

March 30, 1937.

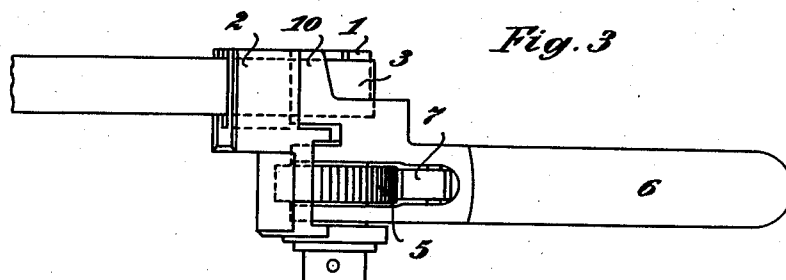
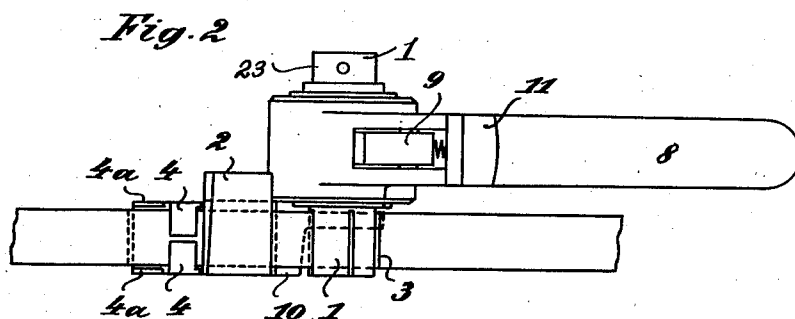
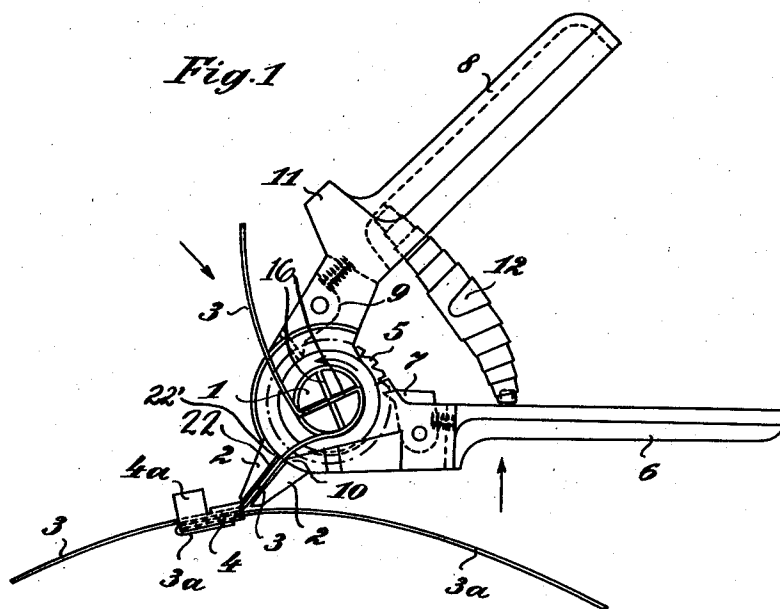
E. HOFFMANN

2,075,720

APPLIANCE FOR TENSIONING AND FASTENING BALE TIES

Filed Jan. 28, 1935

2 Sheets-Sheet 1



Inventor
Emil Hoffmann

by *Prohman*
ATTY.

