W. M. BROOKS.

TIGHTENER AND SEAL FOR BOX STRAPS.

APPLICATION FILED APR. 15, 1918.

1,273,115.

Patented July 16, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

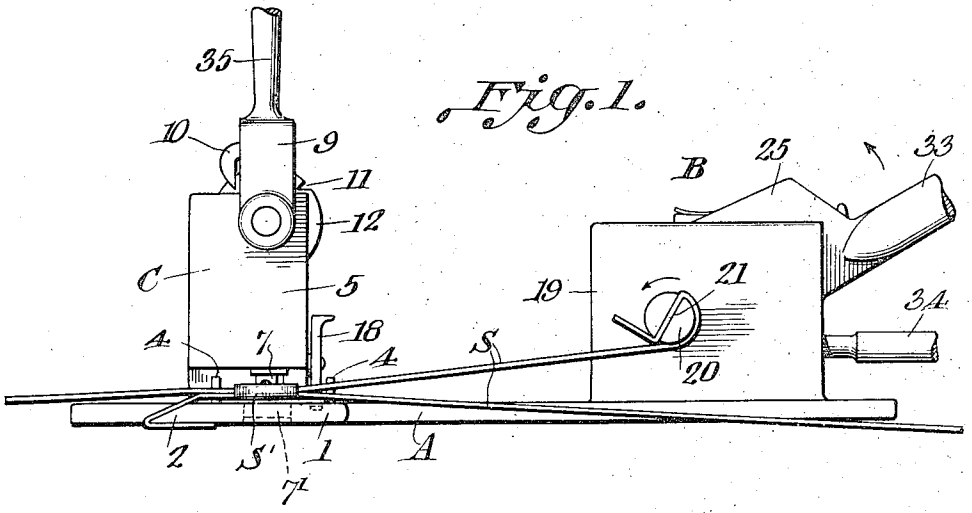


Fig. 2.

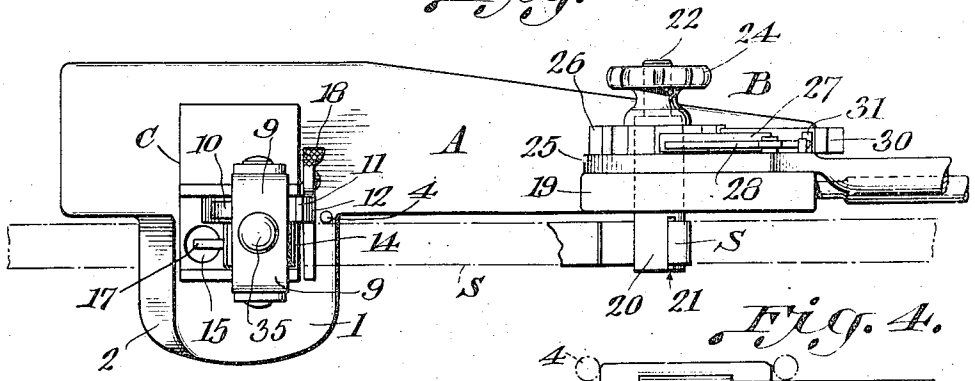


Fig. 4.

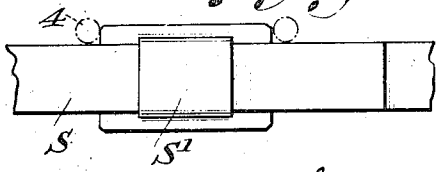


Fig. 3.

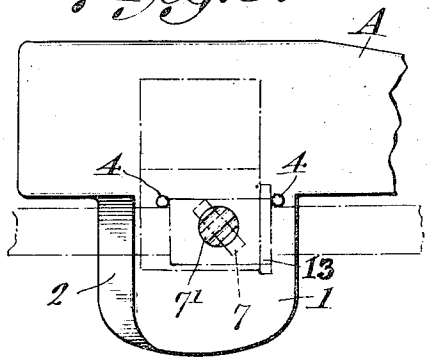
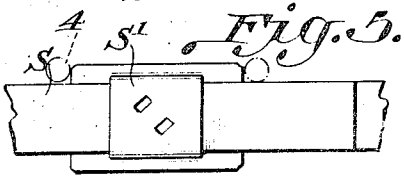


Fig. 5.



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2 SHEETS—SHEET 2.

