A. HUPP.

MAIL POUCH RECEIVING AND DELIVERING APPARATUS.

APPLICATION FILED AUG. 5, 1909.

974,274.

Patented Nov. 1, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

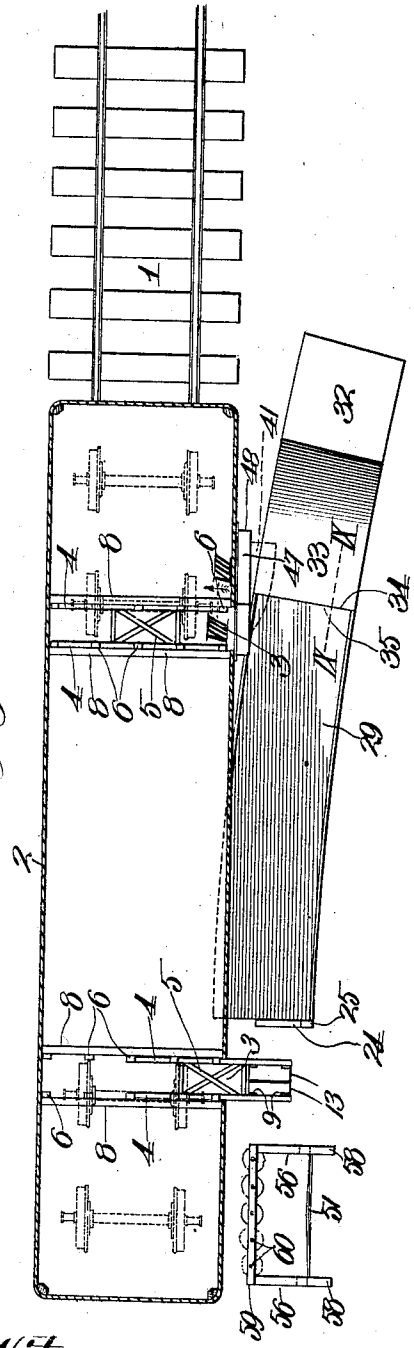

Fig. 2.

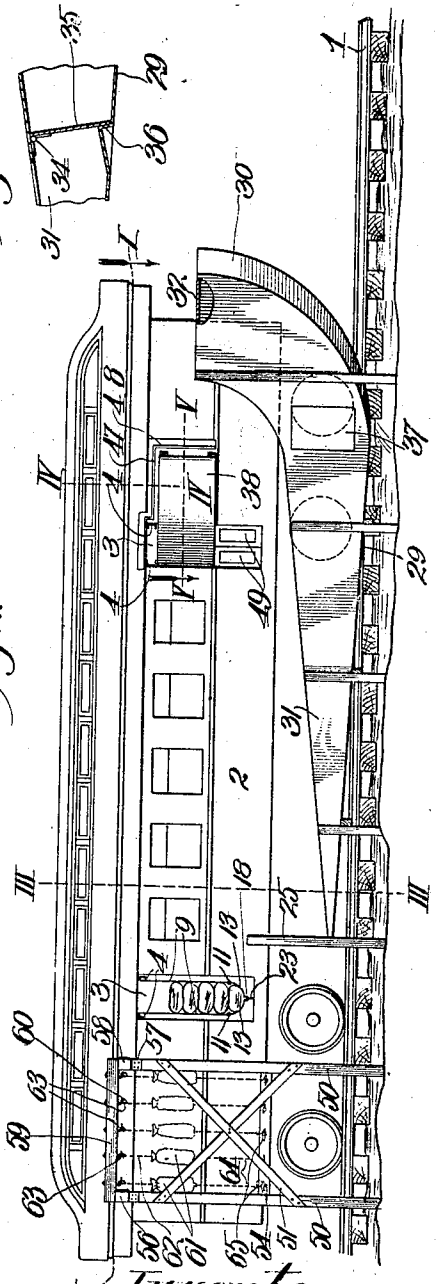

Fig. 9.

Witnesses

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3 SHEETS—SHEET 2.