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E. HOFFMANN

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Fig. 4

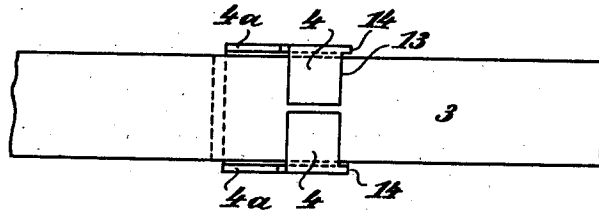


Fig. 5

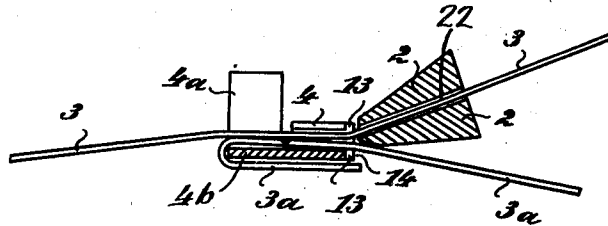


Fig. 6

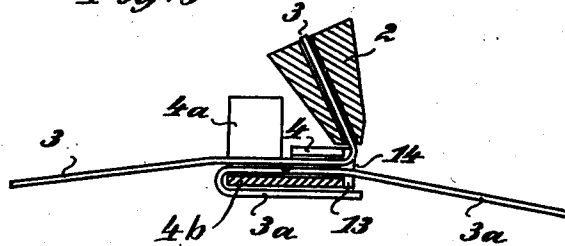
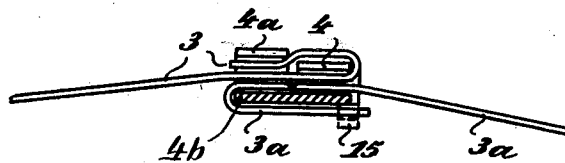


Fig. 7



Inventor

Emil Hoffmann

by *Prohman*
ATTY.

UNITED STATES PATENT OFFICE

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APPLIANCE FOR TENSIONING AND FASTEN-
ING BALE TIES

Emil Hoffmann, Cologne-Braunsfeld, Germany

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2 Claims. (Cl. 81—9.1)

One of the objects of the present invention is to provide an improved appliance for the tightening or tensioning of hoop-iron bale ties around packages of all kinds and for fastening together the two overlapping ends of the tie by means of a locking clip when the tensioning is completed.

A further object is to provide such an appliance with a beak in order that the pull of the device on one end of the tie, during tensioning, may be counteracted by the thrust of the beak against the locking clip, and by which the tie may be guided between the clip and the tensioning means provided in the device, and by which the pulled end of the tie may be bent over the clip, to secure it, subsequent to the tensioning of the tie. Furthermore, the device may be provided with a knife for severing the tensioned tie from a roll or coil of hoop iron.

A still further object is to provide such an appliance which shall be light and portable and be suitable for use on small or awkwardly shaped packages, the device having two hinged levers or legs by means of which the device is operated in a similar manner to a pair of pliers or shears.

One form of the invention is illustrated by way of example in the accompanying drawings, in which:—

Figure 1 is a side elevation of the complete appliance in position for the tensioning of a hoop-iron bale tie, the cooperating locking clip being shown attached to one end of the tie.

Figure 2 is a plan corresponding thereto, seen when looking in the direction of the arrow shown in the top left-hand of Figure 1.

Figure 3 is an inverted plan corresponding thereto.

Figure 4 is a plan of a locking clip in position on the overlapping ends of hoop-iron prior to the tensioning of the tie.

Figures 5 and 6 are sectional elevations through the locking clip, showing the beak of the appliance in position during the tensioning of the tie and during the bending of the pulled end of the tie over the clip, respectively.

Figure 7 is a sectional elevation through the clip after the two ends of the tie have been completely fastened together.

Referring first to Figures 1 to 3 of the drawings, the appliance has two levers or legs 6 and 8 pivoted together, in the manner of a pair of pliers, on a wrapping or tensioning stud 1.

The wrapping or tensioning stud has at one end two diametrical slots 16 for the reception of the end of the tie which is to be pulled. The other end of the stud 1 has a collar 23 pinned to it. A ratch-

et wheel 5 is fixed to the stud 1 and is actuated by a spring pressed pawl 7 pivoted in the leg 6. A closure of the leg 6 towards the leg 8 results in a partial rotation of the wheel and stud relatively to the lever 8. A second spring pawl 9 in the leg 8 prevents backward rotation of the wheel during the opening of the legs under the action of the spring 12.

The leg 8 is provided with a beak shaped member 2.

A locking clip is indicated comprising a metal plate 4b with two upstanding wings 4a arranged one on either side of the plate, and two similar wings 4 which are folded to lie parallel to and across the plate.

The bale tie 3 is threaded into the clip, between the plate 4b and the wings 4, and one end 3a of the tie is secured thereto by bending its extreme edge under the plate as shown. A supply coil or roll of hoop-iron (not shown) is provided in the usual manner. The hoop-iron from the roll is threaded through the clip, passed around the package and its end 3a again threaded into the clip, after which the end 3a is bent under the clip.

The beak 2 has an open slot 22 extending through it so that it can be slipped onto the end of the tie 3, which is coming from the supply coil, the tie also passing into one of the slots in the tensioning stud 1. During the tensioning of the tie, the end of the beak 2 bears on one end of the clip, as is shown clearly in Figures 1, 2 and 5, and acts as a guide for the tie between the clip and the stud 1. The beak, abutting against the clip, acts as a stay or support for the whole tensioning appliance, the pull on the one end of the tie, caused by the rotation of the stud 1, being counteracted by the thrust of the beak against the clip, which is fastened to the other end.