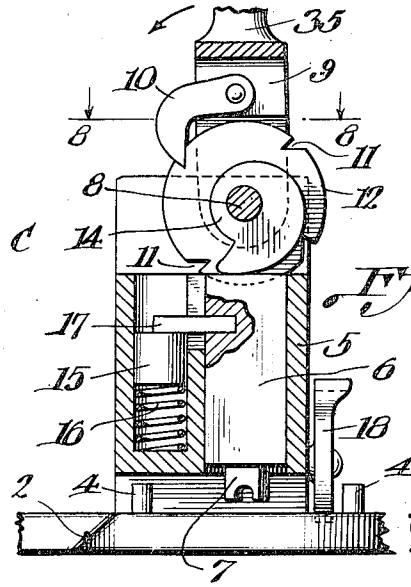


Fig. 6.

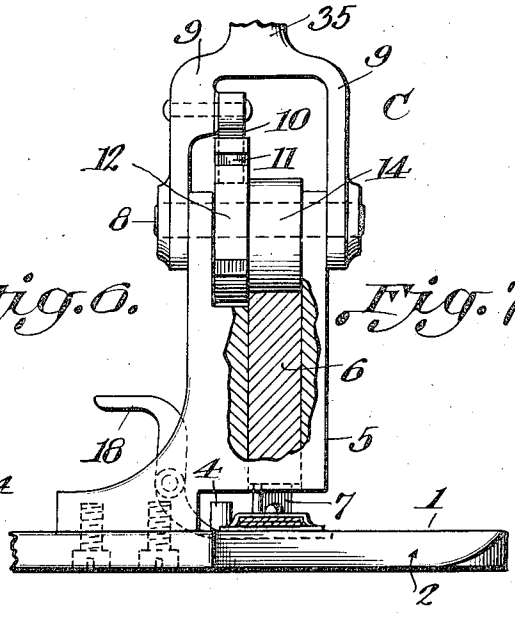


Fig. 7.

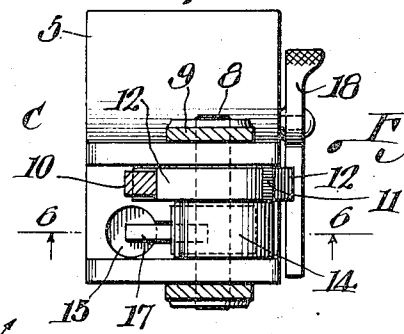


Fig. 8.

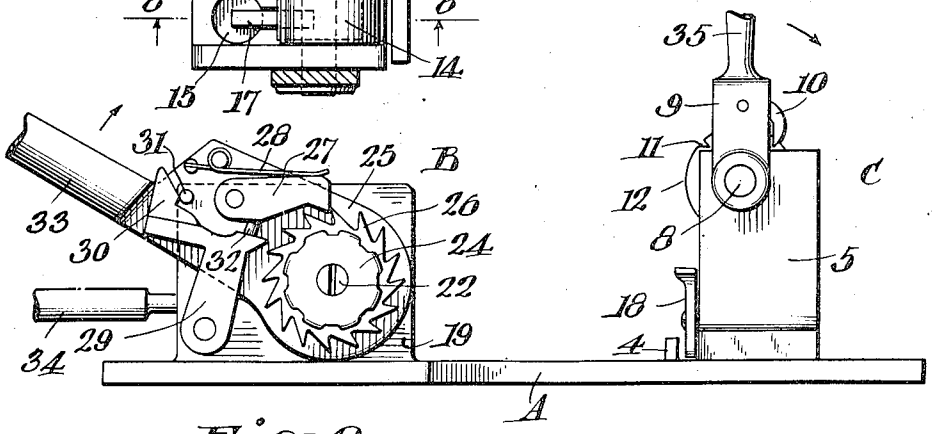


Fig. 9.

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UNITED STATES PATENT OFFICE.

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TIGHTENER AND SEAL FOR BOX-STRAPS.

1,273,115. Specification of Letters Patent. Patented July 16, 1918.

Application filed April 15, 1918. Serial No. 228,626.

To all whom it may concern:

Be it known that I, WINFRED MUDGE 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 Tighteners and Seals for Box-Straps, of which the following is a specification.

This invention relates to tools adapted to tighten and seal metal box straps on packing cases, bales and the like, particularly in connection with auxiliary seal parts designed to embrace the overlapped ends of the box strap and to be punched into interlocking engagement therewith.

