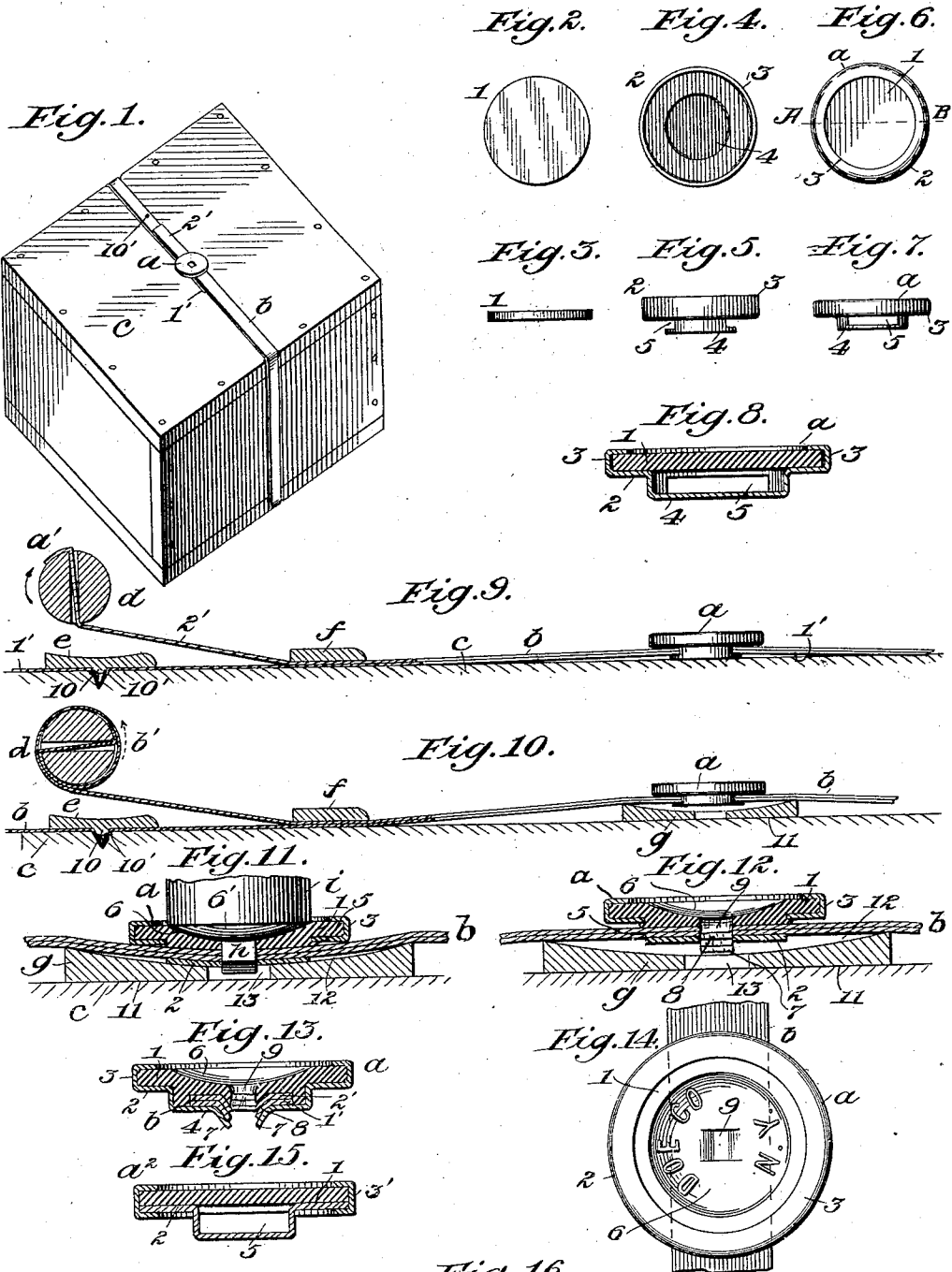


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BOX SEAL.
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UNITED STATES PATENT OFFICE.

EDWARD J. BROOKS, OF EAST ORANGE, NEW JERSEY.

BOX-SEAL.

940,505.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD J. BROOKS, a citizen of the United States of America, and a resident of East Orange, in the State of New Jersey, have invented a new and useful Improvement in Box-Seals, of which the following is a specification.

This invention relates to the combination of metallic seal parts and box straps as means for sealing wooden packing cases or boxes so as to insure the detection of any opening thereof for the abstraction of the contents or of any tampering therewith.

It relates especially to "nailless" box seals, examples of which are set forth in my previous specifications forming part of United States Letters Patent Nos. 925,450 and 925,451, dated June 22, 1909, and No. 927,217 dated July 6, 1909.

