W. D. MACDONALD.

STRAP TIGHTENING TOOL.

APPLICATION FILED JULY 6, 1918.

1,278,069. Patented Sept. 3, 1918.

Fig. 1.

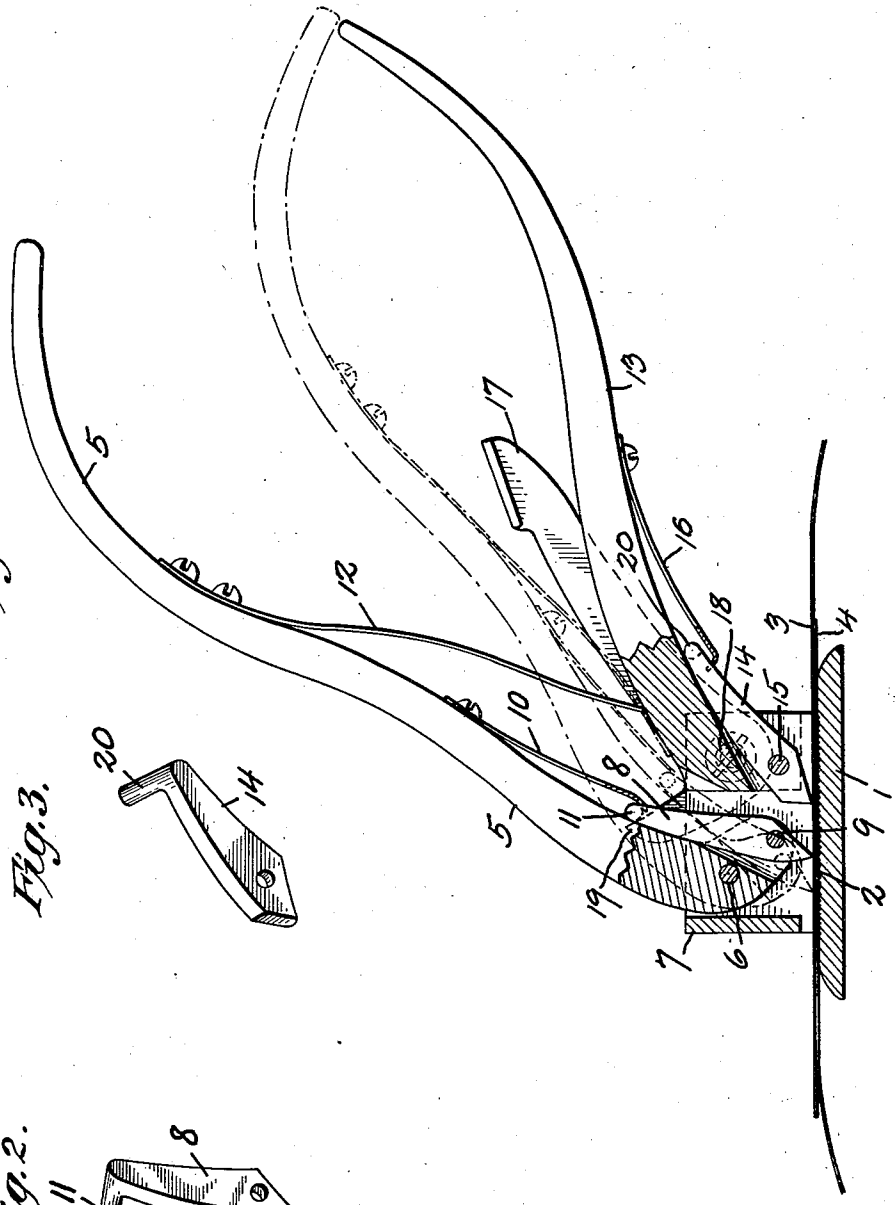


Fig. 3.

Fig. 2.

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STRAP-TIGHTENING TOOL.

1,278,069. Specification of Letters Patent. Patented Sept. 3, 1918.

Application filed July 6, 1918. Serial No. 243,664.

To all whom it may concern:

Be it known that I, WILLIAM DUNCAN MACDONALD, a citizen of the United States, and a resident of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Strap-Tightening Tools, of which the following is a specification.

