J. G. MYERS.

AUTOMATIC GRAB CATCH AND RELEASE DEVICE.

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1,368,647.

Patented Feb. 15, 1921.

Fig. 1

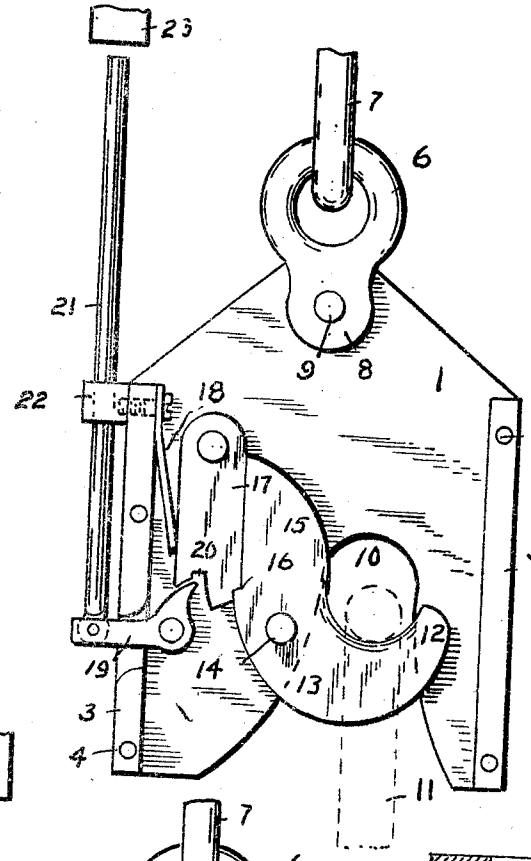


Fig. 2

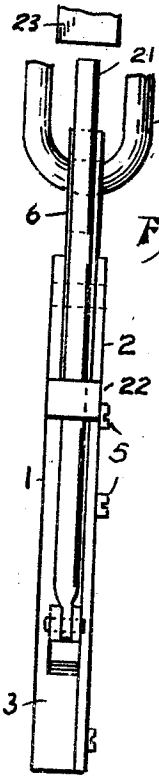


Fig. 3

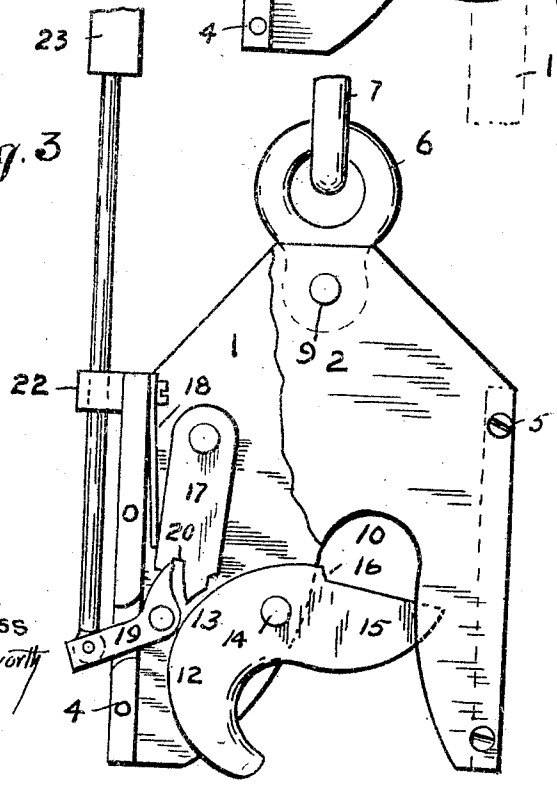
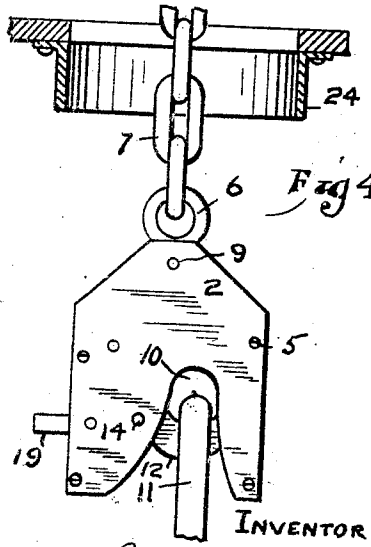


Fig. 4



WITNESS

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AUTOMATIC GRAB CATCH AND RELEASE DEVICE.

1,368,647. Specification of Letters Patent. **Patented Feb. 15, 1921.**

Application filed June 2, 1920. Serial No. 386,097.

To all whom it may concern:

Be it known that I, JOHN G. MYERS, a citizen of the United States, and residing in the borough of Braddock, in the county of Allegheny and State of Pennsylvania, have invented or discovered new, useful, and Improved Automatic Grab Catch and Release Devices, of which the following is a specification.

My invention consists of an automatic grab catch and release coupling, for use with skull crackers for breaking up metal scrap, and for other similar purposes.

The object which I have in view is the provision of a device of this character which will automatically grab the load when lowered to position, and will then automatically release the load when the latter has been elevated or otherwise transported, to the position desired.

In the accompanying drawings, Figure 1 is an elevation of the device, with one of the face plates removed, the grab hook being shown locked closed, as it is when supporting a burden; Fig. 2 is an edge view of the same; Fig. 3 is an elevation similar to Fig. 1 showing the hook in its open or released position, and Fig. 4 is a reduced elevation showing the device working with a ring which when the device is sufficiently elevated, engages the trigger and releases the hook, allowing the load to be dropped.

The following is a detailed description of the drawings.

