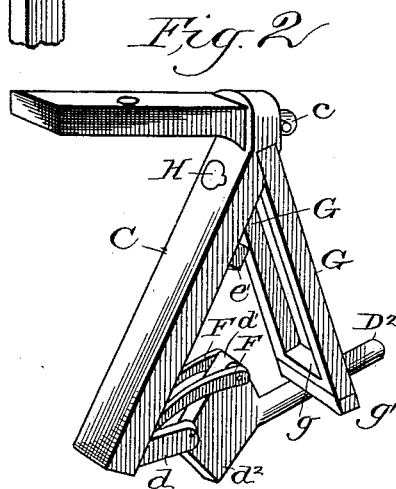
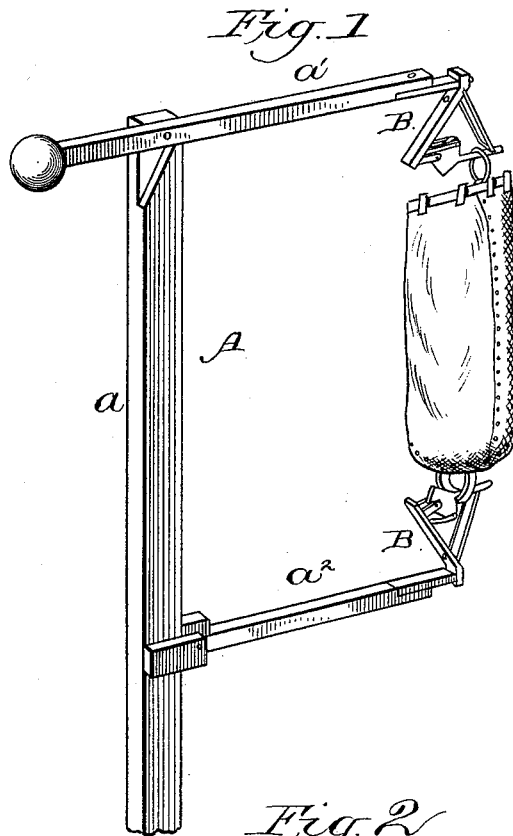


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CRANE FOR SUSPENDING MAIL BAGS.

No. 481,673

Patented Aug. 30, 1892.



Witnesses  
*M. Reynolds*  
*M. McMahon*

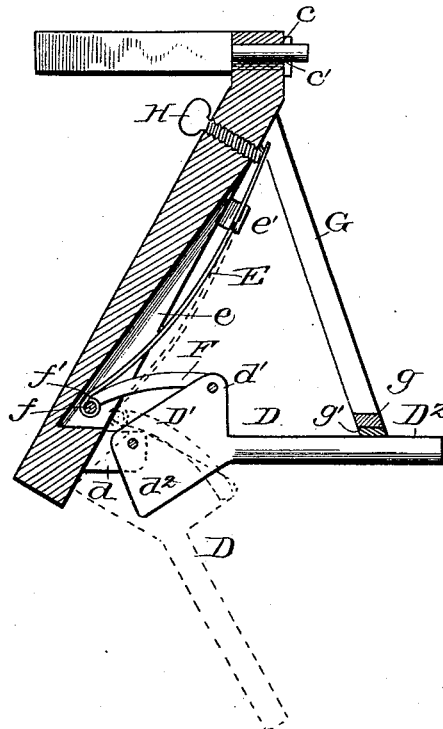
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By his Attorney  
*J. R. Littell*

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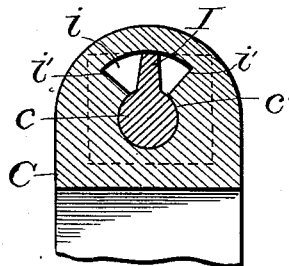
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*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

ETHEL A. RAY, OF FLORENCE, SOUTH CAROLINA.

## CRANE FOR SUSPENDING MAIL-BAGS.

SPECIFICATION forming part of Letters Patent No. 481,673, dated August 30, 1892.

Application filed April 12, 1892. Serial No. 428,821. (No model.)

