

No. 827,056.

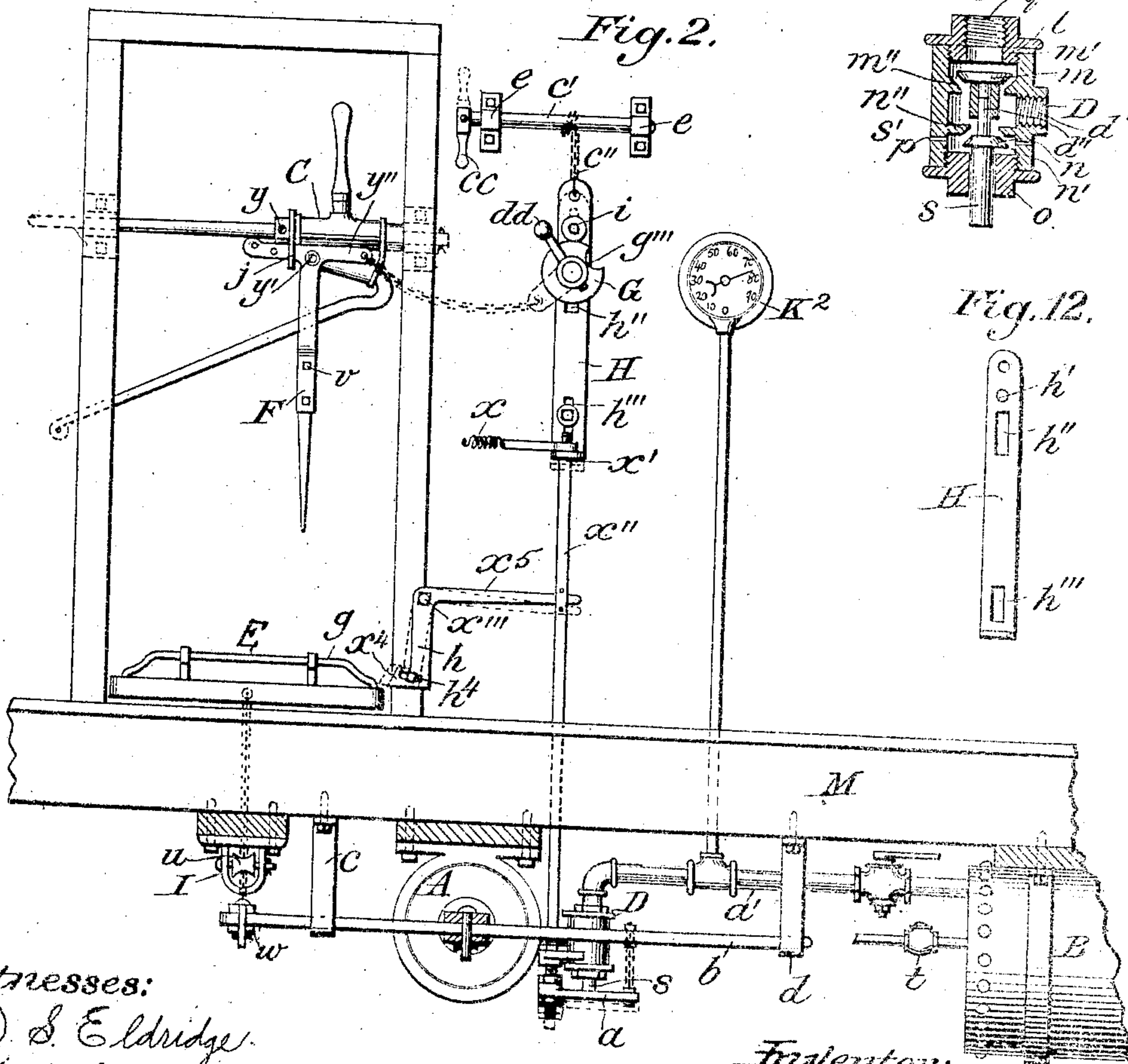
