W. A. ATWELL.

MAIL DELIVERY APPARATUS.

APPLICATION FILED OCT. 8, 1908.

905,272. Patented Dec. 1, 1908.

Fig. 1.

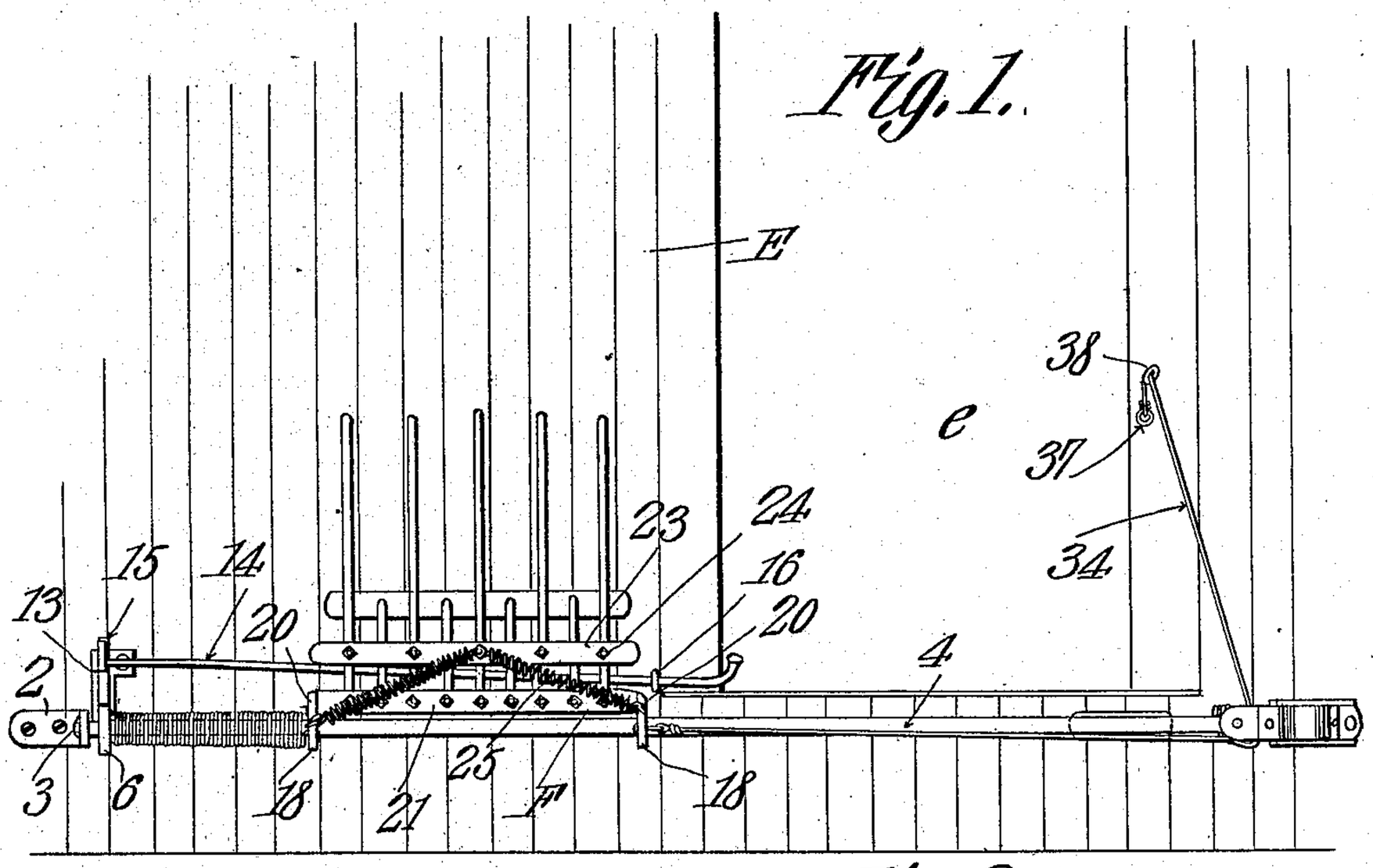

Fig. 2.