*To all whom it may concern:*

Be it known that I, ETHEL A. RAY, a citizen of the United States, residing at Florence, in the county of Florence and State of South Carolina, have invented certain new and useful Improvements in Cranes for Suspending Mail-Bags; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to cranes for suspending mail-bags; and it has for its object to provide a crane of this character in which the suspending-triggers are designed to yield vertically and laterally during the detachment of the bag therefrom, whereby all strain and accidental damage to the bags are obviated.

A further object of the invention is to provide a mail-crane in which the working parts are so simply and easily actuated as to necessitate only a light construction of carrying-frame, thus avoiding the requirement of heavy and expensive frames, such as are now commonly employed.

In the drawings, Figure 1 is a perspective view of a mail-crane embodying my invention and illustrating the application of a mail-bag thereto. Fig. 2 is a similar enlarged detail view of one of the suspending devices. Fig. 3 is a vertical longitudinal sectional view of the latter, the vertical movement of the trigger being illustrated in dotted lines. Fig. 4 is a transverse sectional view taken through the bearing of the lower suspending device, illustrating the means for limiting the lateral movement of the latter.

Corresponding parts in the figures are denoted by the same letters of reference.

Heretofore mail-cranes have been employed having the suspending triggers adapted to yield laterally only, the ring and strap at the respective ends of the bag being retained in engagement with the triggers and the latter held in proper position by means of springs secured to the arms carrying the triggers and projecting over and engaging the free ends of the latter, the contact edge of the springs being recessed to partially receive the triggers. This construction is open to the objection that no provision is made for the yielding of the triggers toward each other, which is essential

to a practical operation. It is well known that when the bag-catcher carried by a mail-car engages the bag at its center the ends of the latter are drawn toward each other. Thus, if no means are provided to permit of this, the bag, particularly if the train is moving at a high rate of speed, is forcibly detached from the crane, frequently resulting in the breakage of the ring or loop of the bag, or both.

Another objection is that with the great force required to detach the mail-bags from a crane of this construction the springs quickly become weakened and fail to engage the triggers. When such is the case, the strong current of air created by a fast-moving train is often sufficient to throw the unrestrained bag out of reach of the bag-catcher.

The office of my present invention is to obviate these disadvantages; and to this end it consists in the improved construction, combination, and arrangement of parts, which will be hereinafter more fully described, and particularly pointed out in the claims.

Referring to the drawings, A designates the frame or crane proper, which is by preference of the well-known construction, consisting of the vertical standard *a*, disposed adjacent to the track, and the upper and lower pivoted gravity-arms *a'* *a''*, respectively, adapted to project horizontally toward the track.

B designates my improved attaching devices, one being provided for each of the arms *a'* *a''*. The devices B being of similar construction a description of one will therefore be all that is necessary to a clear understanding of the invention. To the free ends of said arms is secured or formed integral therewith a journal *c*, which receives the bearing *c'* of a plate or bar C. The bearing of the latter is arranged at an angle to the main portion thereof, whereby when the arm carrying the same is in a horizontal position said plate or bar projects inwardly toward the standard *a*. Upon the face of the plate or bar C and near its free end are provided a pair of lugs *d* *d'*, between which is pivoted a trigger D. The latter consists of a cam-head *D'*, at one edge of which the fulcrum is formed, said head having at its edge nearest the bearing of the plate or bar an extension *d'* and opposite said extension a stop *d''*. From the outer edge of the cam-head projects the trigger proper *D''*,

the latter being at one side the longitudinal plane of the fulcrum.

E designates a flat spring arranged longitudinally at the outer face of the plate or bar and having its outer end normally engaging a recess *e* provided therefor in the plate or bar. This spring is secured in rear of its center by two lugs *e' e'*, projecting from the plate or bar, said lugs being transversely slotted at their opposing faces to accommodate the edges of the spring. The forward end of the latter is connected with the extension *d'* of the cam-head by two links F F, pivoted one at each side of said extension. The ends of the bars adjacent the spring are curved toward the free end of the plate or bar C, and said ends are connected with the free end of the spring by a pivot pin or bolt *f*, which passes through a bearing-eye *f'*, formed at the end of the spring.

