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COT FASTENER

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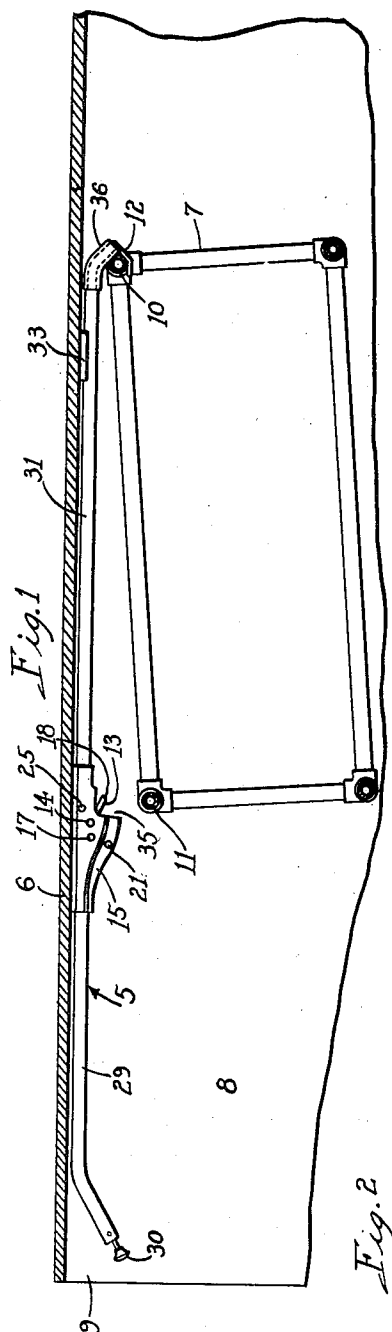


Fig. 1

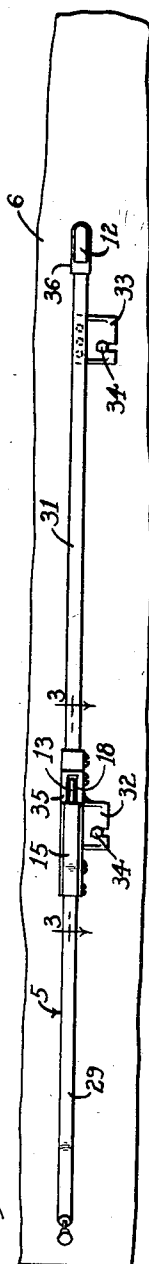


Fig. 2

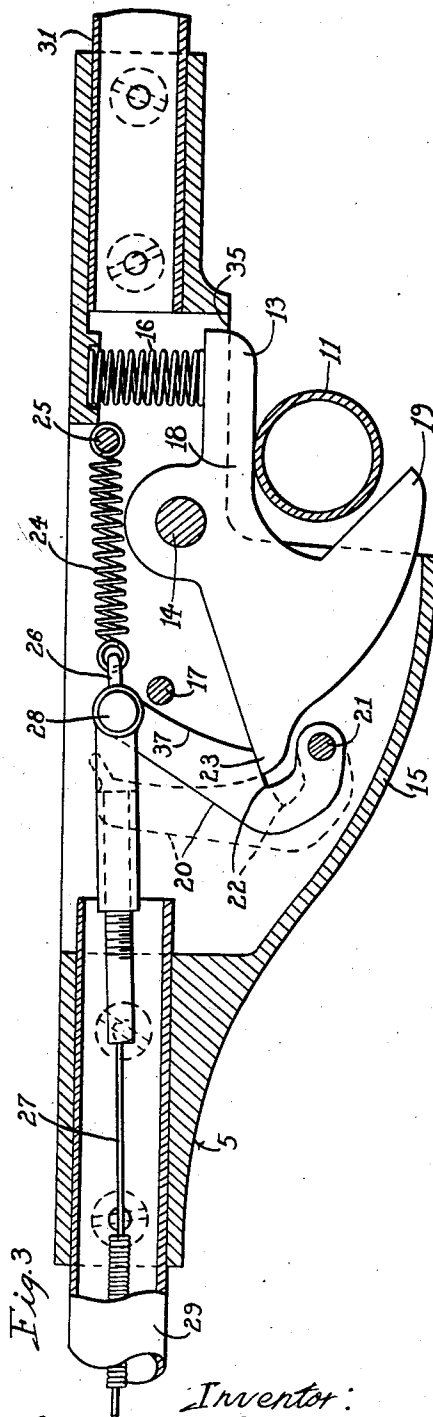


Fig. 3

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COT FASTENER

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7 Claims. (Cl. 296—19)

This invention relates to a new and improved cot fastener for use in ambulances and the like.

