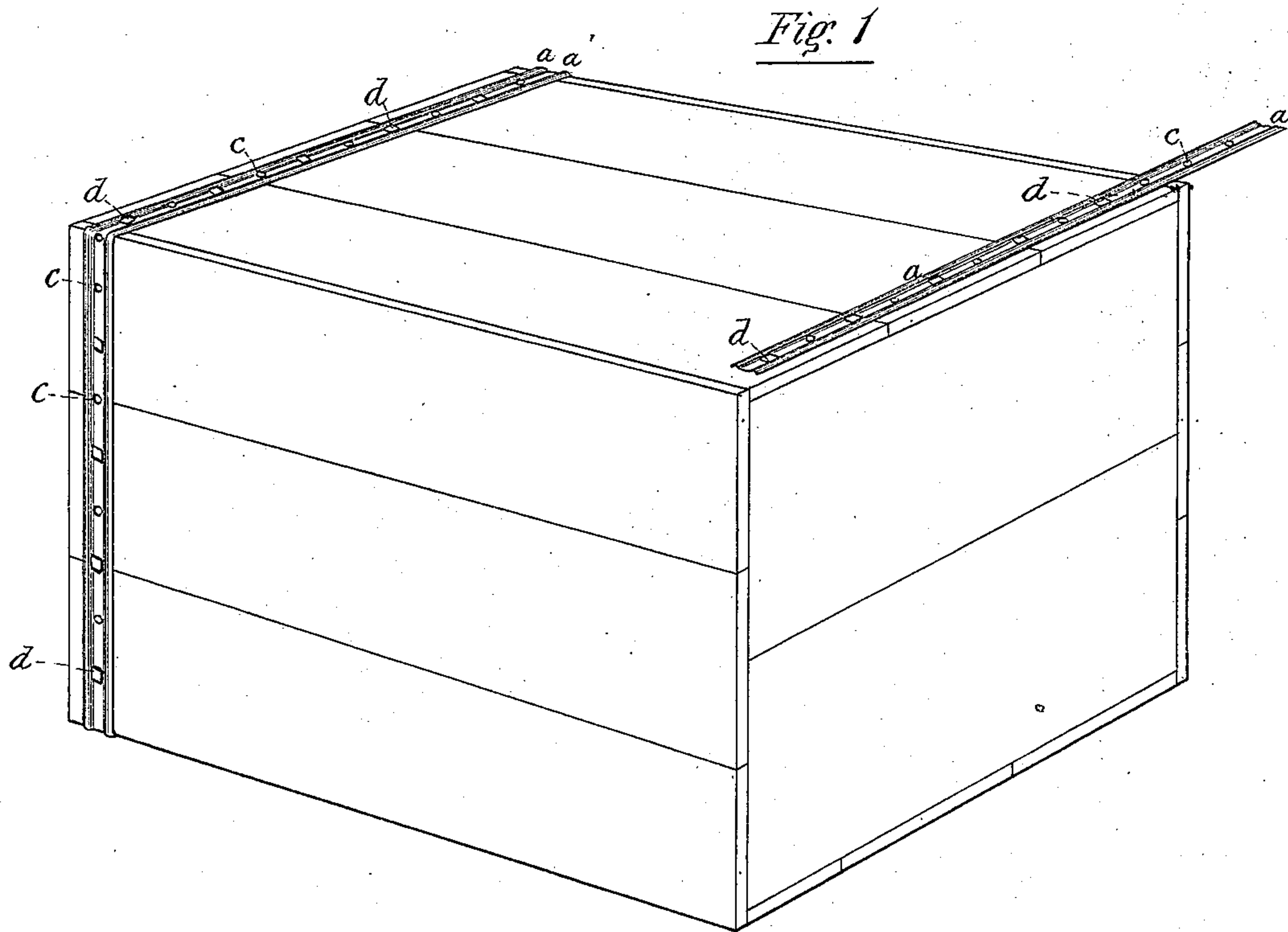


(No Model.)

H. FRANK.
BOX STRAP.

No. 332,795.

Patented Dec. 22, 1885.



Witnesses

H. D. Williams
James M. Parusworth

Heiman Frank.

Inventor

per Alfred Sheddlock
att'y.

UNITED STATES PATENT OFFICE.

HIMAN FRANK, OF NEW YORK, N. Y.

BOX-STRAP.

SPECIFICATION forming part of Letters Patent No. 332,795, dated December 22, 1885.

Application filed August 1, 1885. Serial No. 173,218. (No model.)

To all whom it may concern:

Be it known that I, HIMAN FRANK, a citizen of the United States, residing at New York, county and State of New York, have invented certain new and useful Improvements in Box-Straps, of which the following is a specification.

This invention has for its object to improve metal-band box-straps to avoid all difficulty in applying the same, and to remove all objections to their use due to the buckling or curving upward of the straps between the places through which the nails are passed. These buckled or curved parts of the straps prevent proper binding and holding functions being performed by them, and cause loosening of the nails by pressure or blows thereon when the cases or boxes so strapped are in transit or being handled.

