F. H. HALL.

MAIL CRANE.

APPLICATION FILED MAR. 24, 1909.

966,743. **Patented Aug. 9, 1910.**

Fig. 1.

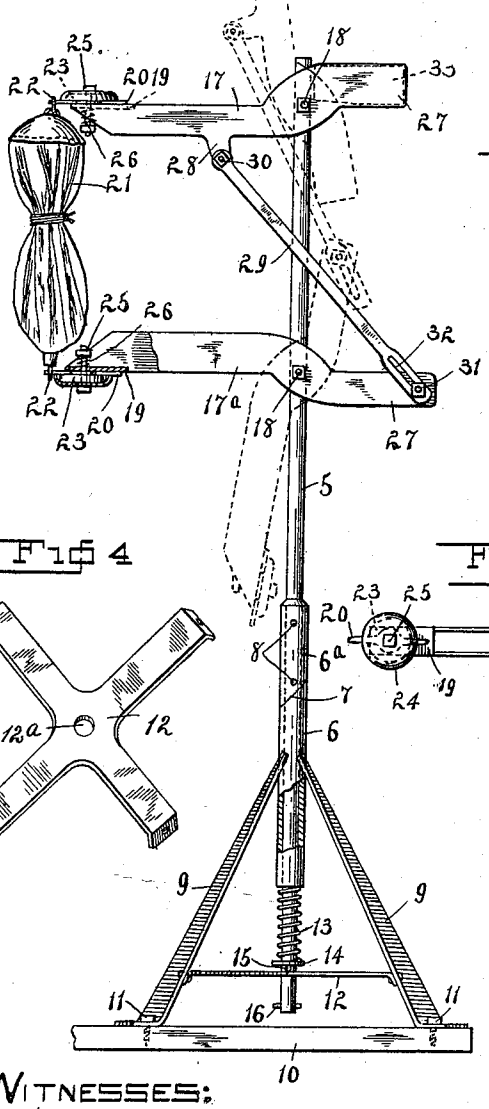


Fig. 2.

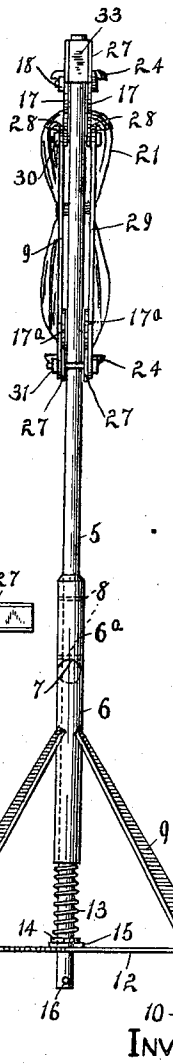


Fig 4

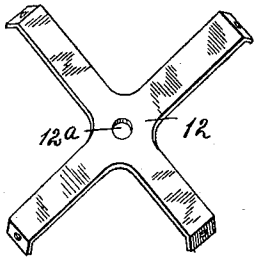
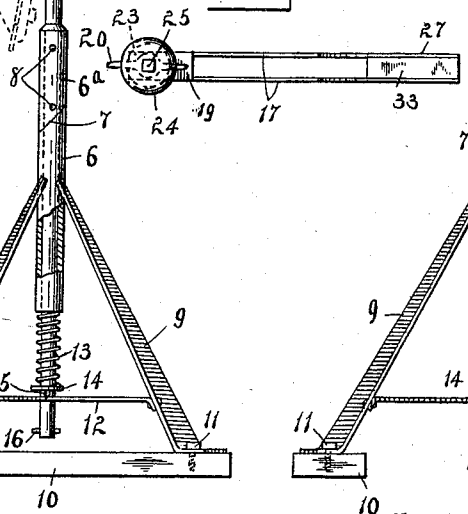


Fig. 3.



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MAIL-CRANE.

966,743. Specification of Letters Patent. Patented Aug. 9, 1910.

Application filed March 24, 1909. Serial No. 485,407.

To all whom it may concern:

Be it known that I, FRANCIS H. HALL, citizen of the United States, residing at Burbank, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Mail-Cranes, of which the following is a specification.

My invention relates to apparatus for delivering mail sacks aboard a moving train, such appliances being ordinarily designated as mail cranes.

The paramount object of the improvements which form the subject matter of this application is to provide a more durable apparatus than those in common use, and to accomplish this desirable result by pivotally mounting those parts of the apparatus which are subject to the greatest shock from the impact of the catching device, upon the bag, thus permitting these portions to yield by swinging upon their centers so as to relieve the strain and prevent injury to the mechanical structure at the same time avoiding excessive wear upon the bags.

Other objects of the invention are:—to produce a mail crane of such design and construction that the maximum strength of the material employed will be available, while the weight is reduced to a minimum; to provide means for holding the mail bag in such a manner that it will be readily released from its supports when caught by the fork, and yet will be retained in its operative position against the jar of passing trains, of the force of the wind, and to furnish a simple and efficient mechanism well adapted to the purpose in view and of such construction and material that it can be economically manufactured.

Further objects are to provide an apparatus for the purpose stated that can be readily secured to the road bed ties in ordinary use, thus avoiding the necessity of building elaborate supporting structures; to furnish a mechanism in which the extending arms are adapted to be folded or retracted so as to be out of the way of trains when not needed.