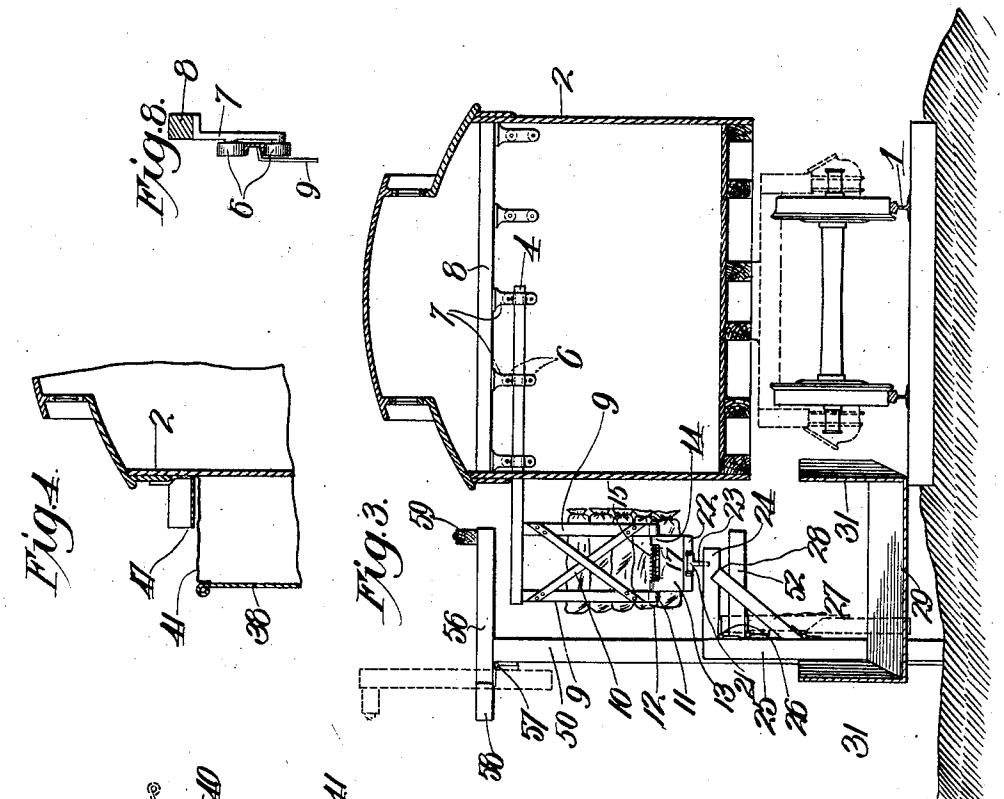

Fig. 8.

Fig. 4.

Fig. 3.

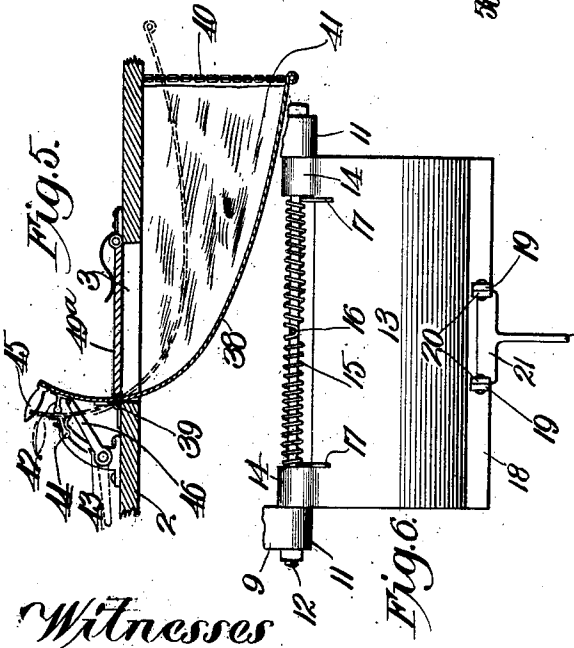

Fig. 5.

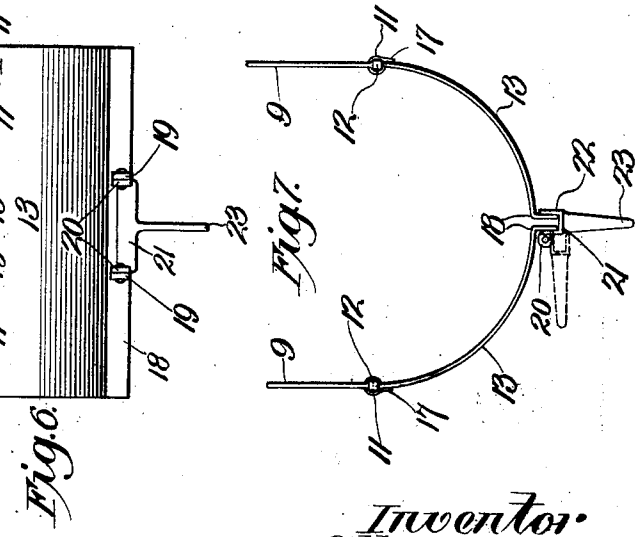

Fig. 7.

Fig. 6.