A preferred "box strap tool" for tightening the box straps preliminary to sealing them under tension, is set forth in my previous specification forming part of United States Letters Patent No. 925,990, dated June 22, 1909, and a preferred seal press for press fastening such box straps and seals without even indenting the subjacent surface of the box is set forth in my companion specification forming part of an application for United States Letters Patent, Serial No. 494,441, filed May 6, 1909 (Letters Patent No. 932,438, dated August 31, 1909.)

The present invention consists in certain novel combinations of parts, embodied respectively in a press-fastened nailless box seal and in its seal part, as hereinafter particularly described and claimed; and the leading objects of this invention are to increase the security of the seal; to provide for readily stamping the seal part with distinguishing marks at the press fastening operation, and to protect such marks against obliteration or defacement.

Other objects will be set forth in the general description which follows:

A sheet of drawings accompanies this specification as part thereof.

Figure 1 is a perspective view of a box sealed according to the present invention; Figs. 2 and 3 are respectively face and edge views of the distinguishing soft-metal member of the improved seal part; Figs. 4 and 5 are like views of the sheet-metal member of one species of the same; Figs. 6 and 7 are like views of this seal part as it leaves the factory; Fig. 8 represents a magnified cross

section on the line A—B, Fig. 6; Figs. 9 and 10 are sectional edge views illustrating the sealing operation; Figs. 11 and 12 are sectional views on the same scale as Fig. 8, further illustrating the sealing operation, and showing the seal part in section; Fig. 13 represents a cross section through the press fastened seal part and box-strap ends; Fig. 14 is a face view corresponding with Fig. 13; and Figs. 15 and 16 are sectional edge views illustrating a modification of the seal part.

Like reference characters refer to like parts in all the figures.

In carrying this invention into effect a metallic seal part, a or a^2 , and a metallic box strap, b , are employed in connection with a box-strap tool or tightener, parts of which are represented at d , e and f , in Figs. 9 and 10, and a suitable sealing tool, which is preferably the improved seal press set forth in the specification forming part of said application Serial No. 494,441, (Patent No. 932,438) the base of which is represented at g in Figs. 10, 11 and 12.

The improved seal part a or a^2 includes, in each construction thereof, top and bottom members, 1 and 2, made respectively of suitable soft metal, such as lead, and of suitable "sheet metal" such as tin (tin plate). The former, which more particularly distinguishes the present invention, may be stamped from sheet lead or may be cast, as preferred, and its metal or alloy should be sufficiently ductile to flow more or less freely under sufficient pressure, and free from resiliency. These members are inseparably united at the factory, and in the press fastened seals represented by Figs. 11, 12, 13, and 14, and Fig. 16, the soft metal fills the interstices of the seal part and materially assists in rendering the seal secure against being tampered with without detection. In each species the soft metal member 1 is also conveniently and preferably provided in the seal press at the sealing operation with suitable distinguishing marks represented by "Doe Co. N. Y." in Fig. 14, in raised or sunken characters, and with a face depression or concavity, 6, Figs. 11–14, and Fig. 16, within which such press marks are protected against obliteration or defacement as aforesaid.

In both species the top member 1 and the bottom member 2 beneath the box-strap passage 5 may be and preferably are im-

perforate until the sealing operation; and the bottom of the seal part a or a^2 and the overlapped ends of the box-strap b are further provided at the sealing operation with rigid interlocked portions, 7 and 8, Figs. 11-14, and Fig. 16, substantially at right angles to the subjacent box portion c , formed by the partly severed metal displaced from within a central punch-hole, 9, extending vertically through all. In the species represented by Figs. 1 to 14 inclusive the seal part a is composed exclusively of said top and bottom members 1 and 2; the bottom member 2 being constructed with an up-turned rim, 3, by which the circumferential joint or seam common to both constructions, is formed at the factory, and further constructed with a central flat-bottomed depression, 4, having diametrically opposite slots in its sides to form the box-strap passage, 5.

In the species represented by Figs. 15 and 16, the bottom member 2 has a flat rim, and a distinct rim member, 3', unites the top and bottom members. The rimless flat-bottomed bottom member 2 may form the box-strap passage 5 in the manner above described, or, preferably, in the manner set forth in my specification forming part of said Letters Patent No. 927,217, as represented in Fig. 15.

The box-strap b may be cut from a continuous length of any suitable thin strap iron or like flat metal or metallic ribbon, and requires no preliminary treatment.

The tightener represented in Figs. 9 and 10 may be and preferably is of the construction set forth in my previous specification forming part of said Letters Patent No. 925,990, and the parts represented in Figs. 9 and 10 are the slotted shaft of the tool, represented at d , a cross bar of the frame beneath said shaft, represented at e , and a cross-bar at the front of the frame, represented at f . For the purposes of the present invention said cross-bar e beneath the winding shaft may be provided with a spur, 10, which is driven through one of the box-strap ends, 1', into the wooden box cover or a like wooden box portion, c , to primarily and temporarily fasten the box-strap end for the tightening operation.