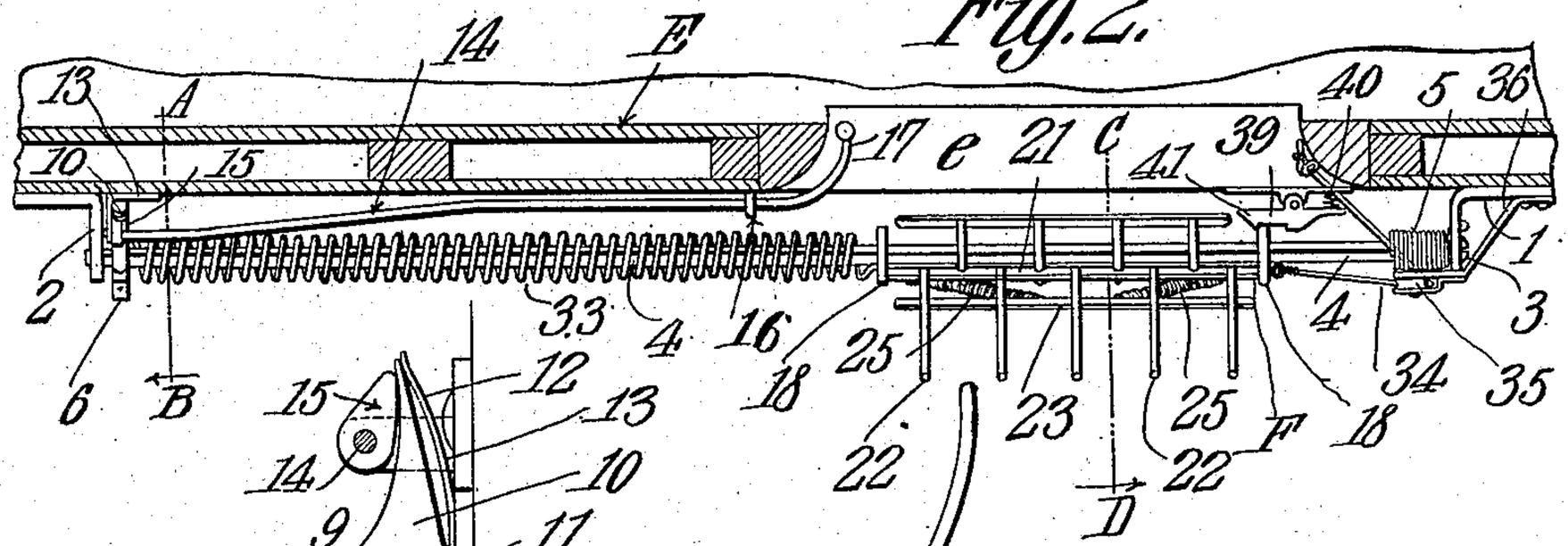

Fig. 3.

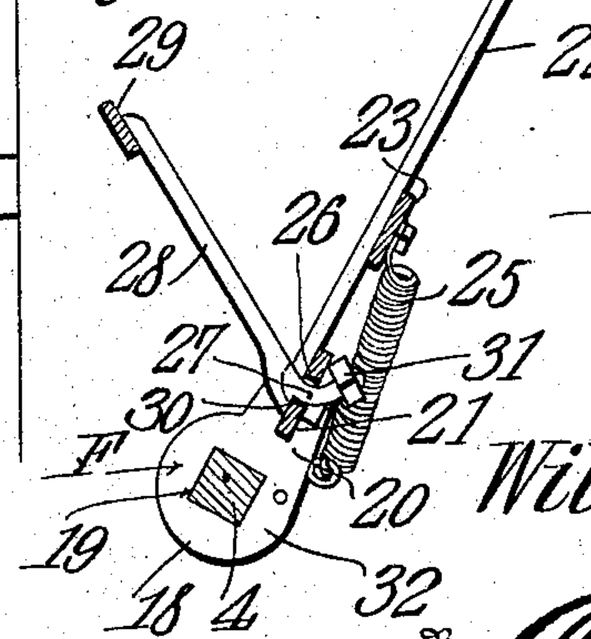

Fig. 4.

Witnesses

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MAIL-DELIVERY APPARATUS.

No. 905,272. Specification of Letters Patent. Patented Dec. 1, 1908.

Application filed October 8, 1908. Serial No. 456,778.