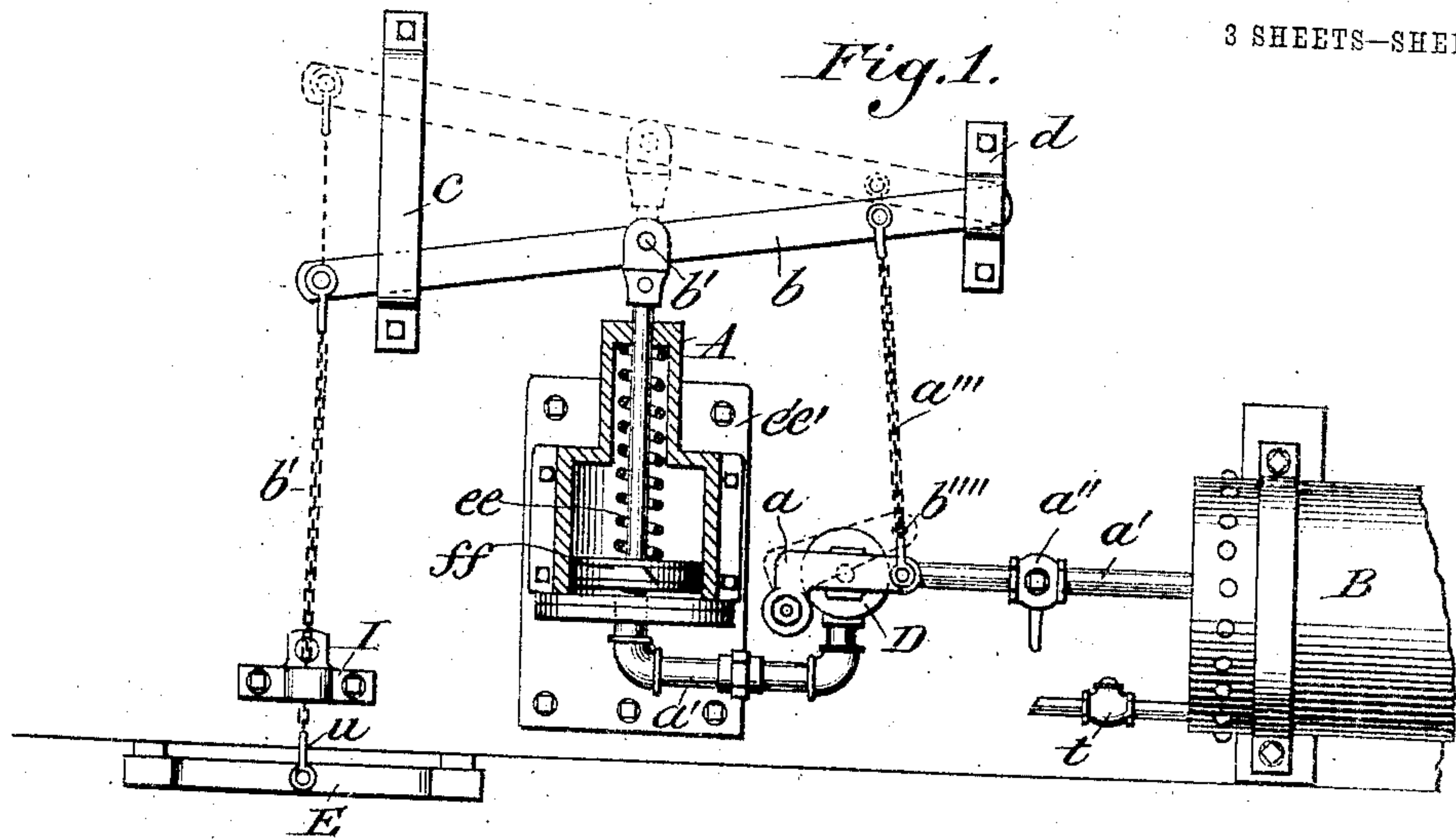
PATENTED JULY 24, 1906.