Said seal-press portion g , Figs. 10, 11 and 12, is characterized by a free edge insertible edgewise beneath the taut box strap, a flat or substantially flat bottom, 11, adapted to rest solidly on the box portion c , a top depression, 12, between its lateral edges, and a vertical hole, 13, within said depression. Its punching bit h , Fig. 11, is constructed with reference to forming said interlocked portions 7 and 8 and hole 9 of the seal part a or a^2 and box-strap b , and is preferably rectangular in cross section with a double-bevel at its lower end formed and arranged to cut or break through said interlocked portions

7 and 8 in a line that is central and longitudinal with reference to the box strap b . Compare Figs. 11 and 14. For the purposes of the present invention said bit h is surrounded by a plunger, i , Fig. 11, having a convex lower end, 6', adapted to form said concavity 6 in the press-fastened seal part a or a^2 , and to stamp the same with any desired distinguishing marks.

After passing the box-strap b loosely around the box (Fig. 1) in the desired position, both box-strap ends, 1' and 2', are threaded through the seal part a or a^2 . The tightener $d-e-f$ is then applied as in Fig. 9 so as to drive its spur 10 through one end, 1', of the box-strap into the wood of the subjacent box portion c , and thus to preliminarily fasten that box-strap end for the stretching operation. The other box-strap end, 2', being uppermost, is drawn beneath the front cross-bar f of the tightener, and temporarily interlocked with the shaft d by threading it through the slot of the latter and bending its extremity to resist withdrawal as represented in Fig. 9. The shaft d is then turned in the direction represented by the arrow a' , Fig. 9, until the box-strap b is under sufficient tension to embed it in the box corners, at least. With the box-strap b under such tension, and the seal part a or a^2 in the desired position, the seal-press base g is inserted as in Fig. 10, and the punching bit, h , and plunger i , Fig. 11, are actuated to press fasten the seal. In that operation, the seal part a or a^2 contacts with the bottom of the depression 12 in the seal-press base g as in Fig. 11, and upon the conclusion of the sealing operation, the seal part a or a^2 is re-elevated by the resiliency of the taut box-strap b as illustrated by Fig. 12, so as to clear the interlocked portions 7 and 8 from the seal press base g , which is thereupon withdrawn edgewise from beneath the seal part and box-strap. After removing the seal press, the shaft d of the tightener is turned backward, as represented by the dotted arrow b' in Fig. 10 to unwind the box-strap end attached thereto, and the loose box-strap end is cut off close to the seal part as represented in Fig. 1.

A single sealed box-strap may in the above manner be located between the ends of the box as in Fig. 1, or between the sides or between the top and bottom of the box, as there is no seal nail to be driven through the cover or like box part into the ends of the box. The box strap and seal part may also, of course, be otherwise arranged, and may be duplicated or multiplied if so desired.

The indentation by which one box-strap end is preliminarily fastened as above described is represented at 10' in Figs. 1, 9 and 10.

The improved seal part and its members,

in both species, may be and preferably are disk-shaped as shown, but may obviously be oval or of other shapes; and like modifications will suggest themselves to those skilled in the art.

Having thus described said improvement, I claim as my invention and desire to patent under this specification:

1. The combination with a box and a superposed metallic box-strap under tension having overlapped ends, of a seal part having a sheet-metal bottom member formed with a passage for said overlapped ends of the box-strap and a superposed soft-metal top member, permanently united with each other, said box-strap ends and said bottom member of the seal part having locking portions projecting rigidly at substantially right angles to the subjacent box surface and interlocked with each other, and the soft metal of said top member filling the interstices of the seal part around the box-strap ends.

2. The combination with a box and a superposed metallic box strap under tension having overlapped ends, of a seal part having a sheet-metal bottom member formed with a passage for said overlapped ends of the box strap and a superposed soft-metal top member, permanently united with each

other, said box-strap ends and said bottom member of the seal part having locking portions projecting rigidly at substantially right angles to the subjacent box surface and interlocked with each other around a central punch hole, said soft metal top member having a concave upper surface and distinguishing marks within its concavity, and the soft metal of said top member, displaced in forming such punch hole and concavity, filling the interstices of the seal-part around the box-strap ends.

3. An improved press-fastenable seal part for nailless box seals, composed of a sheet-metal disk formed with a box-strap passage adapted to admit the overlapped ends of a flat-metal box strap and constructed with a flat bottom adapted to be interlocked with said box strap ends by a punching operation, and a superposed soft-metal disk forming the top of such passage and adapted to be indented and stamped at such punching operation, substantially as hereinbefore specified.

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