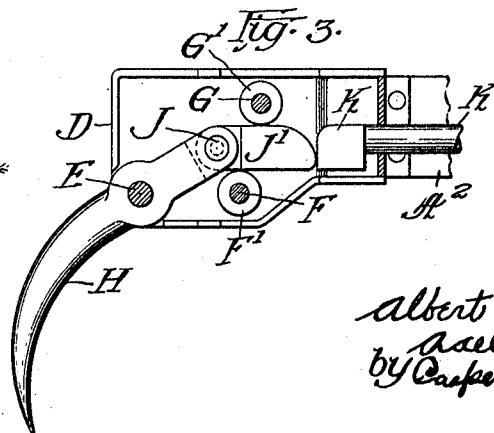
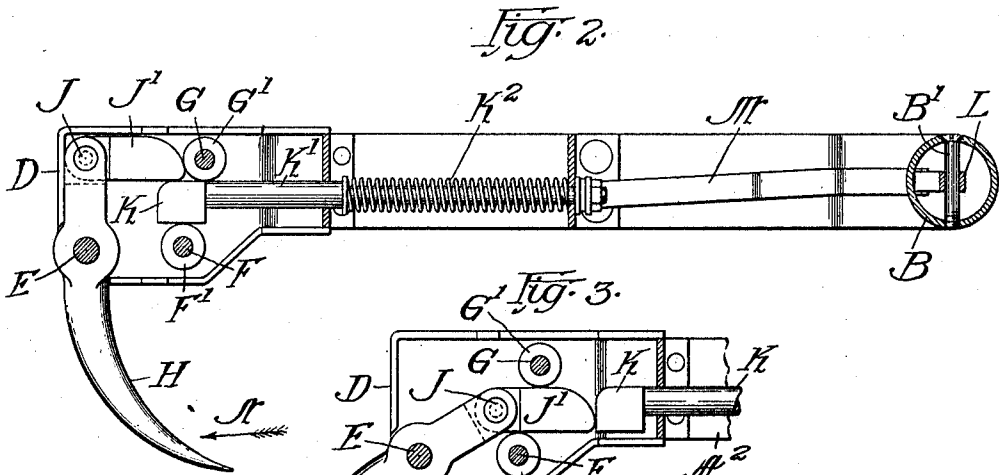
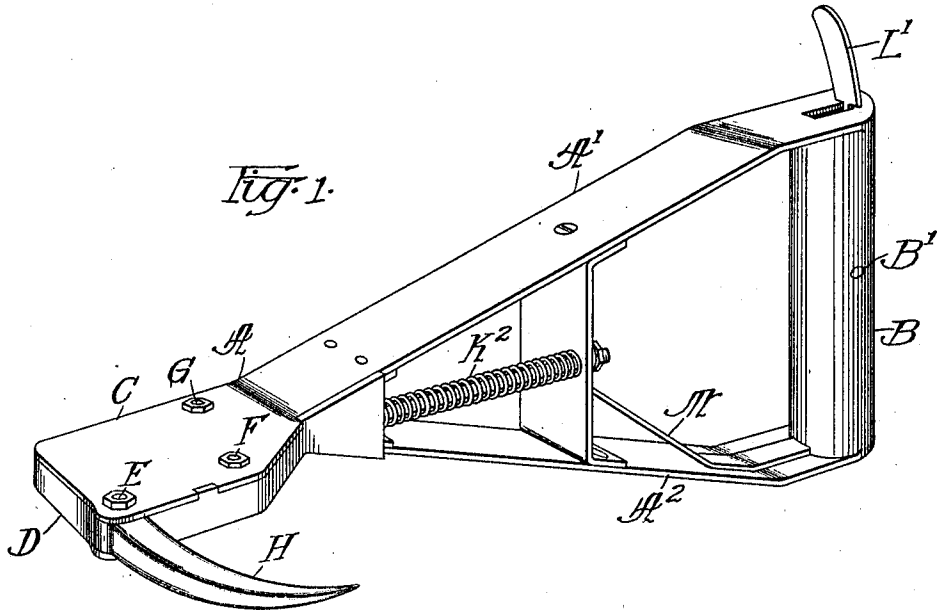


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 AUTOMATIC BALE HOOK.
 APPLICATION FILED JULY 2, 1910.

1,004,297.

Patented Sept. 26, 1911.



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UNITED STATES PATENT OFFICE.

ALBERT F. NYGREN AND AXEL E. NYGREN, OF BRIDGEPORT, KANSAS.

AUTOMATIC BALE-HOOK.

1,004,297.

Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed July 2, 1910. Serial No. 570,047.

To all whom it may concern:

Be it known that we, ALBERT F. NYGREN and AXEL E. NYGREN, citizens of the United States of America, and residents of Bridgeport, county of Saline, State of Kansas, have invented certain new and useful Improvements in Automatic Bale-Hooks, of which the following is a specification.

Our invention relates to bale-hooks for handling such things as bales of hay, boxes, etc., and has for its object, the production of a hook which, on the pressure of a trigger, will automatically release itself from the bale, and immediately after the release, will return to its normal position, in which position it is ready for use upon the release of the trigger.

Our invention is illustrated in the accompanying drawings in which:—

Figure 1 is a perspective view; Fig. 2 is a plan with part of the upper portion removed and some part being in section; and Fig. 3 is a reproduction of one part of Fig. 2 showing the hook part of the device in its released position.