After the tie has been tightened sufficiently by the wrapping of the one end around the stud 1, the appliance is tilted, using the edge of the clip as a fulcrum for the edge of the beak, as is shown in Figure 6, so that the tie is bent over the wings 4 and is prevented from pulling out of the clip.

At this stage, by opening the levers 6 and 8, a little beyond the position shown in Figure 1, the edge of the knife 10, which is carried by the lever 6, is moved to shear through the hoop iron just behind the beak 2 and so severs the tie from that portion of hoop-iron which is in the stud, the knife and edge 22' of the beak coacting to constitute a pair of shears.

In order to obtain a more secure fastening together of the ends of the tie, the wings 4a are folded over the uppermost end of the tie in the clip, 55

as is shown in Figure 7. A hammer head 11, formed on the leg 8, may be used for this purpose.

As is shown in the accompanying drawings, particularly in Figures 4 to 7, the end of the clip 5 is preferably provided with recesses 13. The recesses 13 are cut in the plate 4b and wings 4 and their width and depth are sufficient to accommodate the width and thickness of the tie.

When the beak 2 is in position for tensioning 10 the tie, it bears on the side edges 14 of the clip, and the recesses 13 form spaces into which the tie can yield when displaced slightly by the beak, as is shown in Figure 5.

The fact that the beak is bearing on the edges 15 14 so that there is a space between the beak and the edge of the wings 4, enables the end of the tie to be bent easily over the clip by the tilting of the beak, as is indicated in Figure 6.

If desired, the plate 4b may have a cut made in 20 it from side to side near one end and the strip of metal between the cut and the end of the clip may be belled downwards as at 15 to open the cut, so that the end 3a of the tie can be passed through the slot thus formed, so that there is no 25 likelihood of the end 3a of the tie straightening and becoming released from the clip during tensioning of the tie.

The mode of operation of the device is as follows. The hoop iron from a supply roll is threaded 30 through the clip, passed around the package and its end 3a passed again through the clip and secured thereto by bending the extreme end over. The appliance is then applied to the tie, the open slots in the beak and winding stud permitting this to be done easily. The appliance is 35 then gripped in one hand in the manner of a pair of pliers and the levers 6 and 8 repeatedly closed, the opening of the levers after each closure being effected by the spring 12. The repeated closing and opening of the levers causes the engagement 40 of the pawl 7 with the ratchet wheel 5, whereby the winding stud 1 is rotated to wind up and thereby tension the tie. During automatic opening of the levers, the ratchet wheel is prevented 45 from turning back by the pawl 9. When the tie is sufficiently tensioned, the appliance is rocked in an anti-clockwise direction (as viewed in Fig-

ure 1) about the edge of the clip against which the beak 2 abuts, so that the tie is bent over the clip. The levers are then opened slightly, whereby the tie is severed by the knife 10 at the rear 5 of the beak. The appliance is thereby disengaged from the tie around the package and it can be readily disengaged from the hoop iron from the supply roll. The end of the tie which has been bent over the clip is completely bent over and the side wings 4a of the clip then folded onto it, 10 the hammer head 11 on the lever 8 being used for this purpose.

I claim:

1. An appliance for tightening a hoop-iron bale 15 tie and for fastening together its two overlapping ends by means of a locking clip, comprising a slotted tensioning stud for receiving the pulled end of the tie and rotatably mounted in a lever, a ratchet wheel fixedly connected to said stud, a 20 second lever pivoted to said first lever, a driving pawl on said second lever for engaging with said ratchet wheel to turn same when both of said levers are closed together, a detent pawl on said first lever adapted to lock said ratchet wheel and stud against rotation during the opening move- 25 ment of said levers, a beak on said first mentioned lever adapted to abut against one end of said clip to guide the pulled end of the tie between said clip and said tensioning stud during the 30 tensioning of the tie, said beak also being adapted to be tilted about the engaging edge of the clip to bend the pulled end of the tie thereover when the tie has been tensioned.

2. A hand operated appliance for tightening 35 a hoop-iron bale tie and for fastening together its two overlapping ends by means of a locking clip comprising a lever having a beak formed rigidly therewith and a slotted winding stud for tensioning the tie, said beak having a slot for 40 guiding the tie to said stud, a second lever pivoted to said first lever and provided with means for rotating said stud when the two levers are repeatedly gripped and released by the operator, and a spring for moving said levers apart when 45 the grip is relaxed.

EMIL HOFFMANN.