To all whom it may concern:

Be it known that I, WILLIAM A. ATWELL, a citizen of the United States, residing at Concord, in the county of Cabarrus and State of North Carolina, have invented a new and useful Mail-Delivery Apparatus, of which the following is a specification.

This invention relates to apparatus for delivering mail from railway cars while in motion and has reference more particularly to devices of that type designed to discharge sacks of mail on to the ground.

The object of the invention is to provide apparatus of this character which can be conveniently applied to the ordinary forms of mail cars and which normally assumes a position where it will not block the door-way of the car or strike cars or other objects adjacent the track on which the mail-car is moving.

A further object is to provide delivering apparatus which can be conveniently set so as to position the sack-holding portion thereof in the door-way where the sacks of mail can be conveniently placed upon it.

Another object is to provide locking means for holding the mechanism when set and which, when tripped or released, will permit the mail sacks to be discharged by gravity from the holder, means being provided for automatically returning the holder to its initial position immediately upon the completion of the discharging operation.

A still further object is to provide a holder made up of movably connected portions designed to yield, when brought into contact with any unyielding object, so that no injury will be caused either to the holder or to said object.

With these and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a side elevation of a portion of a mail car and having the present improvements applied thereto, the holder being shown in its normal position at one side of the car door and against the wall of the car. Fig. 2 is a horizontal section through a portion of the car and showing the mechanism in plan, the holder being shown locked in position in front of the car door and ready to be tripped for the purpose of delivering mail. Fig. 3 is an enlarged section on line A—B Fig. 2. Fig. 4 is an enlarged section on line C—D Fig. 2.

Referring to the figures by characters of reference, "E" designates a mail-car and "*e*" the door-opening therein. Brackets 1 and 2 are secured to the side of the car "E" and in horizontal alinement, the bracket 1 being disposed below but adjacent the front or advancing side of the door-way "*e*", while the bracket 2 is located at some distance beyond the opposite side of the door-way. The two brackets constitute bearings for necks or trunnions 3 extending from the end of a rail 4 angular in cross section and extending below the door "*e*". A spring 5 is coiled about one end portion of the rail 4 and is secured at one end to said rail while its other end is secured to the bracket 1.

A collar 6 is formed upon the rail 4 near bracket 2 and is provided in its upper portion with notches 7 and 8, the notch 7 being preferably longer than the notch 8 and both of said notches being so located that either one may be engaged by a stud 9 formed upon a bell-crank lever 10 which is pivotally mounted on a bracket 11 secured to the car "E". A spring 12 bears against the upper portion of the lever 10 so as to hold the stud 9 normally pressed yieldingly against the collar 6. The upper portion of the lever 10 projects through a guide bracket 13 which is secured to the car, and journaled within the outer portion of this bracket is an actuating rod 14 having a cam 15 secured thereto and designed, when the rod is partly rotated, to move against the upper portion of the lever 10 and shift it so as to raise the stud 9 out of engagement with the collar 6. Rod 14 is journaled in one or more brackets 16 provided for it, and extends along the outer face of the car "E" to the door opening "*e*" where it is provided with a treadle 17 extending into the car door at a point where it can be conveniently reached by the foot of a mail clerk within the car.

A carriage "F" is slidably mounted on the rail 4, the same consisting of heads 18 provided with angular openings 19 through which the rail 4 extends. Each of these heads has an arm 20 extending therefrom, the two arms being connected by a longitudinal strip 21. This strip 21 has parallel

tines 22 pivotally connected to it and mounted to swing in the same plane, all of the tines being maintained parallel by means of a connecting strip 23, which is pivotally connected to all of them, as shown at 24. The tines preferably curve upwardly, as indicated particularly in Fig. 4 and downwardly diverging coiled springs 25 are connected to the middle portion of the strip 23 and to the arms 20, so as to hold said strip 23 normally in such position as to maintain the tines 22 perpendicular to the strip 21.

Openings 26 are formed in the strip 21 between the tines 22, and each of these openings has a curved neck 27 slidably mounted therein, said neck being formed at one end of an arm 28. A series of these arms is provided and all of said arms are connected at their outer ends by means of a strip 29. A stop shoulder 30 is formed upon the lower portion of each arm 28 and is designed to limit the downward swinging movement of the arm. The free ends of the necks 27 have nuts 31 or other stop devices thereon for limiting the upward swinging movement of said arm. It will be apparent, by referring to Fig. 4, that these arms 28 are capable of swinging simultaneously toward or from the tines 22, and, when at their outermost positions, as indicated in said figure, a trough-like receiver or holder is provided in which one or more sacks of mail may be conveniently placed and held. As shown in Figs. 1 and 4 the head 18 which is nearest the bracket 3 has its inner face beveled as at 32, this beveled portion being located below the rail 4 when the parts are in their normal positions.

