

975,025.

**INVENTOR**

*FIG. 4.*

**WITNESSES**

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## MAIL DELIVERING AND RECEIVING DEVICE.

975,025.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, HAROLD G. EYNON, a citizen of the United States, and a resident of Lancaster, Pennsylvania, have invented a certain new and useful Mail Delivering and Receiving Device, of which the following is a specification.

The general purpose of my invention is to provide a rotary mail bag catcher, having protected operating mechanism, which shall be capable of operation to receive and catch bags from trains moving in either direction and upon either side of the device.

A further purpose of my invention is to provide for rotation of the catching arm through any predetermined distance with increased retardation and without tendency to fly back or return.

A further purpose of my invention is to oppose the rotation of the catching arms by a frictional retardation increasing with the extent of rotation and maintaining the device in any position to which the parts are moved when the impetus of the mail bag has been overcome.

The further purpose of my invention is to cause the rotation of the arms of a mail bag catcher to advance or retract a preferably inclosed screw with the same effect, preferably compression, resultant from either movement, upon a compressible or extensible medium, such as a spring, which is also preferably inclosed.

The further purpose of my invention is to mount the arms of a mail bag catcher upon a screw operating in a frame against a surface preferably in the form of a friction plate, determining the effect of the friction upon the surface by means such as a spring, preferably compressed thereagainst, and increasing the friction with movement of the screw in either direction by the increased bearing of the spring against the surface, causing the same effect of compression or distention of spring with movement of the screw in either direction from its normal position.

While my invention may exist in various forms and types, I have preferred to illustrate it in the form selected, not only because the latter is practical in operation and of good mechanical design, but because it illustrates the principles involved to great advantage.

Figure 1 is a vertical section of a structure embodying my invention. Fig. 2 is a transverse section taken upon line  $x-x$  of Fig. 1, but omitting the base. Fig. 3 is a top plan view of a portion of the sending arm. Fig. 4 is a plan view of a plate used in the construction shown.

Similar numerals of reference refer to the same parts in the drawings.

1 designates a standard, preferably of cylindrical form resting upon a base 2 and held down rigidly by any suitable means 3. The standard may be longitudinally slotted to reduce its weight, if desired, through any part of its height as at 4. At any suitable point 5, preferably above the opening 4, I provide a shelf or support within the standard upon which I rest one head 6 of a double headed bolt 7 whose other end 8 rests upon a plate 9 closing the lower end of an opening 10 in a screw 11 upon whose spindle delivery arms 12 and receiving arms 13 are mounted in any suitable manner. The delivering arms 12 are provided with any suitable and well known sustaining mechanism 14, for holding the bags in place so as to be caught by a receiving arm upon the car. I have shown a pin which is free to move laterally upon the arm about one leg of a staple. The delivering arms are arranged upon both sides of a vertical plane through the receiving arms so that the bag may be hung upon that arm, of the two adjoining, which is toward the train, causing the bag so held to be collected by the train a moment in advance of the contact of the bag which is being delivered from the train with the receiving arm 13. This is done to avoid too early swinging movement of the arm 12, and hence of the bag carried by it, out of the way of the train receiving-arm.

I prefer to place bag-receiving or catching devices upon both sides of each end of arm 13 and to place these in duplicate, spacing them along the arm in order that two bags may be caught by it at the same time. Each of these eight devices is made up, in the form shown, of a pair of brackets 15 secured to the arm in any suitable manner and so spaced as to reliably receive the bag between them notwithstanding the variation of position of the bag resultant from rocking of the train. Each bracket is provided



with a spring arm 16 and these arms approach each other to form a seal for the opening between the brackets, which seal is yieldable toward the arm to allow the bag to pass through in that direction only. The arms 16 are extended preferably at an angle to the arms 13, so as to press against the bag 17 and hold it in place.

The standard 1 is initially bored at 18 to receive a spring 19, resting upon the head 6, and a plate 20. This plate is compressed between the spring upon one side and the plate 9 and sleeve or collar 21 upon the other. The sleeve forms a nut within which the screw 11 is adapted to turn and is itself held within the bore of the standard and against rotation by any suitable means, such as by cap 22 and bolts 23, 24.

The plate 9 is slotted at 25 to pass laterally over the bolt 7 to place and is externally threaded at 26 to screw into the lower part of opening 10. It is held against rotation therein by any suitable means, as by screw or pin 27.

I have shown the head 8 as of small enough size to pass through the opening 28 in the plate 20 and the opening in the spring.

The several parts may be assembled within the bore or standard as follows: The spring 19 is placed upon the head 6 of the bolt 7 and the plate 20 is forced down against the spring at the same time that the plate 9 is moved laterally into place between the plate 20 and the head 8 of the bolt. This holds the spring under compression by convenient and reliable means, readily inserted, and does not involve unscrewing or otherwise removing either head of the bolt. Both bolt heads may be integral with the bolt. The head 8 may then be inserted within the opening 10 in the screw 11 and the plate 9 may be rigidly engaged with the lower end of said screw 11 as by means of the screw threads 26 and pin or screw 27.

The sleeve 21 may then be put upon the upper end of the screw 11 and screwed down to place and the several parts thus far assembled may be inserted within the bore 18 of the standard with any desired tightness of fit, after which the cap 22 is placed upon the top of the standard and secured thereto by the bolts 23 and the bolts 24 are inserted. The arms 13 and 12 will be placed on last, in this order of assemblage, preferably upon squared shafting, and secured thereon by pins or other special retaining means.