The invention consists in certain novel combinations of parts hereinafter more fully described.

The object of this invention is to afford an efficient tool by means of which one man can effectively tighten and seal the box strap without marring the box or parcel.

Two sheets of drawings accompany this specification as part thereof, in which like reference characters denote like parts throughout.

Figure 1 is a front view of the improved device showing the box strap ends and auxiliary seal part in position preliminary to tightening and sealing; Fig. 2 is a top view of the device; Fig. 3 is a top view of the die end of the base; Figs. 4 and 5 show the box strap ends crossed through an auxiliary seal part before and after sealing respectively; Figs. 6, 7 and 8 are detailed front end and top views respectively of the sealing mechanism, Fig. 6 showing the pedestal 5 broken away on the line 6—6 of Fig. 8, Fig. 8 showing a section taken on the line 8—8 of Fig. 6 and Fig. 7 showing part of the pedestal 5 broken away; Fig. 9 is a back view of the device showing the mechanism of the puller device.

Referring to the drawings, A indicates the base, B the box strap pulling mechanism and C the sealing mechanism, generally. The base A is provided near one end with a lateral projection 1 having the upper edge of its outer end beveled 2. On the base A, adjacent to and partially overhanging the lateral projection 1, is mounted a pedestal 5 (see particularly Figs. 6–8) chambered to receive vertically slidable die plunger or post 6 and tension plunger 15 the latter operated by a compression spring 16. The die post 6 carries a die 7 in its lower end and a pin 17 adapted to engage the top of the tension plunger 15. A lever handle 35 (shown broken away) is provided at one end with prongs 9 on the inner side of one of which is pivoted a pawl 10 adapted to engage and actuate a ratchet wheel 12 to which is fixedly attached an eccentric cam 14 adapted to engage and positively depress the die post 6. The prongs 9 straddle the pedestal 5 and are supported by the bolt or pin 8 on which are also mounted the ratchet 12 and cam 14 within the pedestal. Two pins 4 are mounted on the lateral extension 1 of the base on either side of the lower die 7′ so as to engage the lateral edges of the auxiliary seal part S′ when it is in position for sealing. On the side of the pedestal 5 a two-arm lever 18 is pivoted having a thumb-press on one arm and the other adapted to fit a recessed seat 13 in the base so that its upper surface is normally flush with the surface of the base, being adapted to lift an auxiliary seal part from the lower die 7′. Near the other end of the base A is mounted the pulling device B which consists of a support 19 parallel with the base and a spindle 20 rotatively mounted transversely thereof. One end of said spindle projects from the front of said support and is provided with a longitudinal slot 21; the other end of the spindle projects from the back of the support and has mounted freely on it the flattened end 25 of the operating lever 33 (shown broken away); a ratchet wheel 26 and hand wheel 24 are fixedly attached to the spindle. On the flattened end 25 of the operating lever is pivoted a pawl 27 actuated by a spring 28 said pawl being adapted to actuate the ratchet 26 and through pin 32 to be in turn actuated by one arm of pawl 29 which is pivoted to support 19 and is adapted to engage and lock the ratchet 26. Pawl 29 is provided with an auxiliary oblique bearing arm 30 adapted to engage pin 31 fixed to the lever end 25 when same is lowered sufficiently, and to be lifted by it out of engagement with ratchet 26 and at the same time lift pawl 27 by means of pin 32 free of engagement. A handle 34 (shown broken away) is fixed in the back of the support 19 to facilitate handling the device. S indicates the box strap.

