J. A. BOALS.
Mail-Bag Crane.

No. 196,421. Patented Oct. 23, 1877.

Fig 1.

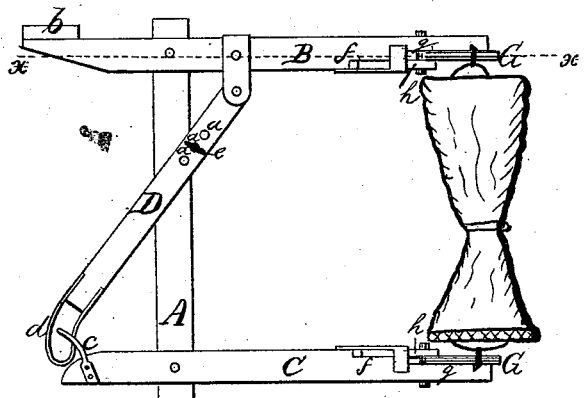


Fig 2

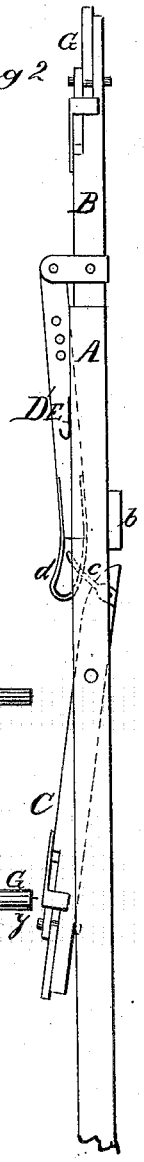


Fig. 4.

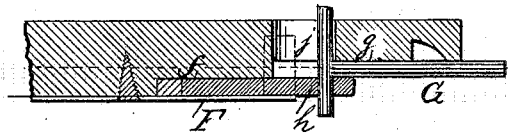
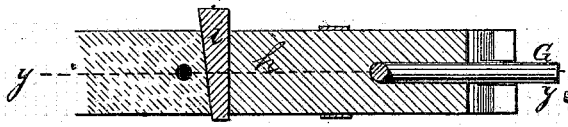


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES A. BOALS, OF DINSMORE, ASSIGNOR TO D. M. BAILEY & BROTHERS, OF CARDVILLE, PENNSYLVANIA.

IMPROVEMENT IN MAIL-BAG CRANES.

Specification forming part of Letters Patent No. **196,421**, dated October 23, 1877; application filed July 14, 1877.

To all whom it may concern:

Be it known that I, JAMES A. BOALS, of Dinsmore, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Mail-Bag Cranes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation, showing a mail-bag in position. Fig. 2 is a side view taken from the opposite side, the mail-bag having been detached. Fig. 3 is a section on the line *x x*, Fig. 1; and Fig. 4 is a section on the line *y y*, Fig. 3.

Similar letters of reference indicate corresponding parts in all the figures.

My invention relates to that class of mail-bag cranes in which the arms between which the bag is suspended are arranged to swing aside the instant the bag is released; and it consists, specifically, in certain improvements on the mail-bag crane for which Letters Patent of the United States, No. 179,511, were granted on the 4th day of July, 1876, as I shall now proceed more fully to describe.

In the drawings, A is an upright having two pivoted arms, B C. The upper of these, B, has a pivoted brace, D, having at its lower end a loop or bail, *d*, engaging with a similar loop or bail, *c*, at the rear end of the lower arm C, thus forming a loose hinge, which admits of the free movements of the brace and arm. The rear end of arm B is loaded with a weight, *b*, to balance the weight of brace D. This latter has a series of perforations, *a a*, through one of which is inserted an adjustable pin or bolt, *e*, which, when the arms are brought together to receive the mail-bag, rests in a hook, E, secured to the front of upright A, thus performing the double function of regulating the distance between the ends of the arms to receive a large or small mail-bag, and serving as a rest for brace D and arm B. The ends of arms B C, which, when the arms are in a horizontal position, face each other, are doubly recessed or stepped, as shown, at *f g*. In the inner recesses *f* are placed flat rubber springs or cushions *h h*, retained in place by clamps F, and adjustable by wedges *i*. In these rubber pads, and in slots *j j* in the ends of the arms, are pivoted T-shaped hooks G, the bodies of which occupy the outer recesses *g*, in which they are held by the tension of the rubber springs.

In operation, the lower arm is raised from the vertical position which it naturally occupies, as in Fig. 2, to a horizontal position. (Shown in Fig. 1.) Being hinged to brace D, it lowers this and arm B, which latter is thus also brought to a horizontal position, parallel to arm C, while the brace connects the two, and, by the adjustable bolt *e*, keeps their ends a proper distance apart. The mail-bag is now suspended, by the ring at its upper end, upon the T-shaped hook G of the upper arm. Its lower ring is similarly slipped over the T-shaped hook of the lower arm, as shown in the drawing. The hooks are kept in position by the tension of the rubber springs, which may be regulated by the wedges *i*. The ends of arms B C are notched, in the usual manner, to receive the ends of hooks G and prevent the bag from slipping off by the currents of air set in motion by passing trains. When the catcher of a passing mail-train comes in contact with the bag, it first takes up the slack of this and of arms B C, thus securing the bag safely in the angle of the catcher. The ends of hooks G G are then released from the notches in the ends of the arms, thus allowing the hooks to swing aside, so as to permit the mail-bag to slip off. As soon as the bag is released the weight of arm C causes it to fall down vertically along the side of upright A. At the same time it lifts the brace D, the weight of which is counterbalanced by the weight *b* upon arm B, which latter is also pushed, by brace D, up to a vertical position, as shown in Fig. 2.

The general advantages of my improved mail-bag crane are so obvious as to require no further explanation. Over and above the mail-bag crane heretofore patented by me, as above described, my improvement has the advantage of certainty of action. In said patent the lower arm is relied on, when it falls

down by the release of the bag, to strike against the brace pivoted to the upper arm and lift it off a stud upon which it rests. This I have found not always to work satisfactorily; but my present improvement, having the end of arm B hinged loosely to brace D, as herein described, obviates this disadvantage. The construction and operation of the hooks for holding the mail-bag are also materially improved.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The upright A, having pivoted arms B C, the former of these having pivoted brace D, hinged loosely, at its lower end, to the end or extension of arm C, substantially as and for the purpose herein shown and specified.

2. The connecting-brace D, having perforations *a a* and adjustable pin or bolt *e*, in combination with the upright A, having pivoted arms B C and hook E, all arranged and operating substantially in the manner and for the purpose shown and specified.

3. The arms B C, having double recesses *f g* and rubber springs or pads *h* and T-shaped hooks G arranged therein, substantially in the manner described, for the purpose shown and specified.

4. The combination of the rubber springs or pads *h*, wedges *i*, and pivoted T-shaped hooks G, forming the device for suspending the mail-bag between the arms B C, when arranged and operating substantially in the manner and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JAMES A. BOALS.

Witnesses:
I. P. KLEIN,
J. M. FULTON.