The casing of the device is preferably formed of two parallel face plates 1 and 2, the plate 2 being omitted in Fig. 1 and shown partially broken away in Fig. 2 for the sake of clearness. Said plates are held apart by the spacers 3 which may conveniently be vertical edge flanges on the inner face of the plate 1, provided with threaded holes 4 to receive the screw bolts 5 inserted through holes in the plate 2 to hold the latter in position to inclose the casing.

6 is an attaching ring for the hoisting chain or cable 7; said ring being pivotally attached by means of its pierced ear 8 inserted between the top edges of the plates 1 and 2 with a rivet or bolt 9 inserted through said plates and said ear. The top of said plates are preferably tapered upwardly and inwardly at the top for clearance.

The lower ends of the plates 1 and 2 are preferably upwardly apertured, as at 10, for clearance for the eye 11 of the drop weight or the ring of the chain supporting the load, as the case may be so that said eye or ring may be inserted up into the casing, as shown in Figs. 1 and 4 to be engaged by the curved head 12 of the hook member 13 which is pivoted intermediate of its ends between the plates 1 and 2 as by means of the pivot bolt or rivet 14. The head 12 is hooked or curved to engage the eye 11, as shown. The tail 15 of the hook member is so disposed, relative to its head 12 as to intersect the plane of the apertures 10 when the hook is open, thus being engaged by the entering eye 11 and thrown upwardly, thereby causing the hook member to reverse from the position shown in Fig. 3 to that shown in Fig. 1 with the head 12 of the hook inserted through the eye 11.

The outer edge of the tail 15 of the hook member is provided with an angular shoulder 16, which, when the hook is in its closed position shown in Fig. 1, is engaged by a pivoted latch member 17 mounted in the casing, thereby locking the hook closed against accidental release. Said latch 17 is normally held in its engaged or locking position by means of a leaf spring 18.

19 is a releasing trigger pivotally mounted in the casing with its inner end or head engaging a notch 20 in the lower end of the latch 17 while its outer end or tail protrudes through a slot in the edge of the casing.

In Figs. 1, 2 and 3, I show the tail of the trigger pivotally attached to the lower end of a push rod 21 journaled to slide vertically in a bearing 22 on the edge of the casing, said rod protruding above the casing, so as to strike against an abutment or fixed member 23 which would result in tilting the trigger 19 so that its head would be elevated, forcing the latch 17 out of locking engagement with the tail 15 of the hook member 13, so that the weight of the load suspended from the hook member will cause the same to reverse into the position shown in Fig. 3 releasing and dropping the load. When the hook is open as shown in Fig. 3, the upward insertion of the eye 11 will reverse the hook into the position shown in Fig. 1, causing the latch 17 to spring into locking engagement with the shoulder 16 as shown.

In Fig. 4, I have omitted the push rod 21,

and have shown a ring abutment or bell 24 against which the tail of the trigger 19 strikes when the load has been sufficiently elevated, thus releasing the hook and dropping the load.

The abutment 23 or ring 24 may be mounted on the hoist or other elevating mechanism or part thereof, so that when the load has been brought to a predetermined elevation, it is automatically dropped.

The advantages of my invention are both self-evident and manifold.

Among them may be mentioned the fact that both the engagement and release of the hook with the load are automatically accomplished, requiring no pull ropes, and thus effecting a great saving in labor and time. The device is inexpensive, contains few parts, none of them subject to much wear or liable to get out of order.

What I desire to claim is:

1. An automatic grab catch and release device comprising a casing adapted to be attached to hoisting mechanism, and upwardly apertured for the insertion of a ring element connected with the load to be handled, a hook member pivoted intermediate of its ends in said casing in such a manner that when the hook is closed the hooked end of said member intersects said aperture and engages said ring element and when the hook is open the tail of said member intersects said aperture so as to be struck by the entering ring element thereby reversing the hook member and thus automatically closing the hook, a spring latch adapted to automatically engage said hook member and lock the hook closed, and a trigger protruding from said casing and adapted to be actuated to release said catch and thus automatically open said hook when the casing has attained a predetermined height and drop the load.

2. An automatic grab catch and release device comprising a casing adapted to be attached to hoisting mechanism, and upwardly apertured for the insertion of a ring element connected with the load to be handled, a hook member pivoted intermediate of its ends in said casing in such a manner that when the hook is closed the hooked end of said member intersects said aperture and engages said ring element and when the hook is open the tail of said member intersects said aperture so as to be struck by the entering ring element thereby reversing the hook member and thus automatically closing the hook, a spring latch adapted to automatically engage said hook member and lock the hook closed, and a trigger engaging said latch and protruding from said casing, and adapted to be struck to release said latch from said hook member when the casing has attained a predetermined elevation, thereby permitting the hook to open and drop the load.

3. An automatic grab catch and release device comprising a casing adapted to be attached to hoisting mechanism, and upwardly apertured for the insertion of a ring element connected with the load to be handled, a hook member pivoted intermediate of its ends in said casing in such a manner that when the hook is closed the hooked end of said member intersects said aperture and engages said ring element and when the hook is open the tail of said member intersects said aperture so as to be struck by the entering ring element thereby reversing the hook member and thus automatically closing the hook, a spring latch adapted to automatically engage said hook member and lock the hook closed, a release trigger protruding from said casing and adapted when actuated to release said latch from engagement with said hook member, thereby permitting the hook to open and drop the load, and a vertically sliding push rod exteriorly mounted on said casing and pivotally connected to said latch, said push rod coming into contact with a portion of said hoisting mechanism when said casing attains a predetermined elevation.

Signed at Pittsburgh, Pa., this 29th day of May, 1920.

JOHN G. MYERS.