The present invention relates to tigthening tools and more particularly to that type used for tightening straps or bands of sheet metal that are placed around packages or bales and which are subsequently sealed in a known manner by means of a metallic seal; and has for its object means whereby straps or bands of material may be tightened in a simple and efficient manner. With this object in view, the invention consists of a pawl and a detent, the pawl being mounted in a rocking lever and engaging with the material to be tightened when the lever is moved in one direction, the detent also engaging with the material and acting to prevent retrograde movement thereof when the lever is moved in the opposite direction.

In the accompanying drawings the invention is embodied in a concrete and preferred form, in which:

Figure 1 is a side elevation of a strap tightening tool partly in section.

Fig. 2 is a perspective view of the pawl; and

Fig. 3 is a perspective view of the detent.

1 indicates a support of any suitable construction, here consisting of a plate having a roughened surface 2 upon which the free ends 3 and 4 of a strap are placed. In this instance, the strap shown is in the form of a ribbon of sheet material such as is used in connection with boxes or bales containing goods. It will be understood that this strap is passed around the package and, before the metallic seal is applied to the free ends of said strap, the latter must be tightened around the package especially when a bale with flexible covering is to be protected.

5 is a lever pivotally supported at 6 in the side wall 7 that forms a guide above the surface 2. On this lever a pawl 8 is mounted by being pivotally connected thereto at 9 and held in spring-pressed engagement with said lever by means of a spring 10 acting against an extension 11 of the pawl. A spring 12 normally urges lever 5 into the position shown in Fig. 1, said spring having a bearing on the stationary handle or abutment member 13. It will be seen that with this construction lever 5 is normally turned into the position shown in the drawing and pawl 8 is in engagement with the material to be tightened. 14 is a detent pivotally supported at 15 in the side wall 7 and normally engaging with the strap to be tightened by reason of the action of a spring 16. It will be understood that when lever 5 is depressed into the position indicated in dotted lines, pawl 8 moves unyieldingly with the lever and its outer end engages the strap, biting into the material thereof, and advances the upper free end 3 to the left, in Fig. 1, while the lower free end 4 is retained in the position it occupies. During the feeding stroke of lever 5, detent 14 will turn slightly on its pivot 15 so as to admit of the passage of the free end 3 to the left under the action of pawl 8. When pawl 8 has reached the extreme end of its feeding stroke, lever 5 may be released and spring 12 will then tend to restore the lever to its original position. While this is occurring, spring 10 will yield sufficiently to admit of pawl 8 slipping back without undue pressure being exerted on the free end 3 of the strap. In addition to this, detent 14 will, during the return stroke of lever 5, press firmly against said free end 3, thereby preventing any possibility of a retrograde movement of the material. After the strap has been tightened sufficiently, the metallic seal is secured around the free ends thereof by mechanism not here disclosed but well known in the art and the strap may then be released from the tightening device. To admit of this release and of the introduction of the free ends of another strap to be subsequently tightened, there is provided a releasing member 17 that is pivotally supported at 18 in the side wall 7 and provided with one projection 19 that engages extension 11 of pawl 8, a portion of the member 17 itself engaging with extension 20 of detent 14. It will be understood that by depressing member 17 both pawl 8 and detent 14 are swung around their pivotal centers, 9 and 15, and thus release the strap.

It will be evident that if it is desired to use the tool for material of different thick-

nesses, the support 2 may, in a known manner, be made adjustable with reference to the pawl and detent.

I claim:

A strap tightening tool comprising: a support for material to be tightened, a rocking lever, a pawl for engaging with the material to be tightened pivotally supported on said lever, a spring for normally urging one end of said pawl into engagement with the lever to afford an unyielding movement of said pawl with the lever during the feeding stroke of the latter and to permit a yielding movement independently of the lever during the return stroke thereof, means for normally urging the lever into the position it occupies at the end of its return stroke, a detent also engaging with the material and pivotally mounted, a spring normally urging said detent into engagement with the material to be tightened to oppose retrograde movement of said material during the return stroke of the lever and to yield to admit of the passage of material during the feeding stroke of the lever, and means for counteracting the effect of the springs bearing against the pawl and detent to elevate same out of engagement with the material.

Signed at Yonkers, in the county of Westchester and State of New York, this 2 day of July, 1918.

WILLIAM DUNCAN MACDONALD.