In operation, a box strap S is passed around the box or bale to be secured and its ends are threaded from opposite sides through an auxiliary seal part S'. The improved box strap tightener and seal is then placed on the box or bale parallel with the strap and the lateral projection 1 of the base is slipped under the crossed strap ends and auxiliary seal part so that the latter is positioned between the upper and lower dies 7 and 7' with its lateral edges engaged by the pins 4 in the base. The lower box strap end is then bent down over the beveled edge 2 and under the lateral projection 1 of the base, while the upper strap end is passed through the slot 21 of the spindle 20. With the lever 35 in a vertical position, a downward pressure can be exerted securely holding the folded under end of the box strap while the lever 33 is moved in the direction indicated by the arrow in Fig. 9. Upon lifting lever 33 pawls 27 and 29 fall into contact with ratchet 26 the former actuating and the latter locking it against return. Repeated short strokes of the lever 33 will bring the box strap to the desired tension by winding up the spindle end. The straps are then sealed with the auxiliary seal part by means of the lever 35 (see Fig. 6) which is swung downward as indicated by the arrow, pawl 10 engaging ratchet wheel 12 and revolving same together with the attached eccentric cam 14. With four teeth in the ratchet 12 four strokes of the lever will completely revolve the eccentric 14 completely depressing the die post 6 and driving the die 7 through the auxiliary seal part S' (Fig. 1) and the inclosed crossed box-strap ends. When the shoulder of the cam 14 has passed the top of the die post 6 the plunger 15 and compressed spring 16 will at once reëlevate the die post ready for the next sealing operation. After sealing the lever 33 is completely depressed in a direction opposite to that of the arrow in Fig. 9 and in so doing the pin 31 engages arm 30 of the pawl 29 depressing same and at the same time elevating its other arm from engagement with the ratchet 26 and lifting with it pawl 27 by contact with pin 32 thus entirely releasing ratchet 26 and spindle 20 which can then be turned backward by means of the hand wheel 24 and the box strap end disengaged from the slotted end of the spindle.

Where the box strap has been put under great tension, which is the general and preferable practice, the improved tightener and seal can be best removed by a turning movement pivoted at the seal and to permit of this the dies 7 and 7' are preferably set at an angle as shown in Figs. 1, 3, 6 and 7, which permits of such a turning motion without injury either to the seal or the dies.

Having thus fully described my invention, I claim:—

1. An improved box-strap tightener and seal press, having in combination, seal-punching means, seal-lifting means, strap holding means, strap tightening means and strap releasing means, substantially as specified.

2. An improved box-strap tightener and seal press, having in combination a base plate having a lateral projection near one end, a vertical seal punch mounted on said base partially overhanging said lateral projection, a seal lifter pivoted to the side of said seal punch and strap pulling means, substantially as specified.

3. An improved box-strap tightener and seal press having in combination a base plate having a lateral projection near one end, the end edge of said projection being beveled on the upper side; a vertical seal punch comprising a lower die set in said lateral projection, an upper die and die post, a tension device for maintaining said die post normally elevated, an eccentric cam adapted to engage and depress said die post and means for operating said cam; a seal lifter; and means for pulling a box-strap.

4. An improved box-strap tightener and seal having in combination a base plate having a lateral projection near one end, the end edge of said projection being beveled on its upper edge; a vertical punch comprising dies and die post, means for maintaining said die post normally elevated, means for positively depressing said die post; a seal lifter; and a strap pulling means comprising a strap engaging spindle and means for rotating, locking and releasing said spindle, substantially as specified.

5. An improved box-strap tightener and seal comprising in combination, a base plate having a lateral projection beveled on its upper end edge; a vertical seal punch mounted on said base partially overhanging said projection and comprising a support, a normally elevated die post, means for positively depressing said die post and means for automatically reëlevating same; and a box-strap puller comprising a support, a strap engaging spindle, a lever rotatively mounted on said spindle, means for engaging said lever to said spindle to rotate the latter positively in one direction, means for automatically releasing said spindle from engagement with said lever and means for revolving said spindle freely in either direction by hand.

6. An improved box-strap tightener and seal comprising in combination, a base plate having a lateral projection near one end, said projection being beveled on its upper end edge; a vertical seal punch mounted on said base partially overhanging said projection and comprising a pedestal, a die

post slidably mounted therein, means for positively depressing said die post, means for automatically reëlevating said die post; a two arm lever mounted on the side of said punch pedestal having a thumb press on one arm and the other arm adapted to lie in a recess in said projection of the base so that an auxiliary seal part when in position for sealing would lie over same and be lifted by it when raised by pressure on the thumb press arm; and a box-strap puller comprising a strap engaging spindle, a bearing support for same, a lever freely mounted on said spindle, a ratchet wheel fixedly attached to said spindle, a spring actuated pawl mounted on said lever adapted to engage said ratchet wheel and revolve same, a two-arm pawl mounted on the spindle support one arm being adapted to engage and lock said ratchet wheel while the other arm is adapted to engage and be depressed by a pin carried by said lever lifting said driving pawl and releasing said ratchet at the same time; and a hand wheel fixedly attached to said spindle to rotate same freely in either direction when thus released, substantially as specified.

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Witnesses:
M. MICHELSON,
G. H. MAYNARD.