I accomplish the desired results by means of the appliance illustrated in the accompanying drawing, which forms a part of this application, the important details of construction being disclosed in the following views:—

Figure 1 is a side elevation of my improved automatic swinging mail crane, showing the apparatus in its operative position, the bag supporting arms being also indicated by dotted lines in their folded or retracted position; Fig. 2 is a rear elevation of the entire device; Fig. 3 is a top plan view of the upper bag supporting arm, and Fig. 4 is a perspective view of the bearing plate for the lower end of the standard or post.

Referring to the details of the drawing, the numeral 5 indicates a vertical post, passing loosely through a sleeve 6. The post 5 is held at a suitable height relatively to the sleeve by a fixed collar or cam 6^a, which rests upon the sleeve 6, the margins of contact between the members being inclined as shown in Fig. 1, at 7. The said collar or cam is secured to the post by rivets 8 and the sleeve 6 is supported by inclined legs 9 to form a base, the ends of the legs being bent to form flanges secured to the ties 10 by bolts 11. The post 5 and the base are preferably constructed of steel as this material is especially durable and may be readily shaped, the manufacture being greatly facilitated when the parts are formed in the manner disclosed in the drawings and pointed out in the description. Connecting the legs 9 is a plate or spider 12 having radiating arms which are downwardly bent at the ends and secured to the legs by rivets. In the center of this plate is a hole 12^a through which the lower end of the post passes, and in which it has a bearing. A coiled spring 13 surrounds the post below the sleeve 6, its lower end abutting against a washer 14, held by a retaining pin 15. The extremity of the post below the plate 12 is furnished with a transverse stop pin 16, which limits the upward movement of the post. Near its upper end the said post carries mail bag supporting arms 17, 17^a, pivoted to the post by bolts 18. These arms are constructed of a single piece, bent to form parallel sides as shown in Fig. 3 and between which the post passes. These sides are connected at their front ends by an integral plate or bridge 19, upon which are mounted double pointed fingers 20, adapted to support a mail bag 21, by the engagement of one of their duplicate ends with rings or eyes 22 attached to the ends of the bag. The fingers 20 are engaged by friction disks 23 made in the shape of cups, and secured by bolts 25, which pass through the said bridges 19 and form pivots for the

fingers 20, a spring 26 being placed between the nut and the plate 19 to increase the pressure of the cup shaped disk upon the fingers, and thus permit such tension to be varied by turning the said nut.

The rear portions 27 of the operating arms 17, 17ª, extend beyond the post to a suitable distance and are slightly offset from the forward portions of the arms as shown in the side elevation, Fig. 1. The sides of the upper arm 17 have depending ears 28, to which the ends of connecting links 29 are pivoted by a bolt 30. The links then pass downwardly at an angle upon each side of the post 5 and their extremities are pivoted by a bolt 31 upon opposite sides of the offset 27 of the lower arm, a slot 32 in the ends of the links permitting the necessary amount of lost motion to allow the arms to swing to their retracted positions indicated in dotted outline in Fig. 1. This folding movement is automatically produced by the action of a weight 33 which is located between the sides of the rearwardly projecting offset 27 of the upper arm 17. Since the forward ends of the said arms must be separated in the folding movement it follows that so long as the bag 21 is suspended between the two arms the weight 33 can have no effect. So soon, however, as the connection is broken by the removal of the bag the said weight is free to act and the arms will be automatically retracted or folded as described.

The operation of the crane is as follows: As the arms always occupy their folded position when out of use, they are brought to a horizontal by downward traction upon the upper arm and the points of the fingers turned until they project in the line of the arm or they may be turned so as to point in the direction which the train takes in passing, so as to facilitate the dislodgment of the bag when struck by the fork. The bag is then hung upon the points of the fingers and as it is arranged in the path of the catching fork which is placed in operative position upon the side of the car, the said fork will sweep the bag from its supports. As the fork strikes the bag the force of the blow will cause the arm and attached post to swing in the bearings in the base and cam 6ª, riding upon the inclined face 7 of the sleeve will cause a compression of the spring 13 which thus acts as a buffer to retard the swing of the crane arms. The fingers 20 being held by the friction of the cup disk 24 will also yield to the blow and turn upon their pivot bolts, thus insuring the release of the bag without any appreciable drag upon the suspension points. As soon as the bag leaves the crane the weight 33 will act to throw the arms to their inoperative position, and the spring 13 will restore the post to its initial position.

Having thus described my invention what I claim is:—

1. In a mail crane, the combination with a suitable support, of a post mounted to rotate in said support, arms pivoted on said post, pivoted fingers adapted to hold a mail bag, friction devices for retarding the movement of said fingers on their centers, means for folding said arms relatively to the post, and means for automatically restoring the post to its initial position, said means comprising a cam on said post adapted to engage a suitable face on the base, and a spring urging the cam against said face.

2. In a mail crane, the combination with a suitable base, of a sleeve mounted on said base, a post rotatably mounted in said sleeve, a cam fixed on said post and adapted to engage an inclined face on said sleeve, a spring on the post below the sleeve, a pair of coöperating arms pivoted to the post and adapted to swing vertically on their pivots, a weight on one of said arms, and fingers pivoted to the extremities of said arms.

3. In a mail crane, the combination with a suitable base, of a sleeve mounted on said base, a post rotatably mounted in said sleeve, a cam fixed on said post and engaging a corresponding face on the sleeve, a spring on the post below the sleeve, a pair of cooperating arms pivoted on the post and extending upon opposite sides thereof, said arms adapted to swing vertically on their pivots, link connection between the arms, a weight on one arm, fingers pivoted to the ends of the arms, and adjustable means for frictionally retarding the movement of said fingers on their pivots.

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

FRANCIS H. HALL.

Witnesses:

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GEO. H. WOOD.