The hook may be said to consist of a hook-part and bar-part and handle-part. The bar-part unites the handle to the hook-part and supports the hook-part.

In Fig. 1, A represents the bar-part which branches out into two parts A¹ and A², between which is the handle-part B made of cylindrical metal. In the device as shown, the parts A, A², B, and the plates C and D are all formed of one piece of sheet metal bent up into the form shown in the drawings. These different parts may, however, be made of separate pieces suitably fastened together.

The hook H is pivoted on a pin E between the plates C and D. On the rear end of the hook H is a pin J on which is pivoted a pin J¹ having a rounded edge such as shown in Fig. 2. When the hook is in operative position, as shown in Fig. 2, this arm J¹ rests against a roller G¹ on a pin or bolt G. Adjacent thereto is another pin F having another roller F¹.

Between the rollers G¹ and F¹ is a head K secured on a rod K¹ which is guided in suitable bridges, and is provided with a spring K². This spring acts to push the rod K¹ and its head K into the position shown in Fig. 2, in which position the arm J¹ is locked between the roller G¹ and the head or plunger K. In this position, the hook

can not be moved because a strain upon the hook will be delivered through the arm J¹ to the pin G. The back part of the hook H and the other end of the arm J¹ bear against the folded-up edge of the lower part D so that the hook cannot move in the opposite direction.

Mounted upon a pin B¹ which goes through the handle B, is a lever L, one end of which projects out in a thumb piece or a trigger L¹ at the end of the handle B. The other end of the lever L is connected to a link M, which link extends inward and engages the end of rod K¹. By pressing the thumb piece L¹, the lever L is tilted on its pivot B¹, and the link M¹ is drawn outward, carrying with it the rod K and its head K¹ against the action of the spring K². As thus drawn out the head K will come down to a position approximately opposite the center of the pin G. In this position, if a strain be put upon the hook H in a direction of the arrow N, the arm J¹ will slip on the roller G¹ and permit the hook to turn on its pivot E. As this moves, the arm J¹ will push the head K farther inward against the action of the spring K² until that head is about in the position as shown in Fig. 3. When the hook reaches this position, it will release itself from a bale or box, by the mere action of the operator pulling up the handle B. Immediately upon the hook H being released from the bale so that there is no longer any strain upon it in the direction N, the spring K² will force the rod K¹ again to the left, pushing the link J¹ and hook H back into the position shown in Fig. 2. Then upon release of the thumb piece L¹, the spring K² will push the rod K¹ with its head K into the locking position shown in Fig. 2.

It will be obvious from the previous description that the release through the thumb piece L¹ is in the nature of pulling a trigger, and that the normal strain upon the hook is what releases its engagement with a bale or other object. The release action is therefore automatic, except for the release of the lock which contains the device in its operative position. It will also be seen that immediately upon the hook being freed from the object which it engages, it will automatically set itself into operative position.

What we claim is:

1. In a bale-hook, the combination of a pivoted hook, an inclosing casing, a pair of

rollers, a latch mounted to slide between said rollers for holding said hook in position, a bar for moving said latch to release the hook so it can swing on its pivot, and a spring for returning said hook to normal position and locking the same.

2. In a bale-hook, a handle, a bar secured thereto, a hook pivoted to the bar and having its rear end projecting into a chamber formed within the outer end of the bar, locking devices for said hook and also located within said chamber, a releasing device located within the handle and having an operating projection exterior thereto, connections from the releasing device to the locking device for releasing the latter, and a spring for automatically returning the locking devices to locking position upon release of the releasing device.

3. In a bale-hook, a frame consisting of two bars, a handle secured to one end of the frame, a hook member pivoted at a point intermediate its length to the other end of the frame, locking devices associated with the rear end of the hook member, a releasing lever associated with the handle, and a connection located between the two bars from the releasing lever to the locking device.

4. In a bale-hook, a frame consisting of two bars providing a chamber at one end, a handle secured to the other end of the frame, a hook member pivoted to the chambered end of said frame, locking devices located within said chamber and coöperating with the hook member to hold the same, a releasing device located within the handle and operated at one end thereof, and connection located between the two bars from the releasing device to the locking devices for releasing the latter.

5. In a bale-hook, a piece of sheet metal bent so as to form a chamber at one end and

a hand hold at the other end, a hook pivoted within the chambered end and having its outer end extending therefrom, locking devices for said hook located within said chamber, a releasing device located within the hand hold part, connections from the handle to the locking devices for releasing them, and a spring for returning the locking devices to normal position.

6. In an automatic bale-hook, the combination with a bar and a handle secured thereto, of a pivoted hook normally held in operative position to resist a heavy strain, a pair of rollers, a latch mounted to slide between said rollers, and means connected to said latch for holding said pivoted hook in normal position and for releasing said hook when desired.

7. In a bale-hook, the combination of a pivoted hook, an arm pivoted to said hook, said arm being shorter than said hook, a latch, a roller, said latch and said roller forming an abutment to prevent said hook from moving, and a device for moving said latch to release the hook so it can swing on its pivot.

8. In a bale-hook, the combination with a casing and a handle forming part thereof, of a pivoted hook, devices for holding the hook in operating position, connections extending into the handle and operated therefrom for releasing the locking devices and consequently the hook, and a spring for automatically returning and locking the hook in normal position.

Signed at McPherson this 27th day of June, 1910.

ALBERT F. NYGREN.
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Witnesses:

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