W. M. BROOKS.

BOX STRAP TIGHTENER.

APPLICATION FILED MAR. 17, 1913.

1,067,400. Patented July 15, 1913.

Fig. 1.

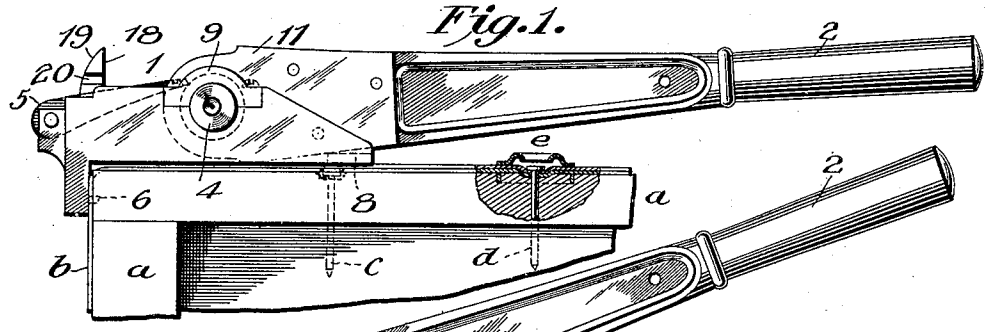


Fig. 2.

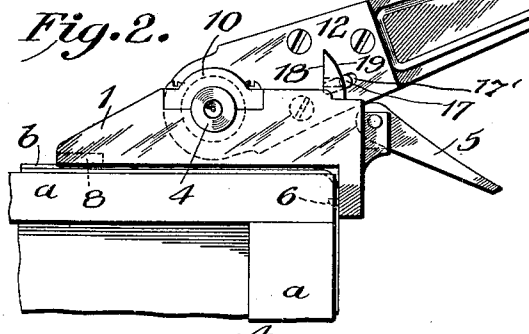


Fig. 6.

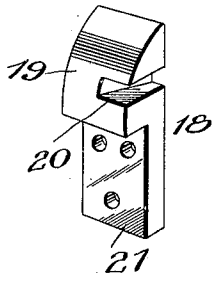


Fig. 3.

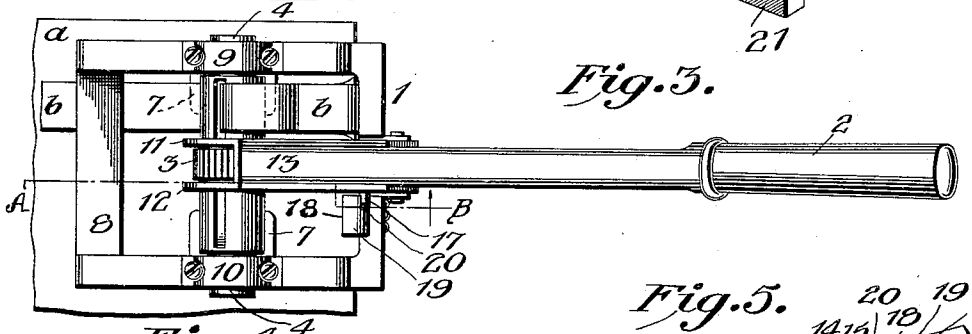


Fig. 4.

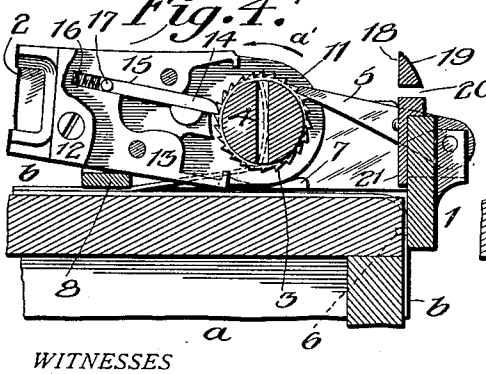
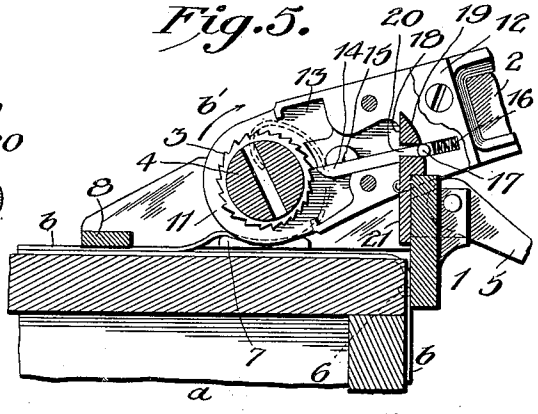


Fig. 5.



WITNESSES

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WINFRED MUDGE BROOKS, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO E. J. BROOKS & CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

BOX-STRAP TIGHTENER.

1,067,400. Specification of Letters Patent. **Patented July 15, 1913.**

Application filed March 17, 1913. Serial No. 754,968.

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 Box-Strap Tighteners, of which the following is a specification.

This invention relates to tools for applying box straps of strap iron or ribbon steel, with or without seals, to wooden packing cases or boxes; and is an improvement on the device for sealing boxes patented June 22, 1909, by United States Letters Patent No. 925,990, to Edward J. Brooks.

The present invention consists in an improved box-strap tightener characterized by simple means for freeing the tool from the strap at the end of the tightening operation. Owing to this provision, the ratchet mechanism of the tool may be and is greatly simplified, and the tool is adapted to be manipulated with increased speed and efficiency.

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

A sheet of drawings accompanies this specification, as part thereof.

