H. M. HALL.

Mail-Bag Crane.

No. 213,750. Patented April 1, 1879

Fig. 1.

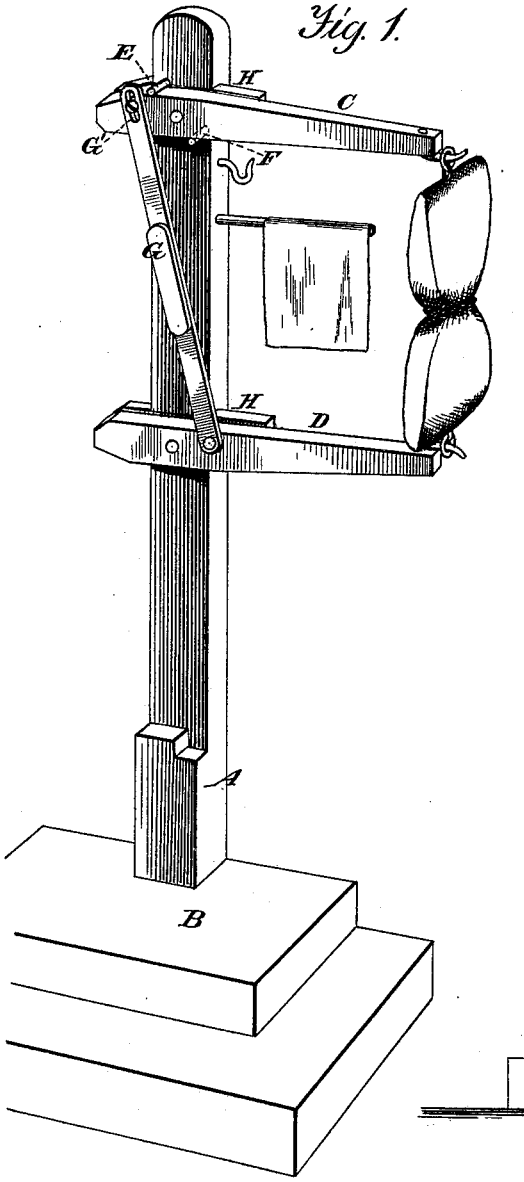
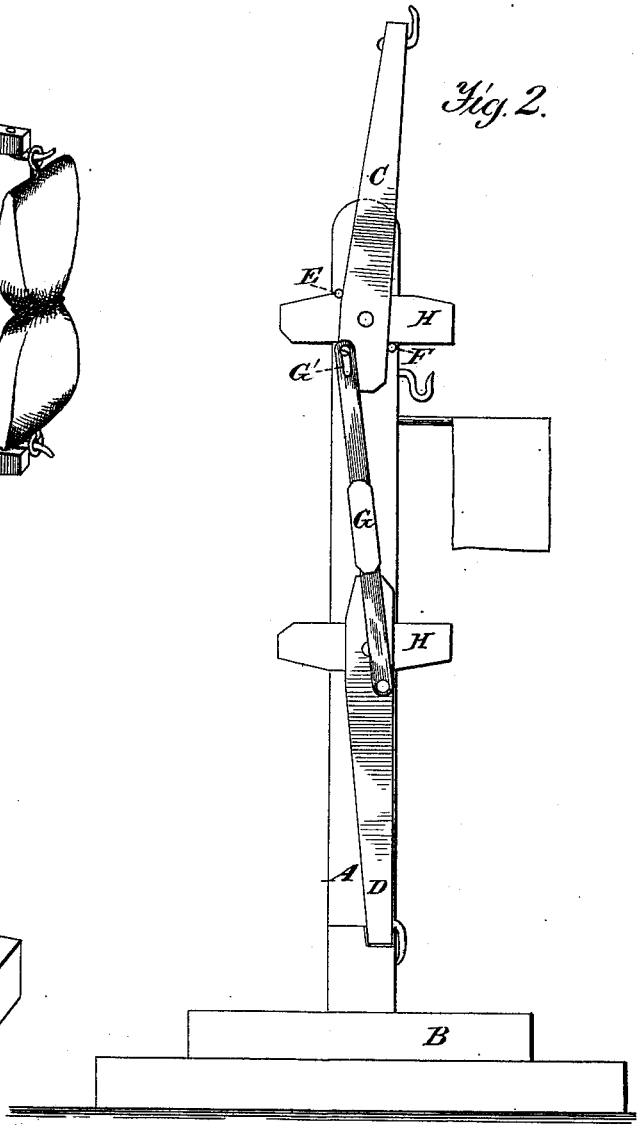



Fig. 2.