The principal object of my invention is to provide an improved trigger type cot fastener, in which the locking hook is a part of a load and fire mechanism and is arranged to be actuated by the cot to "loaded" position and released under manual control, the load and fire mechanism in the release of the cot causing the cot to be moved clear of the fastener to facilitate quick removal from the ambulance.

A salient feature of this cot fastener consists in the provision of a cooperating locking hook and trigger-like latch, the locking hook being moved against the resistance of a relatively strong spring in the locking of the cot in place and the latch being arranged to hold the hook in such position until the time of release when the cot is instantly ejected, the latch having a flexible wire connected therewith for remote control at a point conveniently located with respect to the rear door opening. The latch and its control wire, in accordance with the invention, are also urged in one direction normally under the action of a relatively weak spring toward locking engagement with the hook so as to be easily released manually.

The invention is illustrated in the accompanying drawing, in which—

Figure 1 is a plan view of a cot fastener made in accordance with my invention, illustrated on a wall with a cot in position ready for fastening;

Fig. 2 is a side view of the cot fastener by itself; and

Fig. 3 is a horizontal section on the line 3—3 of Fig. 2 on a larger scale.

The same reference numerals are applied to corresponding parts throughout the views.

Referring first to Figs. 1 and 2, the reference numeral 5 designates the cot fastener generally, mounted on the side wall 6 of an ambulance or other vehicle in which cots like that shown in horizontal section at 7 are to be carried. These cots are usually equipped with wheels so that they may be rolled on the floor 8 into and out of the ambulance through the rear door opening 9. The front and rear vertical corner posts 10 and 11 on the cot are used to advantage in fastening the cot, the cot fastener 5 having a stationary front hook 12 to receive the front post 10 and there being a pivoted rear hook 13 to receive the rear post 11. I am aware that other fasteners have been provided heretofore having a fixed front hook and a movable rear hook for application to the front and rear corner posts of

a cot, but in most instances the movable hook was adapted simply to lock and release the cot, whereas, it will soon appear, that in the cot fastener of my invention the hook or dog 13 forms a part of a load and fire mechanism, the "loading" operation occurring in the fastening of the cot and the "firing" operation occurring in the subsequent manual release of the cot, so that the cot is moved clear of the cot fastener and can be removed quickly from the ambulance. In that way loss of time is avoided and there is no room for confusion in regard to how the cot may be disconnected from the cot fastener. It will also soon appear that the load and fire mechanism facilitates the fastening of the cot, due to the fact that the operator can tell from the clicking sound when the trigger-like latch for holding the hook 13 has snapped into place. In that way there can be no uncertainty as to whether the cot is or is not fastened.

In accordance with my invention, the hook or dog 13 is generally V-shaped and pivoted at 14 intermediate the ends of one finger of V in the housing 15, and has a coiled compression spring 16 acting between a wall of the housing and the end of the pivoted finger to urge the hook normally in a clockwise direction to the released position, indicated in Fig. 1. In that position the apex portion of the V is limited by engagement with a stop pin 17. The hook is adapted to be moved against the action of the spring 16 by engagement of the rear post 11 with the pivoted finger portion 18, so as to move the other finger portion 19 of the hook into position holding the cot locked between the two hooks 12 and 13 until such time as the trigger-like latch 20 is pulled. The latch 20 is pivoted in the housing 15 at 21 and has a notch 22 therein to receive the tooth 23 defined by the apex portion of the V-shaped hook 13. A coiled tension spring 24 connected at one end to a pin 25 in the housing 15 and at its other end to an eyelet 26 on the free end of the latch tends normally to urge the latch toward locking engagement with the hook 13, movement in that direction being limited by engagement with the tooth 23 in the released position of the hook. A flexible wire 27 is connected to the latch 20, as indicated at 28, and extends rearwardly from the housing 15 through a tube 29 that extends to a point near the rear door opening, a knob 30 being fastened on the rear end of the wire for convenience in pulling the latch. Another tube 31 extends forwardly from the housing 15 and carries the hook 12 on its front end. A bracket 32 formed as an integral