In devising a box-strap which is free from these objectionable features, my invention consists, primarily, in strengthening or stiffening the edges of the straps by longitudinal ridges or corrugations, leaving or forming the central longitudinal web, through which the holding-nails are driven, lighter or more pliable than the outer exposed edges, thus producing a strap whose edges will in all cases lie in close and intimate contact with the case or box to which it is applied; and to further insure this close contact of the edges of the strap and the case or box the edges may be so formed as to project or extend below the bottom of the central web, so as to enter or cut somewhat into the article to which it is applied. Said longitudinal strengthening or stiffening ridges by projecting above the top of the central web fully protect the heads of the nails and form more bearing-surfaces or points of contact between the boxes and the floor or resting-place or the boxes themselves when piled. The heads of the holding-nails of ordinary flat metal box-straps, being above the bands and box, do considerable damage by abrasion, and the nails often become loosened from this cause. But to describe my invention more particularly, I will now refer to the accompanying drawings, in which—

Figure 1 represents a box or case with box-straps made according to my invention applied thereto. Fig. 2 is a perspective view of part of a box-strap composed of a metal band, with

the stiffening-ridges formed by longitudinal corrugations on its edges. Fig. 3 shows part of a band having the stiffening-ridges on its edges and the thin central web formed during the process of making the same; and Fig. 4 shows another modification, in which the strap is composed of a flat band stiffened by folding over its edges longitudinally onto itself.

Box-straps embodying my invention may be made as shown at Fig. 2, which is formed by taking a flat metal band and corrugating the edges longitudinally, as at *a a*, by passing it through suitably-formed rollers, or by other suitable means, leaving the central longitudinal web, *b*, flat. In making a box-strap in this manner I prefer to form the holes *c c* for the reception of the holding-nails at short intervals throughout its length, thus saving considerable time in applying the strap, such holes being now generally made by means of a punch when the straps are applied. These previously-formed holes may be made at the time the stiffening-ridges *a a* are corrugated, so that no extra expense is incurred thereby. Instead of corrugating a flat band, as described, the metal of which the strap is made may be rolled directly into the form shown at Fig. 2.

Such box-straps are applied to cases or boxes in the usual manner, as shown at Fig. 1, in which one strap is fully and another one partly applied, and by reason of the stiffening-ridges *a a* no buckling or curving of the strap occurs between the holding-nails *d d*, the edges of the strap lying close to the case or box, so that the exposure of rough edges, as occurs with ordinary flat metal bands, is entirely avoided; and to further insure this protection of the edges and entirely prevent their catching into any other articles in contact with the cases or boxes, I so form the corrugated ridges *a a* that the extreme edges *a' a'* extend below the bottom of the central web, *b*, so that they enter into the cases or boxes when applied thereto.

Another way of making box-straps embodying the novel features of my invention is, by means of suitable rollers, forming the band with a thin central web, *e*, and heavy raised edges *f f*, as shown at Fig. 3, and the extreme edges may be turned down below the bottom of the band, as shown at the right-hand side of

the drawings, for the object before set forth. Bands so made may be of any length and subsequently cut into suitable lengths for box-straps, and during the process of rolling the indentations *g g*, extending nearly through the center of the web *e*, may be made at short intervals in the center of the web, said indentations *g g* being sufficiently deep to permit driving the holding-nails directly through the thin web left at the bottom of them, thus obviating the necessity for using a punch to puncture the straps before the nails are applied, as now done. These indentations may also be formed in the strap shown at Fig. 2; or, instead of the indentations, the whole of the central web or its longitudinal central part may be made sufficiently thin to permit the nails being driven through it.

Fig. 4 shows another method of strengthening box-straps, by which they may be made stiffer, to prevent buckling or curving between the holding-nails, and as a protection for the nail-heads, which consists in throwing over the edges *h h* of a metal band onto itself, leaving the central web, *i*, of the thickness of the band.

In all of these forms of box-straps a much stronger and stiffer article than an ordinary flat metal-band strap is produced for a given weight per equal length, and in making a strap according to my invention of a strength equal to that of an ordinary flat metal-band

strap a considerable saving in weight of metal is had.

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

1. A box-strap composed of a metal band having longitudinal stiffening-ridges along its edges, substantially as and for the purpose set forth.

2. A box-strap composed of a metal band provided with longitudinal stiffening-ridges and having its extreme edges bent or formed to project beyond its under side, substantially as and for the purpose set forth.

3. A metal-band box-strap composed of a thin central web and longitudinal ridges raised above the top of the web along its edges, substantially as and for the purpose set forth.

4. A metal-band box-strap composed of a thin central web and longitudinal ridges raised above the top of the web along its edges, and having indentations formed at intervals in the central web, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand, at New York, county and State of New York, this 30th day of July, 1885.

HIMAN FRANK.

Witnesses:

H. D. WILLIAMS,
ALFRED SHEDLOCK.