Witnesses
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3 SHEETS—SHEET 3.

Fig. 10.

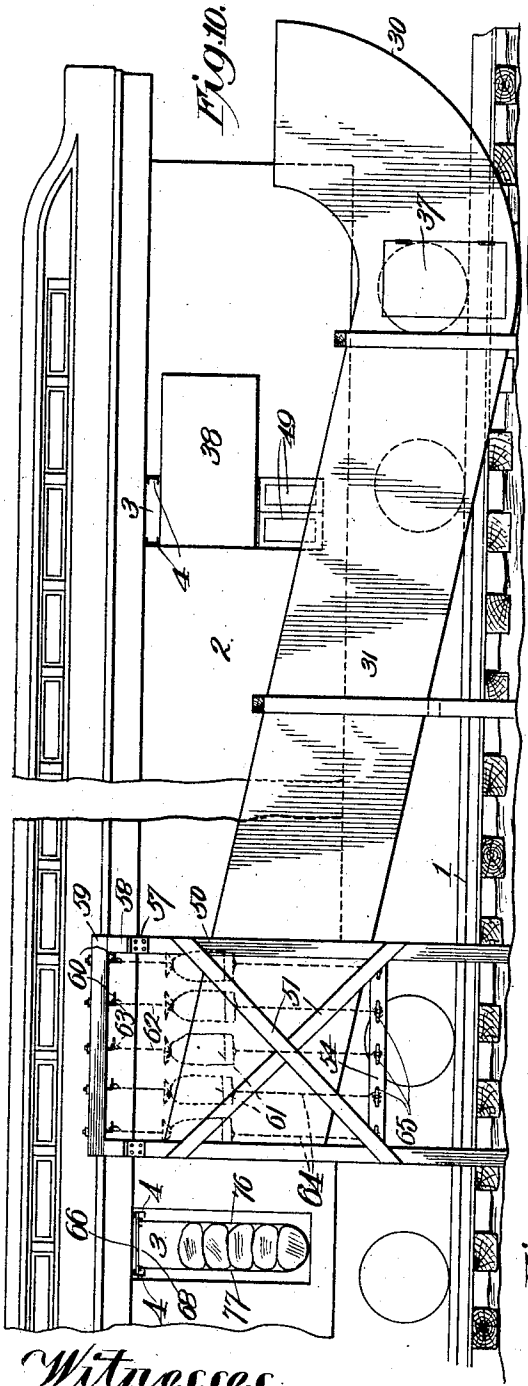

Fig. 11.

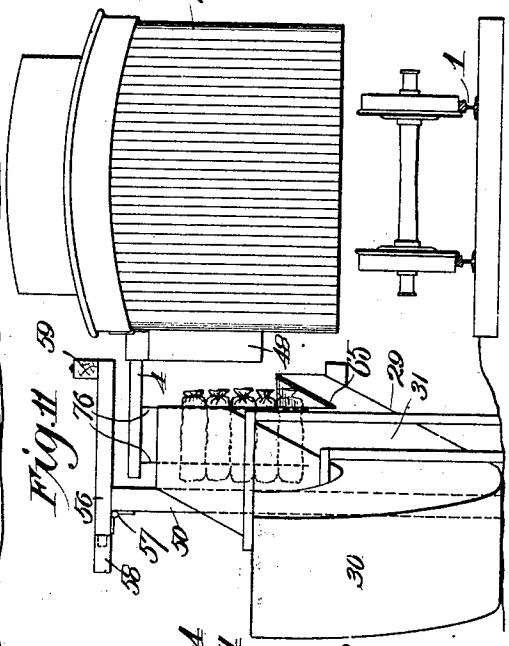

Fig. 13.

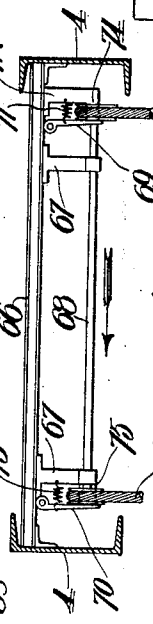

Fig. 14.

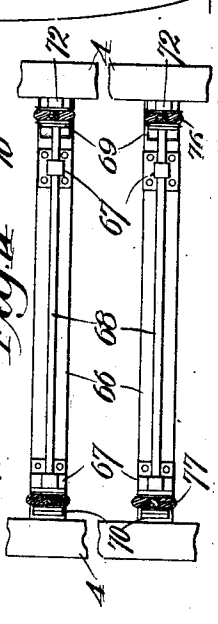

Fig. 12.

Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT HUPP, OF KANSAS CITY, MISSOURI, ASSIGNOR TO U. S. RAPID MAIL SERVICE CO., OF PIERRE, SOUTH DAKOTA, A CORPORATION OF SOUTH DAKOTA.

MAIL-POUCH RECEIVING AND DELIVERING APPARATUS.

974,274. Specification of Letters Patent. Patented Nov. 1, 1910.

Application filed August 5, 1909. Serial No. 511,352.

To all whom it may concern:

Be it known that I, ALBERT HUPP, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Mail-Pouch Receiving and Delivering Apparatus, of which the following is a specification.

This invention relates to mail-pouch receiving and delivering apparatus and more especially to that class of apparatus whereby an exchange of mail is effected between stations and moving trains, my special object being to produce an apparatus of the character named which accommodates all conditions and varieties of roadway and train equipment.

A further object is to produce apparatus of the character named which can be easily and expeditiously installed, is of simple, strong, durable and inexpensive construction, does not endanger the lives of the trainmen, and will operate efficiently and reliably.

With these general objects in view the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which;

Figure 1, is a horizontal section of a mail car on the line I—I of Fig. 2, said figure also disclosing the chute for receiving mail pouches from the train and the crane for delivering the station pouches to the car. Fig. 2, is a side elevation of the apparatus shown by Fig. 1. Fig. 3, is an enlarged cross section on the line III—III of Fig. 2. Fig. 4, is a similar view taken on the line IV—IV of Fig. 2, on the same scale as Fig. 3. Fig. 5, is an enlarged horizontal section taken on the line V—V of Fig. 2, but with the pouch-receiver expanded or open. Fig. 6, is an enlarged side view of the lower end of the metallic basket, for delivering pouches from the train to the station chute. Fig. 7, is an end view of the lower end of the metallic basket. Fig. 8, is a section on the line VIII—VIII of Fig. 1. Fig. 9, is a vertical section on the line IX—IX of Fig. 1. Fig. 10, is a side view of modified form of apparatus embodying my invention. Fig. 11, is an end view of the same. Fig. 12, is a plan view on a reduced scale of the chute shown by Figs. 9 and 10. Fig. 13, is an enlarged view of the upper portion of the basket shown in Fig. 9, and also shows the crane in vertical section. Fig. 14, is an enlarged plan view broken away, of the construction shown by Fig. 13.

In the said drawings, 1 indicates the trackway and 2 a mail car thereon provided with the usual side door openings 3 and with horizontal cranes arranged transversely with respect to the car and adapted to be projected through the adjacent door-openings at times, each crane consisting of a pair of bars 4, preferably channel bars, connected by bracing 5. The bars of the cranes are arranged between pairs of antifriction rollers 6 journaled on hangers 7 depending from cross bars 8 secured in the car above the plane of said door openings.

To carry the mail pouch or pouches to be delivered to a station, I provide each car with a preferably metallic basket, consisting preferably of four vertical bars 9, two depending from each bar 4 and rigidly connected by cross-braces 10 or otherwise, and terminating at their lower ends in loops 11 carrying hinge-rods 12. Each rod forms the pivotal support of a pair of oppositely-bowed bottom plates 13 conjointly forming a semi-circular bottom for the basket. The bowed plates 13 are provided at their upper corners with hinge-loops 14 through which the rods 12 extend and between said loops upon said rods are coiled springs 15 secured at 16 to the rods and having their outer ends 17 engaging the outer sides of and pressing the said plates yieldingly toward each other, the lower ends of said plates terminating in depending flanges 18, one of which is provided with a pair of outwardly-projecting ears 19 to which is pivoted the outwardly-projecting ears 20 of a trigger, said trigger consisting further of a body portion 21 to underlie flanges 18 when the basket is closed, a flange 22 to bear against the outer side of the flange 18 not equipped with the ears 19, and a depending stem 23. This trigger by engagement with opposite sides of the flanges 18 prevents one or more small pouches arranged in the basket as shown in Figs. 2 and 3, from forcing the bottom plates 13, apart, it being understood that the weight of the mail pouch or a series of mail pouches arranged in superposed relation is adapted to instantly force the bottom plates 13 apart when not locked together by the

trigger, that is when the trigger has been tripped, as hereinafter explained. It will be understood that the pouch or pouches are arranged in the basket when the latter and the crane carrying it is wholly within the car as shown at the right hand end of Fig. 1, after which the crane is run out to dispose the basket in the position shown in Figs. 1 and 3 most clearly, that is in such position that the trigger will strike and be tripped to the position shown in dotted lines Fig. 7, by the tripping-arm 24 projecting toward the trackway from and at the upper end of a standard 25, said tripping-arm being hinged at 26 to said standard so that when not in use, it may hang pendently in the inoperative position indicated by the dotted lines Fig. 3. To support it in operative position, the standard also carries a hinged brace 27 adapted at its free end to engage the notch 28 in the underside of the tripping-arm, the gravitative tendency of the latter being sufficient to hold the parts in their operative position as shown in full lines Fig. 3.