part of the housing 15 and another bracket 33 attached to the forward end portion of the tube 31 provide means for attaching the cot fastener to the side wall 6, these brackets being preferably slotted vertically, as indicated, to facilitate application to and removal from the anchoring bolts 34.

In operation, the hook 13 is normally in the position illustrated in Fig. 1 with the finger 18 thereof extending from the notched corner portion 35 of the housing 15. The cot to be fastened is rolled forwardly to a position where the front corner post 10 engages the hook 12, rubber bumper means 36 being provided to silence and cushion the impact of the post 10 with the hook 12 and also eliminate rattling afterward when the ambulance is in motion. When the front post 10 is hooked, the rear post 11 is adjacent the notched portion 35 of the housing 15, as clearly appears in Fig. 1, and it is therefore a simple matter to complete the fastening of the cot by pushing the cot toward the cot fastener so that the rear corner post 11 strikes the finger 18 of the hook 13 and turns the hook about its pivot 14 against the action of the spring 16 in a counterclockwise direction as viewed in Fig. 3. The tooth 23 in this movement of the hook 13 slides along the smooth surface 37 on the latch 20, forcing the latch toward the dotted line position shown in Fig. 3 against the action of its return spring 24. However, as soon as the tooth 23 arrives at a position adjacent the notch 22 in the latch, the latch is snapped into the holding position shown in full lines in Fig. 3 and the hook is locked with the rear corner post 11 retained between the fingers 18 and 19 of the hook, as clearly appears in Fig. 3. The release of the cot requires only a pull on the knob 30 sufficient to move the latch 20 to the dotted line position in Fig. 3, whereupon the spring 16 acts to turn the hook 13 in a clockwise direction to free the rear corner post 11 and at the same time move it out of the notch 35 so that the ambulance attendants can roll the cot away quickly and remove it from the ambulance. It is apparent that there are few moving parts and they are all of relatively simple construction so that the device will operate satisfactorily without requiring much, if any, attention.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention. The appended claims have been drawn to cover all legitimate modifications and adaptations.

I claim:

1. Detachable coupling means for a cot fastener of the type comprising a horizontal hook mounted on a support for releasable hook-on engagement with an upright part on one end of a cot disposed alongside said support, said detachable coupling means being adapted to engage an upright part on the other end of the cot and comprising a hook pivotally mounted on said support in spaced relation to the first hook for locking engagement releasably with the second upright part, a relatively strong spring means normally urging the pivoted hook to one extreme position in released relation to the second upright part whereby to eject the cot from locked position instantly upon release of the pivoted hook, said pivoted hook being movable with said second upright part to locked position in locking engagement with said part against the action of said spring means, a latch for releasably locking the pivoted hook in locked position, a relatively

weak spring means normally urging said latch to locking position, and manually operable means for releasing said latch.

2. A cot fastener, comprising an elongated frame having a hook on one end thereof for hook-on engagement with one end portion of a cot, a housing on the other end of said frame, a pivoted locking dog in the housing projecting therefrom for engagement with a portion on the other end of the cot to be fastened, a relatively strong spring means normally tending to turn said dog in one direction toward released position whereby to forcibly eject the cot when the dog is released, said dog being movable in the opposite direction with the cot part toward locked position, a spring pressed latch in said housing operable by a relatively weak spring for releasably locking said dog in locked position, an elongated tubular member extending from said housing to an operating point, and an elongated flexible pull element connected with said latch at its inner end and extending through said tubular member to the operating point for manual release of said latch.