A coiled spring 33 is mounted on the rail 4 between the carriage "F" and bracket 2, this spring being secured at its ends to the carriage and bracket respectively and operating to hold the carriage normally in position adjacent the bracket 2 and removed from the door opening "*e*". A rope or other flexible actuating device, such as indicated at 34, is secured to one of the heads 18 of the carriage and extends partly around a sheave 35 journaled in a bracket 36 and preferably directly in front of the spring 5, said rope being extended into the door opening "*e*" and provided with a ring or other suitable device such as indicated at 37 whereby it can be conveniently grasped for the purpose of actuating it. As shown in the drawings a suitable guide, such as an eye, 38, may be arranged within the door opening for this rope 34.

A catch 39 is pivotally mounted on the side of the car "E" and between the rail 4 and the wall of the car and close to the spring 5, said catch being provided with a spring 40 for holding the head 41 thereof normally in the path of the nearest head 18 of the carriage "F". This head 41 is beveled, as clearly shown in Fig. 2, so that when the head 18 strikes it, the head 41 will be deflected inwardly until after the head 18 passes thereover, whereupon the head of the catch will spring back into engagement with the head of the carriage as clearly shown in Fig. 2.

As heretofore stated the normal positions of the parts have been indicated in Fig. 1. When the tines 22 and the strip 29 are contacting with or disposed very close to the wall of the car "E" the stud 9 of bell-crank lever 10 rests within the notch 7. When it is desired to deliver mail from the car while in motion the clerk within the car pulls on the rope 34 so as to slide the carriage "F" longitudinally along rail 4 until the advancing head 18 of the carriage is brought into engagement with the catch 39. This catch will automatically engage the head 18 and thus lock the carriage in position in front of the door opening. It is of course to be understood that this movement of the carriage will cause the spring 33 to be placed under stress. After the parts have thus been shifted the clerk pushes downward on the treadle 17 so as to partly rotate the rod 14 and cam 15, and cause the bell-crank lever 10 to swing and elevate the stud 9 out of recess 7. The operator can then push the tines 22 outwardly from the door opening until the collar 6 has been positioned so as to permit the stud 9 to move downward into the notch 8. The parts are thus locked with the tines 22 extending outwardly beyond the rail 4 as shown in Fig. 4. The sack or sacks of mail to be delivered are then placed upon the tines 22 and the arms 28. When it is desired to deliver the sacks the operator again depresses the treadle 17, so as to lift the stud 9 out of engagement with the collar 6. The weight of the sack or sacks upoin the tines 22 will thus be sufficient to cause said tines and the entire carriage "F" to swing downward, partly rotating the rail 4 therewith. This operation will place the spring 5 under stress and as soon as the carriage has swung downward a predetermined distance the contents thereof will slide therefrom and on to the ground. When the carriage reaches a predetermined point during its downward swinging movement the beveled face 32 thereof is brought into position back of the head 41 and catch 39 and the spring 33 promptly pulls the carriage out of engagement with the catch and longitudinally along the rail 4. During this operation the spring 5 which has been placed under stress during the downward movement of the carriage under the weight of the sack or sacks, returns the carriage and the rail to their normal positions, so that all of the parts are thus brought to their initial location against the side of the car, as shown

in Fig. 1. When the rail 4 moves back to its normal position the collar 6 also travels therewith and the notch 7 is therefore brought into position below the stud 9. The foregoing operation of course takes place while the treadle 17 is held depressed by the operator. As soon as the operation has been effected the operator releases the treadle and the stud 9 therefore swings downward into notch 7 and the parts are thus locked in normal position. The foregoing operation can be repeated whenever it is desired to deliver mail from the car. It will be understood that when the carriage is in its raised or normal position the arms 28 fold against the tines 22, so that the entire device will occupy the minimum space and will not project an undesirable distance beyond the side of the car. Should there be any unyielding obstruction in the path of the carriage when the tines 22 are in lowered position during delivery of mail, these tines, should they strike the obstruction, will yield laterally without causing injury either to themselves or to the obstruction, this yielding action being permitted in view of the fact that the tines are pivotally connected to strips 21 and 23. The springs 25 will operate to promptly return the tines to their initial position after the obstruction has been passed.

