To all whom it may concern:

Be it known that I, JOHN A. CHAMBERS, a citizen of the United States, residing at Newburg, in the county of Phelps and State of Missouri, have invented a new and useful Apparatus for Receiving and Delivering Mail, of which the following is a specification.

This invention relates to apparatus for delivering mail to and from moving cars, one of the objects of the invention being to provide means whereby the pouch or other container will be directed outwardly and rearwardly from the moving car to the apparatus at the station, and outwardly and forwardly from the station apparatus substantially in the direction in which the car is moving, thus to deposit the container in the receiver provided therefor, without subjecting it to the serious injury which might result should it be brought to an abrupt stop, as when delivered straight across the path of movement of the car.

A further object is to provide delivering apparatus of novel form which utilizes a starting spring adapted to be placed under tension when the apparatus is set, means being employed for automatically releasing the set spring and for forcibly expelling the pouch or other container from the apparatus, said means being located adjacent the point where the interchange of mail is to be effected.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed without departing from the spirit of the invention.

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

In said drawings, Figure 1 is a plan view of the station and car apparatus in the relative positions assumed thereby while the car is passing the station but just prior to the interchange of the mail, a portion of the car structure being shown in section. Fig. 2 is a section on line A-B Fig. 1 and looking in the direction of the station apparatus. Fig. 3 is a section on line A-B Fig. 1 and looking in the direction of the car apparatus.

Fig. 4 is a side elevation of the station apparatus and the outwardly projecting portion of the apparatus on the car, a portion of the car structure being shown.

Referring to the figures by characters of reference C designates a portion of a car structure having a door opening D adjacent which is located the mail delivering and receiving apparatus carried by the car. The receiving apparatus on the car is nothing more than a receptacle preferably in the form of a basket 1 supported removably across the upper portion of the door opening. The delivering apparatus on the car includes a post 2 mounted at its lower end in a base strip 3 and at its upper end in a brace strip 4.

A member 5 is fixedly secured to the post 2 and is connected by a ball and socket joint 6 to a link 7. This link is in turn connected by a ball and socket joint 8 to a crank arm 9 formed at the inner end of the shaft 10. Said shaft extends through and is journaled in the wall of the car structure C close to the door opening D and is provided at its outer end with a crank arm 11 normally depending therefrom.

Secured to the post 2 and extending radially therefrom is an arm 12 provided with a depending blade or expelling head 13 adapted to travel from one end to the other of an arcuate trough 14. This trough is mounted within the car structure and concentric with the post 2, said trough extending through approximately 90 degrees and being open at its ends, the discharge end of the trough being preferably arranged within the opening D as shown particularly in Fig. 1. A spring 15 is secured at one end to the base strip 3 and at its other end to the post 2 and is adapted, when the expelling blade 13 is moved to the inner end of the trough 14, to be placed under tension, the link 7 and crank arm 9 at this time moving into alinement so as to form a lock whereby the blade 13 is held in set position as shown in Fig. 3. The trough 14 is adapted to hold one or more mail pouches or the like to be ejected from the car.

Slidably mounted in the wall of the car structure C at that side of the opening D remote from the apparatus hereinbefore described are parallel stems 16 connected at their inner ends by a bar 17, while their outer ends are forked as at 18 and carry
parallel tripping rails 19 the intermediate portions of which are inclined downwardly and forwardly in the direction in which the car moves, while the end portions are extended substantially horizontally and flared, as shown at 20 and 21 respectively.

By means of the bar 17, the stems 16 can be pulled longitudinally to draw the rails 19 close to the outer face of the wall of the car structure. By pushing against bar 17, said rails 19 can be shifted laterally to active positions.

The mail delivering and receiving apparatus located at the station includes a car 22 adapted to travel along rails 23 extending at right angles from the track on which the car C travels. The front face of this car 23 is open to receive the pouches delivered thereto, there being a basket 24 within the car for the reception of the delivered pouches. A cross strip 25 is arranged between and beyond the rails 23 and is adapted, when the car 22 is in active position, to be engaged by a locking lever 26 mounted on and depending from the car. This locking lever has its upper end normally engaged by one end of a holding lever 27 which is fulcrumed at 28 upon the car 22. A weighted cable 29 extends rearwardly from the car 22 and serves to draw said car laterally away from the passing car C after the interchange of mail has been effected.

Extending outwardly from the front of the car 22 constituting the receiver are stems 30 having yokes at their outer ends as at 31, these yokes being connected by tripping rails 32 similar to the rails 19 hereinbefore referred to, the intermediate portions of the rails 32 being inclined downwardly in a direction opposite to that in which the car C is traveling, the ends of the rails being extended substantially horizontally and flared, as shown at 33 and 34 respectively. The space between the flared ends 33 of the rails 32 is disposed in substantially the same horizontal plane as the bottom portion of the depending crank arm 41 on the car structure.