By the employment of the foregoing construction it will be clearly obvious that the greatest tension is exerted upon the trigger when the latter is in normal position and diminishes as the trigger is drawn upon—an important desideratum.

To limit the movement of the trigger toward the plate of bar C and to securely retain the bag in attached position, I provide a stop, consisting of two rods G G, secured to said plate or bar and projecting at an acute angle toward the free end thereof. At the outer end of said rods is a connecting cross-piece *g*, to the outer face of which is secured a cushion *g'*, against which the trigger bears when in normal position.

Passing through the plate or bar C from the inner side is a set-screw H. The inner end of this screw engages the distal end of the spring E and serves as a means for regulating the tension thereof. Thus when the spring becomes weakened from long usage the difficulty may be at once remedied by tightening the tension-screw.

In the case of the upper device B, which is designed to project below the arm to which it is connected, I employ a true cylindrical journal *c* and bearing *c'*, as above described, the device finding its proper position by gravity; but in the case of the lower device B, which is designed to project above its arm, I have found it desirable to provide means for limiting its lateral movement. To this end its journal *c* is provided at its upper side at its inner end with a lug I. The bearing *c'* is likewise provided at its corresponding end with a segmental offset *i*, terminating at its ends in shoulders *i' i'*. Thus in practice the lug I is seated in the offset *i*, and when not sustained the device B turns to one side or the other until the lug engages the respective shoulder *i'*, preventing further turning, as clearly shown in Fig. 4.

The operation and advantages of my invention will be readily understood by those skilled in the art to which it appertains.

To attach a mail-bag, the arms *a' a'* are first

thrown to a horizontal position. The triggers are then removed from contact with the cushions *g'* and the ring and strap at the respective ends of the bag slipped over the triggers, the tension of the springs controlling the latter being sufficient to return the triggers to their normal position and firmly support the bag. As the bag-catcher of a passing train engages the bag the triggers yield toward each other to accommodate the contraction of the bag. Simultaneously the devices B yield laterally, permitting the bag to be detached from the triggers without any undue strain upon the bag or its ring and strap.

I claim as my invention—

1. In a mail-crane, the combination, with the crane proper provided with arms having journals at their free ends, of plates or bars provided each with a bearing portion located at an angle to the main portion and receiving the journals, said plates or bars projecting inwardly, and a spring-held trigger carried by each plate or bar and adapted to yield toward each other, substantially as set forth.

2. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger pivoted at the free end thereof, a spring, and connections between said spring and the trigger, substantially as set forth.

3. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger provided with a cam and pivoted at the free end of said bar, a spring provided at its free end with a transverse eye, and links pivotally connecting the cam-head with the eye in the spring, substantially as set forth.

4. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger mounted at the free end thereof and provided at one side with an extension and at the opposite side with a stop, a spring disposed longitudinally at the face of the plate or bar, and links connecting the spring with the trigger, said links having their ends adjacent to the spring curved toward the trigger, substantially as set forth.

5. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger mounted at the free end thereof, a spring, connections between the latter and the trigger, and a cushioned stop carried by the plate or bar and adapted to limit the movement of the trigger toward the same, substantially as set forth.

6. As an improvement in mail-cranes, a bag-attaching device comprising a carrying plate or bar, a trigger pivotally mounted upon the same, a flat spring carried by said plate or bar, devices connecting the trigger with the spring, and means for regulating the tension of the spring to control the yielding movement of the trigger, substantially as set forth.

7. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar

adapted to swing laterally, a trigger pivoted at the free end thereof, a spring secured upon the face of the plate or bar, connections between the free end of the spring and the trigger, and a set-screw passing through the plate or bar and bearing against the distal end of the spring, substantially as set forth.

8. As an improvement in mail-cranes, a bag-attaching device comprising a plate or bar adapted to swing laterally, a trigger pivoted at the free end thereof and provided with an extension and with a stop, a spring secured

upon the face of the plate or bar, connections between the free end of the spring and the extension of the trigger, and a cushioned stop carried by the plate or bar and adapted to be engaged by the trigger when in normal position, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ETHEL A. RAY.

Witnesses:

T. E. WALLACE,  
MAITLAND CHASE.