3. A cot fastener, comprising an elongated frame having a hook on one end thereof for hook-on engagement with one end portion of a cot, a housing on the other end of said frame, said housing having a cut-away corner portion into which a portion on the other end of the cot is adapted to move in the fastening of the cot, a locking member pivoted in said housing adjacent the cut-away corner portion and formed to provide two fingers in outwardly diverging relation movable in the cut-away corner portion of said housing and a radially projecting locking tooth in angularly spaced relation to said fingers within the housing, a relatively strong spring means for forcibly ejecting the cot from locked position instantly upon release of said locking member tending to turn said locking member in one direction to a released position in which one finger thereof is disposed in the cut-away corner portion of the housing for engagement with the cot part to be fastened, said locking member being movable with said cot part against spring action of said strong spring means to locking position wherein the cot part is disposed between the two fingers, and manually operable catch means, including a relatively weak spring means normally urging said catch means to operative position, cooperating with the locking tooth to lock said member releasably in locked position, whereby said catch means is movable to released position against relatively light spring resistance.

4. A cot fastener, comprising an elongated frame having a hook on one end thereof for hook-on engagement with one end portion of a cot, a housing on the other end of said frame, said housing having a cut-away corner portion into which a portion on the other end of the cot is adapted to move in the fastening of the cot, a locking member pivoted in said housing adjacent the cut-away corner portion and formed to provide two fingers in outwardly diverging relation movable in the cut-away corner portion of said housing and a radially projecting locking tooth in angularly spaced relation to said fingers within the housing, a relatively strong spring means for forcibly ejecting the cot from locked position instantly upon release of said locking member tending to turn said locking member in one direction to a released position in which one finger thereof is disposed in the cut-away corner portion of the housing for engagement with the cot

to be fastened, said locking member being movable with said cot part against spring action to locking position wherein the cot part is disposed between the two fingers, a spring pressed latch operable by a relatively weak spring means and pivotally mounted in said housing having a notch provided therein for locking engagement with the tooth on the aforesaid member to hold the same in locked position, and manually operable means for releasing said latch.

5. Cot fastening means for vehicles, comprising a horizontal hook mounted on a support for releasable engagement with an upright part of a cot disposed alongside said support, another hook pivotally mounted on said support in spaced relation to the first hook for locking engagement releasably with another upright part of said cot in longitudinally spaced relation to the first upright part, a relatively strong spring means normally urging the pivoted hook to one extreme position in released relation to the last mentioned upright part of said cot whereby to eject the cot from locked position instantly upon release of the pivoted hook, said pivoted hook being movable to locked position in locking engagement with said upright part against the action of said spring means by engagement therewith of said upright part, said hook having a locking portion, a latch pivotally mounted adjacent said hook having a notch therein to receive said locking portion for releasably locking said hook in the latter position, said latch also having a cam surface thereon extending from the notch for slidable engagement thereon of the locking portion of said hook in its movement toward engagement in the notch, a relatively weak spring means urging the latch toward locking engagement with

said hook, and manually operable means for releasing said latch.

6. In a cot fastening mechanism, the combination of a support, a generally V-shaped hook member pivoted on said support by one finger of the V intermediate the ends of said finger, a relatively strong compression spring seated at one end on said support and bearing at its other end against the outer end of the pivoted finger to swing the hook toward an open position for reception of a portion of the cot to be fastened whereby to eject the cot from locked position instantly upon release of the pivoted hook member, a latch pivotally mounted at one end on the support adjacent the apex portion of the V-shaped hook and having a notch provided therein adjacent its pivoted end for releasable locking engagement therein of the apex portion of the V-shaped hook, said V-shaped hook when locked by the latch being disposed so as to retain the adjacent portion of the cot engaged between the fingers of the V-shaped hook, a relatively weak tension spring secured at one end to the support and at its other end to the free end of said latch tending normally to urge the latch toward the apex portion of the V-shaped hook, and manually operable means for retracting said latch.

7. A cot fastening mechanism as set forth in claim 6, wherein the latch has a cam surface provided thereon on that side toward the apex portion of the V-shaped hook and extending away from the notch and arranged to be slidably engaged by the apex portion of the V-shaped hook in its movement toward engagement in the notch.

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