The tripping-arm is arranged at the receiving end of a chute arranged to receive the mail pouch or pouches dropped by the basket immediately the trigger is tripped, it being understood that the instant this occurs the bottom plates 13 are forced apart by the mail pouch or pouches and that the latter drop onto the receiving end of the chute constructed as follows; 29 indicates a long bottom plate inclined downwardly and forwardly and curved slightly outward and terminating in an upwardly-curved end-portion 30 disposed outward from the trackway a sufficient distance to permit of the passage therebetween of the basket and the pouch receiver hereinafter described. 31 indicates side walls projecting from the bottom plate and of tapering form for the greater part of their length, the front ends of said side walls curving upward to the plane of the top of portions 30. An end plate 32 connects the side walls and portion 30 and a short curved portion 33 connects the concave edges of the side walls with the end plate 32, and hinged at 34 to the rear or lower edge of portion 33 is a pendent door 35 which engages a shoulder 36 on the bottom plate 29 and is limited by such shoulder in its rearward swinging movement.

The speed at which the train is moving compels the mail pouch or pouches dropped into the chute to slide forward therein with more or less force and strike or swing door 35 upward and enter the closed or upturned portion which overcomes the momentum of the pouch or pouches and causes them to slide back against the door 35 which by gravity returns to its original position against shoulder 36 before the pouch or pouches slide back as explained, and to enable the station agent or other person in charge to remove the pouch or pouches collected, the chute is provided with a door 37 in its outer side wall, which door is adapted to be normally locked in any suitable manner and is supposed to be opened only by an authorized person.

It will be understood of course that the two cranes in the car will seldom be in service at the same time and that usually the rear one will be employed for delivering mail to the station chute. If it is desired to receive mail from the station into the same car, the front basket will be removed and the front door opening 3 will be equipped with a pouch-receiver of sufficient depth vertically to easily receive a vertically arranged pouch, the said pouch-receiver being disposed to clear the upturned end of the chute. Said pouch-receiver consists of a curved plate 38 hinged at 39 a suitable distance from its inner end to the car, and diverging forward with respect to the side of the car, the inner end of the plate projecting transversely into the car so as to receive the impact of and check the speed of a pouch or series of pouches entering the receiver. The upper and lower front corners of plate 38 are connected by chains 40 to the side of the car to prevent the pouch from swinging the plate outward beyond its proper expanded or opened position. The top and bottom of the pouch receiver consists of any suitable flexible material or fabric 41 fastened in any suitable manner to the upper and lower edges of plate 38 and the adjacent side of the car.

To hold the pouch open, the portion projecting into the car is provided with a headed plate 42 fitting in the flaring mouth of a spring-clamp 43 within and secured to the adjacent side of the car, said flaring mouth communicating with a socket 44 capable of receiving the head of the plate 42 when the pouch-receiver is in closed or collapsed condition as indicated in dotted lines Fig. 5, said inwardly-projecting portion of plate 38 being equipped with a handle 45 by which the pouch-receiver may be conveniently swung to closed or open position. The spring-clamp is equipped with a pivoted arm 46 to bear against said inwardly-projecting portion and prevent the pouch-receiver collapsing or closing under the impact of a pouch on said portion, which arm will be tripped by the person in control preliminary to the collapsing or closing of the pouch-receiver. If desired the brace 46 may be thrown to inoperative position to permit the receiver to be collapsed automatically under the impact of a pouch entering the car. To guard against rain beating into the door opening when the pouch-receiver is collapsed or closed, I provide a shield secured to the car and consisting of

a plate 47 projecting outwardly above and closely adjacent to the pouch-receiver and an arm 48 extending downward along the side of the car at the front end of the pouch-receiver, as shown most clearly in Figs. 1 and 2, the lower part of the opening 3 occupied by the pouch-receiver being closed by removable doors 49, as shown in the last-named figure. It will also be seen by reference to Fig. 5, that a spring-closed door 49ª is employed to close that part of the opening 3 with which the pouch-receiver communicates, and thus prevent the production of a powerful current of air within the car, the said door of course opening inward under the impact of a pouch entering the car and reclosing automatically after the pouch has passed.