Figures 1 and 2 are elevations of the improved tool applied to a box, illustrating respectively the tightening and freeing operations; Fig. 3 is a top view projected downward from Fig. 2; Fig. 4 represents a section on the line A—B, Fig. 3, showing the tool adjusted for the tightening operation as in Fig. 1; Fig. 5 is a like sectional view of the tool freed as in Figs. 2 and 3; and Fig. 6 is a perspective view of the freeing member hereinafter more particularly described.

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

The improved box-strap tightener, in common with said patented device on which it is an improvement, is constructed of iron and steel, and comprises a frame, 1, a pawl-carrying hand-lever, 2, a toothed wheel, 3, interacting with said hand-lever, a longitudinally slotted strap-winding spindle or shaft, 4, rotatable with said wheel and conveniently integral therewith, and a dog, 5, which interacts with said wheel in the tightening operation as illustrated in Figs. 1 and 4, and is reversible to free the wheel as in Figs. 2, 3 and 5; the frame 1 being constructed with vertical and horizontal portions, at right angles to each other, forming a reëntrant angle at its bottom, and thus adapted to be applied to and to temporarily embrace as in Figs. 1, 2, 4 and 5 one of the upper corners of a wooden box, *a*, to which a box-strap, *b*, has been preliminarily nailed at one end; said vertical portion of the frame being preferably provided with one or more spurs, 6, Fig. 1, etc., which are driven into the wood to assist in temporarily holding the tool in place on the box; and said horizontal portion of the frame having sole members 7 and 8 to rest upon the box cover and upon the box strap, and a pair of bearings 9 and 10 at its top in which the shaft 4 is mounted so as to rotate freely.

As in said patent, the hand lever 2 is fulcrumed on the shaft 4 and is constructed with members 11 and 12, of which the latter is a cap plate, arranged at the sides of the wheel 3 and rigidly connected with each other and with a recessed body portion, 13, to inclose the remainder of what is herein termed the ratchet mechanism of the tool. In the improved tool the wheel 3 is a ratchet wheel and, in addition to the dog 5, is engaged only by a single pawl, 14, slidably mounted in ways, 15, within said recessed body portion; held in mesh with the teeth of the wheel 3 for the tightening operation by a heel spring, 16, of coiled wire; and provided with a retracting stud, 17, on its side toward the cap plate, 12, which is provided with a slot, 17′, Fig. 2, through which said stud 17 protrudes. To engage with said retracting stud 17, the frame 1 of the improved tool is further provided with a freeing member, 18, preferably and conveniently in the form of an attachment shown detached by Fig. 6. The projecting portion of this member 18 has a cam surface, 19, and a detent, 20, the latter being preferably and conveniently formed by a through notch, so as not to become obstructed by dirt; and in its attachment form it has a reduced flat shank, 21, Fig. 6, provided, in common with the upward extension of said vertical member of the frame 1, with holes which receive attaching rivets.

After attaching one end of the strap *b* to the box *a* by a nail *c*, Fig. 1, the free end of the strap is passed under the cross bar 8 of the frame 1, and through one of the longitudinal slots of the shaft 4; the tool being in the position and condition represented by

Figs. 1 and 4; and the shaft 4 is rotated, as indicated by the arrow *a'*, Fig. 4, by working the hand lever 2, until the strap is sufficiently tight. The last nail, *d*, Fig. 1, is then driven through both strap ends, and preferably secured by a seal *e*. The dog 5 is then thrown back, and the lever handle 2 is reversed as in Figs. 2, 3 and 5; the reverse movement of the hand lever brings the stud 17 into contact with the cam surface 19 of the freeing member 18, which interacts therewith to disengage the pawl 14 from the wheel 4, freeing the latter and the shaft 3; and the tool is yieldingly locked in its free condition by the interaction of the detent 20 with the stud 17 of the spring-pressed pawl. As thus freed, the tool may be immediately removed from the box-strap and box, the free end of the strap unwinding itself from the shaft 4; the latter and therewith the wheel 3 turning freely as indicated by the arrow *b'*, Fig. 5.

The seal *e*, for the purposes of this invention, may be of any known or improved make; the freeing member 18 may obviously be integral with the frame casting or otherwise attached; and other 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. A tool for tightening box-straps having, in combination, a frame adapted to be temporarily held in working position on a box, a strap-engaging shaft mounted in said frame, a hand lever fulcrumed on said shaft, means for rotating said shaft by said hand lever including a pawl carried by said hand lever and provided with a retracting stud, and means for freeing the tool from the tightened strap in a given position of said hand lever; such freeing means comprising a member supported in the path of said stud, and interacting therewith to retract said pawl.

2. The combination, in a tool for tightening box straps, of a frame adapted to be held in working position on a box, a strap engaging shaft mounted in said frame, a hand lever fulcrumed on said shaft, means for rotating said shaft by said hand lever consisting of a ratchet wheel rotatable with said shaft, an endwise movable pawl carried by said hand lever and provided with a retracting stud, and a spring reacting against the heel of said pawl, and means for freeing the tool from the tightened strap in a given position of said hand lever; such freeing means comprising a member supported in the path of said stud, and interacting therewith to retract said pawl.

3. The combination, in a tool for tightening box-straps of a corner-embracing frame adapted to be held in working position on a box, a strap-engaging shaft mounted in said frame, a hand lever having a recessed and slotted heel end fulcrumed on said shaft, ratchet mechanism for rotating said shaft by said hand lever including a recess-inclosed pawl having a slot exposed stud, and means for freeing the tool from the tightened strap in a given position of said hand lever; such freeing means comprising a rigidly projecting attachment to said frame, having a cam surface constructed and arranged to interact with said stud for retracting said pawl, and a detent adapted to interact with said stud for yieldingly locking the tool in its free condition; substantially as hereinbefore specified.

WINFRED MUDGE BROOKS.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."