In operation: the suspension of the mail bag in order that it may be caught by the train is sufficiently well known to require no further explanation. In receiving mail bags from the train the bag is caught within the devices 16 and 17, causing immediate rotation of the arm 13 and screw 11 with longitudinal travel toward or away from the plate 20. In the case of upward longi-

nal movement of the screw, it will be partly withdrawn from the sleeve, carrying the plate 9 and hence the head 8 away from the plate 20, compressing the spring 19 or any other resilient or elastic material correspondingly placed, between head 6 and plate 20 and causing additional friction between all relatively movable parts, as well as involving the work of spring compression. With rotation in the opposite direction the screw 11 will be forced farther down in the sleeve 21 with consequent compression of the spring by movement of the plate 20, accompanied by relative movement of the head 8 longitudinally upward within the opening 10. In this case also there will be the same resultant frictional resistance against rotation in addition to the work performed by compressing the spring, and this is true whatever the parts between which movement actually takes place. As will be seen, the relative rotation takes place without sufficient return tendency to cause reversal of the movement of the arms and consequently without the dangers from this return movement. Since movement of the arms in either direction results in compression of the spring 19 and the screw is of relatively slight pitch, the bags have to overcome the initial friction determined by the initial compression of the spring and ever increasing frictional retardation due to the increasing compression of the spring. They must also accomplish the actual compression of the spring. Not only is this true in either direction of rotation but to an equal extent each way. However, in the resetting operation the frictional retardation becomes constantly less at the same time that the expansion of the spring, as opposed to its compression, greatly reduces the effort required.

I recognize that any elastic or resilient material may be used in place of the spring with at least a part of the advantage thereof; that the extent of the frictional engagement between relatively rotatable parts or the heating effect upon any given part may be reduced or increased to any extent desired under special circumstances, between limits, by change in extent or character of surface, by abrasive material, or actual lubrication of the parts to make the compression of the elastic member represent as small or as large a proportion of the work done as possible, as compared with the frictional component. I further recognize that my invention may be used in connection with single track operation, using one side and set of arms only for actual delivery and receipt of the mail or that it may be placed between two suitably spaced tracks, making use of both sets of arms; and that in either event it will receive and deliver mail bags from and to trains going in either direction upon the track or either of the tracks.



Having thus described my invention what I regard as new and desire to secure by Letters Patent is:

1. In a device of the character stated, a standard, a spindle therein, a spring within the standard below the spindle an abutment for the spring and means for causing rotation in one direction to move the spindle longitudinally toward the abutment and rotation in the opposite direction to move the abutment toward the spindle.

2. In a device of the character stated, a standard, a spindle therein, a bag receiving arm upon said spindle, a friction surface upon the lower end of the spindle, an elastic medium within the standard and below the spindle, a friction plate above said elastic medium and means for causing the rotation of the arm in either direction to compress the elastic material and cause frictional engagement of the relatively movable parts.

3. In a device of the character stated, a standard, a compressible medium therein, a spindle therein, a bag receiving arm upon the spindle, means for causing rotation of the spindle to compress the medium and frictional surfaces for engagement during the rotation of the spindle.

4. In a device of the character stated, a standard, a rotatable spindle therein, a bag receiving arm upon the spindle and a spring compressed by rotation of the spindle in either direction and to any extent throughout the circumference.

5. In a device of the character stated, a standard, a spindle therein, a compressible medium within the standard and below the spindle, a sleeve in the standard and threads upon the spindle engaging within the sleeve to cause compression of the spring with rotation in one direction.

6. In a device of the character stated, a standard, a compressible medium therein, a double headed bolt passing through the compressible medium, one head of the bolt being free to move within an aperture of the lower part of the spindle, a plate closing the aperture below the bolt head and secured to the spindle and a plate between the compressible medium upon one side and the spindle and the sleeve upon the other side.

7. In a device of the character stated, a compressible medium, a double headed bolt passing therethrough, a spindle apertured to permit one head of the bolt to pass within it and closed therebeneath, means forming frictional retardation to relative movement be-

tween the spindle and compressible material with rotation of the spindle in one direction and an abutment against bodily movement of the compressible material with rotation of the spindle in the opposite direction.

8. In a device of the character stated, a standard, a spring and a spindle therein, an abutment for the spring at each end maintaining it under compression, means for compression of the spring away from the one abutment with rotation of the spring in one direction and means for compression of the spring away from the other abutment with rotation of the spindle in the opposite direction.

9. In a device of the character stated, a standard, a spring therein, a support for the one end of the spring, an internally threaded abutment preventing movement of the spring in the opposite direction and maintaining it in compression, a spindle threaded in said abutment and apertured at its lower end, a bolt resting upon the support at one end and passing within the aperture at the other end, a plate closing the end of the aperture about the bolt, a member between the spring and the threaded abutment and a bag-receiving arm upon the spindle.

10. In a device of the character stated, a spindle, a double headed bolt lying partly within an aperture in one end of the spindle, a spring located upon the bolt and engaging one head thereof, a standard surrounding the spindle and spring and affording support for the bolt, means for causing advance of the spindle toward the spring to compress the spring by movement toward the head upon which it bears and means for causing the recession of the spindle from the spring to compress the latter through movement of the head of the bolt against which it bears.

11. In a device of the character stated, a standard, a bolt, a spring under compression and surrounding the bolt, a spindle, and means for causing movement of one end of the spring toward the other with rotation of the spindle in either direction.

12. In a device of the character stated, a standard, a rotatable spindle therein, a spring, an abutment for the spring and means for moving the abutment toward the spindle with rotation of the spindle.

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Witnesses:

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