To deliver one or more pouches from the station to the car by way of the pouch-receiver, a crane is secured adjacent to the trackway forward of the chute, said crane consisting of a pair of standards 50 suitably braced as at 51, and a pair of hinged frames, the lower one consisting of a pair of arms 52 hinged at 53 to the standards in a plane below the trigger-tripping-arm 24, and a bar 54 connecting the inner ends of said arms and provided with eye-bolts 55, said frame being adapted to hang pendently downward when not in use. The upper frame consists of a pair of bars 56 adapted to rest upon the upper ends of standards 25 and hinged to the same at their outer sides at 57 and weighted at their outer ends at 58 so as to automatically swing to a vertical or inoperative position when not in use, as shown by dotted lines Fig. 3, the inner ends of arms 56 being connected by a bar 59 equipped with depending forwardly-turned hooks 60.

61 indicates pouches arranged vertically and equipped at their upper ends with stout ropes or equivalent flexible connections 62 terminating in loops 63 at their upper ends for engagement with said hooks 60, the pouches being also equipped with comparatively weak depending cords or flexible connections 64 to be secured at their lower ends to cleats 65 of the lower frame, the pouches being arranged in the path of the pouch-receiver, so that the upper chain 40 thereof shall successively strike the cables 62 and the lower chains the cables 64, the former under such impact being dislodged from engagement with the hooks 60 and the cables 64 snapping under the impact, so that the pouches shall successively enter the pouch-receiver and be directed thereby through the opening 3, the inwardly-projecting portion of the pouch-receiver checking the speed of movement of the pouches as hereinbefore explained, and causing them to drop upon the floor of the car or into a receptacle (not shown) arranged within the car to receive them, this reception of the pouches suspended from the station crane occurring just prior to the reception of the car pouches by the chute, as will be readily understood by reference to Fig. 1, in which figure it is assumed that the pouch-receiver has received a series of pouches from the station crane and delivered them into the car, the position of the pouches on the crane being indicated by dotted lines, Fig. 1.

Referring now to Sheet 3 in which parts corresponding to those described are identified by the same reference characters, it will be noticed that the mouth of the receiving chute is disposed at a greater altitude than in the preceding figures and that it is in the form of a rectangular tube for its full length, the top and bottom of the tube at its mouth or receiving end being disposed respectively below and above the pouch or pouches adapted to be received thereby, it being also noticed by reference to Figs. 10 and 11, that the upper inner corner of the chute at its mouth or receiving end is cut away or narrowed at 65, so as to avoid any possibility of being struck by the pouch-receiver of the car when said receiver is in its expanded or open position to receive the pouches carried by the station crane. The apparatus disclosed by Sheet 3 also differs from that disclosed by Sheets 1 and 2 in that it is not equipped with a trigger-tripping mechanism and the train pouch crane or carrier is of different construction.

In the construction shown by Sheet 3, the bars 4 carry a horizontal frame 66 depending from the same is two sets of hangers 67 carrying a pair of slide-bars 68 extending parallel with the longitudinal center of the car and engaged at their opposite ends by arms 69 and 70 pivotally pendent from said frame 66, arms 69 being connected by retractile springs 71 to hangers 72 also depending from said frame 66, which springs tend to pull arms 69 away from the slide-bars. Similar springs 73 connect pivoted arms 70 with the adjacent hangers 67 to press said arms 70 against the adjacent ends of said slide bars.

The hangers 72 and the hangers 67 near the opposite end of the slide rods, are equipped with laterally-projecting arms 74 and 75 respectively, and engaging said arms are the looped upper ends of a pair of cables 76 and 77 which form a basket for the support of a pouch or a series of pouches arranged in superimposed relation as shown clearly in Figs. 11 and 12, the spring-actuated pivoted arms 70 holding said cables reliably in position against the wind pressure developed by the rapid progress of the car. As the progress of the latter brings the basket against the top of the mouth or receiving end of the chute the resistance of springs 71 is overcome and arms 69 and the

slide-bars 68 are forced in the direction indicated by the arrow, Fig. 13, such movement of the slide-bars causing the simultaneous movement of the ends 77 of the cables of the basket and overcoming the resistance of springs 73 and swinging the pivoted arms 70 back. As a result of this action the looped upper ends of the cables are disengaged or slipped from the arms 74 and 75 of hangers 72 and 67 respectively, and said cables with the pouch or pouches, enter the chute and slide forwardly therein, the impetus given the pouch or pouches by the movement of the car causing them to slide up the upturned end of the chute. As their momentum is overcome they gravitate back to the lower part of the chute, from which they are removed at the proper time by the person in control at the station, it being understood that in the construction shown by sheet 3, the pouch-receiver of the car collects the pouch or pouches on the station crane as hereinbefore explained.