Witnesses.

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## IMPROVEMENT IN MAIL-BAG CRANES.

Specification forming part of Letters Patent No. **213,750**, dated April 1, 1879; application filed October 26, 1878.

*To all whom it may concern:*

Be it known that I, HARVEY M. HALL, of Olney, in the county of Richland and State of Illinois, 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 of the invention, 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, and to letters of reference marked thereon, which form a part of this specification—

Figure 1 being an elevation of a mail-bag crane having my improvements applied thereto, showing the arms extended horizontally, a mail-bag in position thereon, the weighted and slotted connecting-rod which unites the arms and aids in returning the upper one to its vertical position after the bag has been taken from it, and supporting plates or blocks for preventing strain upon the pivotal points of the arms as the bag is taken from them. Fig. 2 is a similar elevation, showing the arms in their vertical positions, the post to which the parts are attached, the supporting plates or blocks, the stops which arrest the movement of the upper arm as it falls into a horizontal position, the slotted connecting-rod, and the hooks which hold the bag in position when on the crane.

Corresponding letters denote like parts in both figures.

This invention relates to mail-bag cranes; and it consists in the construction, combination, and arrangement of some of its parts, as will be more fully explained hereinafter.

It is important that implements of this character should be automatical in their operations to as great an extent as possible, and that they should be so constructed as to be certain in their operations; and especially should they be so arranged that the distance between the outer ends of the arms which hold the bag in position to be taken into a passing car will be automatically and readily adjusted to the reception of bags of different lengths by the act of placing them in position thereon, and that without the changing of any of the pivotal points. It is also important that provision be made for preventing the strain put upon the pivotal points of the swinging arms, by the taking from them of a heavy mail-bag when the car into which it is received is moving at a speed of forty miles per hour, as is frequently the case; and, finally, it is important that these cranes should be capable of being constructed as economically as possible.

My invention has for its object the production of an implement, made by means of the novel construction of some of its parts, and by new combinations and arrangements thereof with such as are now in use to possess all of the advantages above recited; and to this end I construct the device as follows:

A is a post, of any suitable size and form, it being made of wood, cast-iron, or of any other suitable material, and of any desired form in cross-section. This post is to be placed in some convenient position at a railroad-station, or at other points where mail-bags are to be taken into a car while the same is in motion, it being secured to a platform, B, as shown in the drawings, or inserted into the earth. In either case it is to be placed at such a distance from the track that when the arms, soon to be described, which are attached to it, are in their horizontal positions, as shown in Fig. 1, the mail-bag, which is placed upon their outer ends, shall be in a position to be taken into a car by an implement used for that purpose.

To the post A two arms, C and D, are pivoted, the upper one, C, being at such a distance from the upper surface of the rails that when the bag is hung upon it it shall be at the proper height to be caught by the implement above referred to. In pivoting these arms to the post I prefer to make the holes through which the bolts for securing them thereto pass of such size as to admit of their being placed therein and around the bolts, thimbles, or ferrules, which shall turn freely upon the bolts but be tight in the arms, the object being to provide for as little resistance as possible to the movements of the arms by friction.

For the purpose of maintaining the arm C in its horizontal position, and, when in such position, its outer end at a fixed and unvarying height from the rails, so that the bag may be in the proper position to be taken on board

the train, there is fixed in the post A two studs or pins E, and F, the latter being below the arm and inside of a vertical line drawn through its pivotal points, and the former above said arm and outside of said vertical line, as shown in Fig. 1 of the drawings.

Below the arm C, and at such a distance therefrom as to leave a space between them equal to the length of an ordinary mail-bag, there is pivoted another arm, D, which turns on a bolt passed into or through the post A. Extending from the arm D to C there is a slotted and weighted connecting-rod, G, the lower end of which is pivoted to arm D inside of the point where it is pivoted to the post. At some point between its ends the connecting-rod G is enlarged or has attached to it a weight, for the purpose of enabling it to aid in bringing the upper arm into the position shown in Fig. 2.