Supported upon the receiving car 22 is a standard 35 from which extend a base strip 36 and a brace strip 37. A post 38 is mounted for rotation in these strips 36 and 37 and has secured to it an arm 39 connected by a ball and socket joint 40 to a link 41. This link is in turn connected by a ball and socket joint 42 to a crank arm 43 located at one end of a shaft 44 which is journaled in the standard 35. A crank arm 45 is extended from the outer end of shaft 44 and normally extends downwardly therefrom, the lower end of this crank arm 45 being so positioned as to enter between the ends 20 of the rails 19 during the movement of the car C in the direction indicated by the arrow in Fig. 1.

An arm 46 is extended radially from shaft 38 and has an ejecting blade 47 depending from its outer end and adapted to work within an arcuate trough 48 which is supported upon the base strip 36 and is concentric with the post 38. This arcuate trough is extended through approximately 90 degrees and is open at both ends, the blade 47 being adapted to move from one end to the other of the trough. A spring 49 is mounted on the post 38 and is secured at one end to the base strip 36 and at its other end to the post 33. This spring is adapted to be placed under tension when the blade 47 is moved to the rear end of the trough 48, at which time the link 41 and the crank arm 43 assume the positions shown in Fig. 2, thus forming a lock whereby the blade 47 is held set and the crank arm 45 is held in depending position.

A link 50 connects the holding lever 27 to a crank arm 51 arranged at one end of a shaft 52 which is mounted for rotation adjacent the rails 32, this shaft having an arm 53 extending from one end thereof and normally projecting across the space between the inclined portions of the rails 32.

When it is desired to effect the interchange of mail, the blade 13 on the car structure C and the blade 47 at the station are moved to set positions and the pouch to be delivered from the car structure to the station is placed in trough 14, while the pouch to be delivered from the station to the car is placed in trough 48. Before the car C reaches the station, the receiving car 22 is moved toward the track on which car C is traveling and is secured by means of the lever 26, said lever being held against movement out of engagement with the cross strip 25, by the holding lever 27. Before the station is reached, the rails 19 are pushed outwardly from the side of the car structure C. Thus it will be seen that as the car passes the station, the crank arm 45 is received between the rails 19 and will be swung upwardly so as to rotate shaft 44, moving the joint 42 past the dead center. Consequently the tensioned spring 49 will be released and will impart an initial swinging movement to the blade 47. The positive rotation of the crank arm 45 will result in the rapid completion of this movement of the blade 47 with the result that just as the door opening D of the car is brought to position opposite the trough 48, the contents of the trough will be ejected therefrom and through the door opening D into the basket 1. While this operation is taking place the depending crank arm 11 is received between the ends 33 of the rails 32 and is swung upwardly, thus to shift the joint 8 past the dead center and release the tensioned spring 15. Consequently an initial impulse will be given to the blade 13 which will be moved along the trough 14, this movement being completed positively.
by the crank 11 during its actuation by the inclined rails 19 so that just as the car door D passes the receiving car 22, the contents of the trough 14 will be ejected outwardly and rearwardly from the car opening and will be deposited in the basket 24. During the movement of the crank 11 between the rails 22, it will strike the arm 53 and thus pull through link 50 upon lever 27. Consequently locking lever 26 will be released and the car 22 will promptly move backwardly away from the car C under the action of the weighted cable 29, as soon as the interchange of mail has been effected.

Importance is attached to the fact that the trough 14 is so shaped and located that when the contents are ejected therefrom, they will be thrown outwardly and rearwardly, the rearward movement offsetting to a large extent the forward momentum due to the movement of the car C. It will be noted, furthermore, that the trough 48 is so located that the contents thereof will be expelled approximately in the direction of movement of the car C so that said contents will be received easily in the basket 1 and the jerking action to which the pouch would otherwise be subjected when deposited in basket 1, is practically eliminated.

What is claimed is:

Apparatus for effecting the interchange of mail, including a stationary trough-like holder, a revoluble post outside of and adjacent the holder, said holder being concentric with the post, a member movable longitudinally within the holder, a connection between said member and the post, a spring connected to the post, a crank arm, cooperating means connecting the crank arm to the post for holding said post against rotation and with the spring under tension, and a tripping element for engagement by the crank arm to shift said connecting means out of their holding positions, thereby to successively release the spring and actuate the movable member within the holder.

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

JOHN A. CHAMBERS.

Witnesses:

F. H. Blue,
P. W. Blue.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."