From the above description it will be apparent that I have produced an apparatus of the character described which will perform its function efficiently and reliably and which is susceptible of modification in minor particulars without departing from the spirit and scope or sacrificing any of the advantages of the appended claims.

Having thus described the invention what I claim as new and desire to secure by Letters Patent, is:

1. An apparatus of the character described, comprising a station chute and a mail-car pouch-receiver, the latter facing in the direction of travel of the car and the former in the opposite direction, a station crane arranged near the trackway forward of the chute and adapted for detachably supporting one or more mail pouches in the path of the mail pouch receiver carried by the car, a crane carried by and capable of being projected from the side of the car or withdrawn therein, a basket depending from the first-named crane and provided with a movable bottom, means for normally holding said bottom closed, and means near the receiving end of the chute for tripping the first-named means to permit the bottom of the basket to move and the pouch or pouches to drop into the chute.

2. An apparatus of the character described, comprising a station crane and a mail-car pouch receiver, the latter facing in the direction of travel of the car and the former in the opposite direction, a station crane arranged near the trackway forward of the chute and adapted for detachably supporting one or more mail pouches in the path of the mail pouch receiver carried by the car, a crane carried by and capable of being projected from the side of the car or withdrawn therein, a basket depending from the last-named crane and provided with a movable bottom, a pivoted trigger normally holding the bottom of the basket closed, and means near the receiving end of the chute, for tripping said trigger.

3. An apparatus of the character described, comprising a station chute and a mail-car pouch receiver, the latter facing in the direction of travel of the car and the former in the opposite direction, a station crane arranged near the trackway forward of the chute and adapted for detachably supporting one or more mail pouches in the path of the mail pouch receiver carried by the car, a crane carried by and capable of being projected from the side of the car or withdrawn therein, a basket depending from the last-named crane and provided with a movable bottom, a pivoted trigger normally holding the bottom of the basket closed, consisting of two curved plates held yieldingly together at their lower ends, a trigger pivoted to one of said plates and engaging the other to hold them together, and means near the receiving end of the chute for tripping said trigger.

4. In an apparatus of the character described, a car provided with a door opening and a collapsible pouch-receiver, consisting of a plate extending outward from the rear edge of the door opening beyond the front edge thereof and a flexible top and bottom connecting the said plate with the adjacent side of the car.

5. In an apparatus of the character described, a car provided with a door opening and a collapsible pouch-receiver consisting of a plate extending outward from the rear edge of the door opening beyond the front edge thereof and a flexible top and bottom connecting the said plate with the adjacent side of the car, and cables connecting the front end of said plate to the adjacent side of the car.

6. In an apparatus of the character described, a car provided with a door opening and a collapsible pouch receiver communicating with said opening and comprising a plate hinged at its rear end to the rear edge of the door opening and extending divergingly forward with respect to the car and beyond the front edge of said opening, and a flexible top and bottom connecting the upper and lower edges of said plate with the adjacent side of the car.

7. In an apparatus of the character described, a car provided with a door opening, a collapsible pouch-receiver communicating with said opening and comprising a plate hinged at its rear end to the rear edge of the door opening and extending divergingly forward with respect to the car and beyond the front edge of said opening, and a flexible top and bottom connecting the upper and lower edges of said plate with the ad-

jacent side of the car, and a shield secured to and projecting from the car above the pouch-receiver and in front of the same.

8. In an apparatus of the character described, a car provided with a door opening and a collapsible pouch-receiver consisting of a curved plate hinged to the rear edge of the door opening and projecting therefrom into and out of the car, the outward portion extending forward beyond the front edge of said opening and adapted to swing inward against the adjacent side of the car, and a flexible top and bottom connecting the outer portion of said plate with the adjacent side of the car.

9. In an apparatus of the character described, a car provided with a door opening and a collapsible pouch receiver consisting of a curved plate hinged to the rear edge of the door opening and projecting therefrom into and out of the car, the outward portion extending forward beyond the front edge of said opening and adapted to swing inward against the adjacent side of the car, a flexible top and bottom connecting the outer portion of said plate with the adjacent side of the car, and a door yieldingly closing the pouch receiver and adapted to open inwardly of the car.

10. In an apparatus of the character described, a car provided with a door opening and a collapsible pouch-receiver consisting of a curved plate hinged to the rear edge of the door opening and projecting therefrom into and out of the car, the outward portion extending forward beyond the front edge of said opening and adapted to swing inward against the adjacent side of the car, a flexible top and bottom connecting the outer portion of said plate with the adjacent side of the car, and means for engaging the inwardly-projecting part of the pouch-receiver to prevent the collapse of the same.