In order that provision may be made for holding bags of different lengths, and that the change in the position of the arm D for that purpose may be effected automatically and as soon as the bag has been suspended, there is formed in the upper end of the connecting-rod G a slot, G′, which is of sufficient length to permit the outer end of arm D to fall down or be raised up to such an extent as to hold in position between its end and the end of arm C a bag several inches longer or shorter than the usual run of such bags, the weight of the connecting-rod aiding materially in holding the bag and in preventing it from being blown from the arms by gusts of wind or removed in any other unintentional manner, thus enabling me to dispense with the complicated mechanism usually employed for the production of such results.

Actual use of cranes for the purpose to which this is to be applied has demonstrated the fact that, however perfect they may be in their operations, there is a tendency to derange and destroy the pivotal points of said arms by the strain which is put upon them in taking the bag therefrom, as at such times the trains are usually moving at high rates of speed, so that when the catcher comes in contact with the bag it amounts to a blow upon the outer ends of the arms, the resultant strain of which is upon the pivotal points thereof. To avoid this difficulty, I place in the post A, just in rear of the arms, a plate of metal, H, or it may be of wood, which is of a width equal to or greater than the depth of the arms, and of sufficient length to form a support for them to rest against when in their horizontal positions. This support may consist of plates bolted upon the sides of the post, their outer surfaces being flush with the outer surface of the post. In either case they will prevent the bending of the bolt or pin supporting the arms, and decrease the liability of breaking the same in removing the bag therefrom.

The arrangement of the arms C and D and the connecting-rod G with reference to each other and to the stops in the post is such that when the parts are in the positions shown in Fig. 2, into which positions they automatically fall upon removing the bag therefrom, the arm C will have a tendency to fall into the position shown in Fig. 1, owing to the fact that when its upper end is raised to its highest point it is prevented from assuming a fully vertical position by the stops or pins E and F, (shown in Fig. 2,) and hence when the lower end of arm D is raised so as to relieve the arm C of the weight thereof and of the connecting-rod, it will automatically fall into its horizontal position, at which time it is ready to receive the bag, the upper end of which is attached to a hook placed in said arm, as shown in Fig. 1, after which the lower end of the bag is to be attached to a hook in the outer end of arm D, which, in the meantime, has been brought into position to receive it, said hooks being arranged to turn freely in the arms.

Should the bag to be held be longer than the one which had previously been placed thereon, the moment the loops or rings in its ends have been placed on the hooks in the arms the outer end of arm D will fall down to such an extent as to carry the ends of the two arms to such a distance from each other as to accomodate them to the length of the bag, in which movement it will be materially aided by the weight of the connecting-rod, owing to the fact that the point at which it is pivoted to the arm is inside of the pivotal point of said arm.

From the above description it will be seen that the slotted and weighted connecting-rod serves the double purpose of a weight to hold the bag in position, and a means whereby the distance between the outer ends of the arms is automatically lengthened.

I am aware that mail-bag cranes have heretofore been constructed with arms which are capable of being changed from a vertical to a horizontal position, and also from the horizontal to the vertical when the bag is removed therefrom, as in the patent of James A. Boals, No. 196,421, of October 23, 1877.

I do not therefore claim the use of two swinging arms, or the arrangement of parts there shown by which they are made to automatically change from a vertical to a horizontal position; but,

Having thus described my invention, what I do claim, and desire to secure by Letters Patent, is—

1. The weighted connecting-rod G, having a slot in its upper end and an additional weight between its ends, whereby it is made to aid in automatically changing the distance between the outer ends of the arms C and D, and at the same time serve as a weight for causing the required tension to be put upon the mail-bag when suspended, substantially as set forth.

2. The arrangement of the stops or pins E and F with reference to the upper arm of a mail-bag crane, it being such as described, whereby said arm is prevented from falling

below a horizontal or given position, and by which it is prevented from assuming a fully vertical position when its outer end is raised to its highest point, substantially as and for the purpose set forth.

3. The combination of the weighted and slotted connecting-rod G with the arms C and D of a mail-bag crane, substantially as set forth, the parts being constructed and arranged as shown and described.

4. The combination of the connecting-rod G with the arms C and D, the point of connection to the upper arm being outside of the pivotal point of said arm, and its point of attachment to the lower arm being inside of its pivotal point, as a consequence of which the weight of said connecting-rod is made to aid in carrying the upper arm to its elevated position, and at the same time aid in holding the bag upon its hooks, as described.

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

HARVEY M. HALL.

Witnesses:
W. A. WHEELER,
J. L. MCCOLLOUGH.