It is of course to be understood that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. In mail delivery apparatus a rail mounted for partial rotation, a bag-engaging device thereon and movable therewith, locking means for holding said device and rail against movement under the weight of a bag upon said device, and yielding means for holding said rail and device normally in position to be engaged by said locking means.

2. In mail delivery apparatus a rail mounted for partial rotation, yielding means for holding the rail normally in a predetermined position, a bag-holding device upon and movable with the rail, said device and rail being movable under the weight of a bag upon the holding device against the stress of said yielding means, and means for locking the rail and holding the bag against movement.

3. In mail delivery apparatus a rail mounted for partial rotation, a spring for holding the rail yieldingly in a predetermined position, a bag-holding device upon and movable with the rail, said device and rail being movable under the weight of a bag against the action of the spring, and means for locking the rail and holding device against movement.

4. In mail delivery apparatus a rail mounted for partial rotation, a spring-controlled carriage movable with and slidably mounted on the rail, means for locking the rail and carriage against partial rotation, and resilient means for returning the rail and carriage to normal position subsequent to the discharge of a bag therefrom.

5. In mail delivery apparatus a rail mounted for partial rotation, a spring-actuated carriage slidably mounted thereon and movable therewith, said carriage constituting bag-holding means, means for locking the carriage against the action of the spring, means for locking the carriage and rail against partial rotation, and means operated by the movement of the rail and carriage in one direction for releasing the carriage.

6. In mail delivery apparatus a rail mounted for partial rotation, a spring-controlled carriage slidably mounted thereon and movable therewith, means for automatically locking the carriage against the action of its spring, means for locking the carriage and rail against partial rotation under the weight of a bag upon the carriage, and means for automatically releasing the carriage upon the completion of the movement of the rail and carriage in one direction.

7. In mail delivery apparatus a rail mounted for partial rotation, a spring-actuated carriage slidably mounted on the rail, said carriage and rail being mounted to partly rotate in unison, means for locking the carriage against the action of its spring, means for locking the rail and carriage against partial rotation under the weight of a bag upon the carriage, and separate means for automatically releasing the carriage and returning the rail to its initial position upon the completion of movement of the carriage under the weight of a bag thereon.

8. In mail delivery apparatus a rail mounted for partial rotation, a spring for holding the rail normally in a predetermined position, a spring-controlled carriage slidably mounted on the rail and movable with said rail, means for shifting the carriage against the action of its spring, means for automatically locking the carriage in shifted position, means for locking the rail against rotation, and means for automatically releasing the carriage when the rail has been partly rotated to a predetermined position.

9. In mail delivery apparatus a carriage mounted for swinging and sliding movement, elastic means for holding the carriage normally in a predetermined position, separate means for locking the carriage against sliding and swinging movement respectively, and means for automatically releasing the carriage to permit sliding movement thereof

upon completion of its swinging movement in one direction.

10. In mail delivery apparatus a carriage including pivotally mounted tines, means for maintaining the tines parallel and elastic means for holding said tines normally in predetermined positions.

11. In mail delivery apparatus a carriage comprising connected heads, pivoted tines carried thereby, means for holding the tines parallel, and elastic means for holding the tines normally in a predetermined relation to the heads, said tines being shiftable in opposite directions against the action of said means.

12. In mail delivery apparatus a carriage comprising heads, a connecting strip, tines pivotally mounted upon said strip, elastic means for holding the tines normally in a predetermined relation to said strip, and connected arms movably connected to said strip and foldable on to the said tines.

13. In mail delivery apparatus a carriage comprising heads, a connecting strip, tines pivotally mounted upon said strip, elastic means for holding the tines normally in a predetermined relation to said strip, and connected arms movably connected to said strip and foldable on to the said tines, and means for limiting the movement of the arms in a direction away from the tines, said arms and tines constituting a bag-receiving trough.

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

WILLIAM A. ATWELL.

Witnesses:

T. Y. YATER,

T. L. CHANEY.