11. In an apparatus of the character described, a car provided with a door opening and a collapsible pouch-receiver consisting of a curved plate hinged to the rear edge of the door opening and projecting therefrom into and out of the car, the outward portion extending forward beyond the front edge of said opening and adapted to swing inward against the adjacent side of the car, and yielding means for holding the pouch-receiver in collapsed condition.

12. In an apparatus of the character described, a car provided with a door opening and a collapsible pouch-receiver consisting of a curved plate hinged to the rear edge of the door opening and projecting therefrom into and out of the car, the outward portion extending forward beyond the front edge of said opening and adapted to swing inward against the adjacent side of the car, a flexible top and bottom connecting the outer portion of said plate with the adjacent side of the car, and a headed plate projecting rearwardly from the inwardly-projecting portion of the pouch-receiver plate, and a spring clamp to receive said headed plate and lock the pouch-receiver in collapsed condition.

13. In an apparatus of the character described, a car having a door opening, a crane movable in and out of the door opening, a basket depending from the crane and consisting of upright side portions, a pair of bowed plates hingedly attached at their upper edges to said side portions and terminating at their lower or inner edges in depending flanges, and a trigger below the bowed plates and pivoted to one of them at the rear side of its flange and provided with a flange engaging the front side of the flange of the other bowed plate.

14. In an apparatus of the character described, a car having a door opening, a crane movable in and out of the door opening, a basket depending from the crane and consisting of upright side portions, a pair of bowed plates hingedly attached at their upper edges to said side portions and terminating at their lower or inner edges in depending flanges, a trigger below the bowed plates and pivoted to one of them at the rear side of its flange and provided with a flange engaging the front side of the flange of the other bowed plate, and springs tending to swing the flanged edges of said plates together.

15. In an apparatus of the character described, a car having a door opening, a crane movable in and out of the door opening, a basket depending from the crane and consisting of a set of front and a set of rear bars, transverse rods connecting said bars, a pair of bowed plates pivoted at their upper ends on said bars and provided at their lower ends with depending flanges, springs secured to said rods and bearing against said bowed plates to press the flanged ends toward each other, and a trigger pivoted to the flange of one of said bowed plates and provided with a flange projecting upward and engaging the flange of the companion bowed plate to prevent separable movement of the flanged end of said plates.

16. In an apparatus of the character described, the combination with a mail car provided with a pouch-receiver communicating therewith and facing in the direction of the car travel, of a station crane, comprising uprights, arms hinged to and projecting inwardly from the uprights below the plane of the said pouch-receiver, means for holding said arms in operative position, arms hinged to and projecting inward from said uprights above the plane of the pouch-receiver, a bar connecting the first-named

arms, a bar connecting the last-named arms, one or more cables pendent from the last-named bar and carrying vertically one or more mail-pouches in the plane of the said pouch-receiver, and a cable or cables connecting said portion or portions with the bar connecting the first-named arms.

17. In an apparatus of the character described, the combination with a mail car provided with a pouch-receiver communicating therewith and facing in the direction of the car travel, of a station crane, comprising uprights, arms hinged to and projecting inwardly from the uprights below the plane of the said pouch-receiver, means for holding said arms in operative position, arms hinged to and projecting inward from said uprights below the plane of the pouch-receiver, a bar connecting the first-named arms, a bar connecting the last-named arms, one or more cables pendent from the last-named bar and carrying vertically one or more mail-pouches in the plane of the said pouch-receiver, a cable or cables connecting said portion or portions with the bar connecting the first-named arms, and means for exerting a yielding force on the hinged arms above the plane of the pouch-receiver, to swing said arms and the bar connecting them to an upright or inoperative position when no pouch is suspended from the last-named bar.

18. In an apparatus of the character described, a car having a door opening, a crane movable in and out of the door opening, and a basket depending from the crane and embodying a pair of members pivotally pendent from the crane and adapted for swinging together or apart in a plane parallel with the side of the car, and a trigger pivoted to one of the said members and engaging the other to hold them together or closed against accidental opening movement.

19. In an apparatus of the character described, a car having a door opening, a crane movable in and out of the door opening, and a basket depending from the crane and embodying a pair of members pivotally pendent from the crane and adapted for swinging together or apart in a plane parallel with the side of the car, and a trigger pivoted to one of the said members and engaging the other to hold them together or closed against accidental opening movement, and means for tripping said trigger to permit the members of the basket to open by swinging apart.

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

ALBERT HUPP.

Witnesses:
HELEN C. RODGERS,
G. Y. THORPE.