F. H. BURR.

MAIL RECEIVING AND DELIVERING MECHANISM FOR RAILWAYS.

APPLICATION FILED DEC. 16, 1905.

3 SHEETS—SHEET 1.



Witnesses:

D. S. Eldridge.
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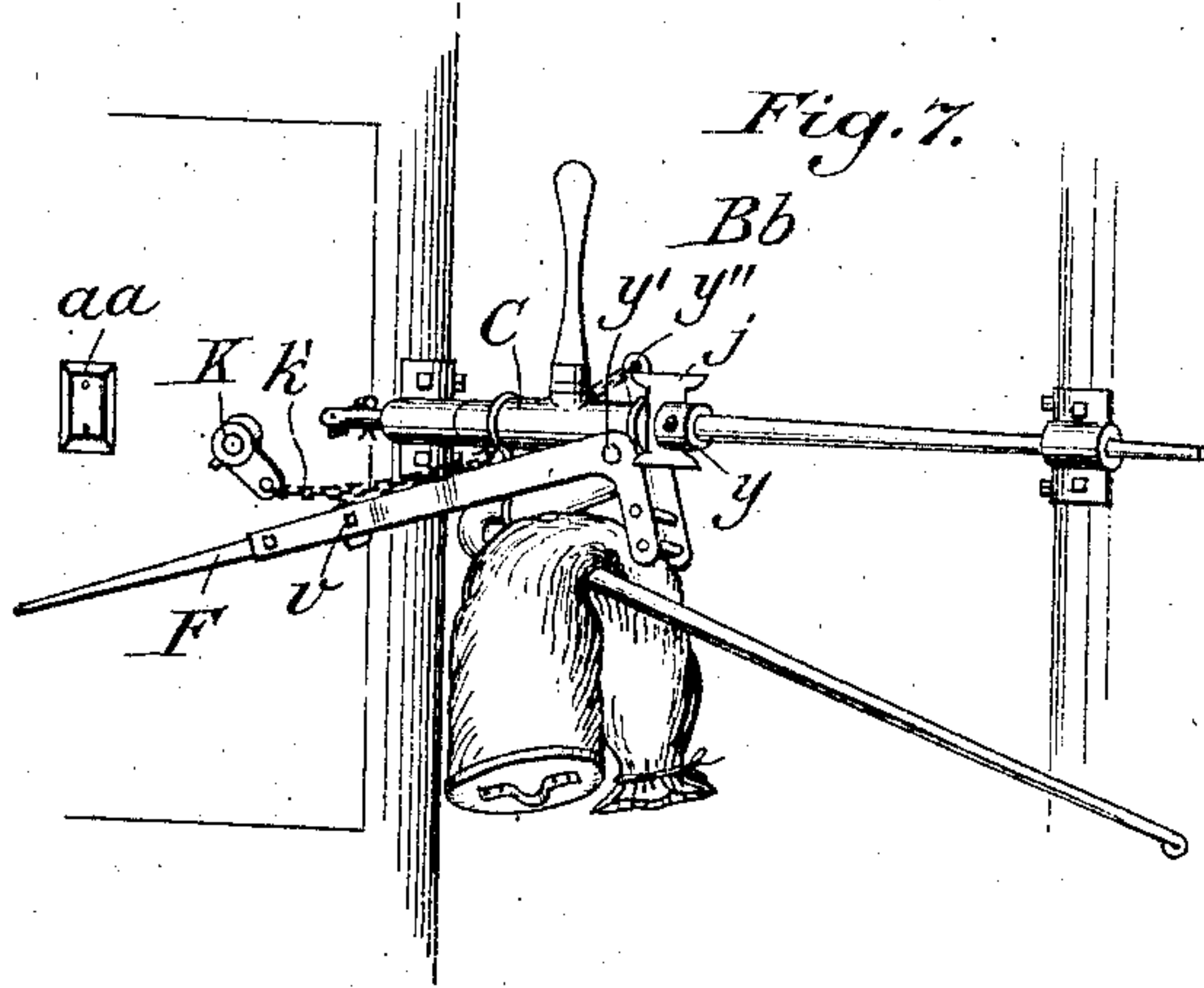


Fig. 8.

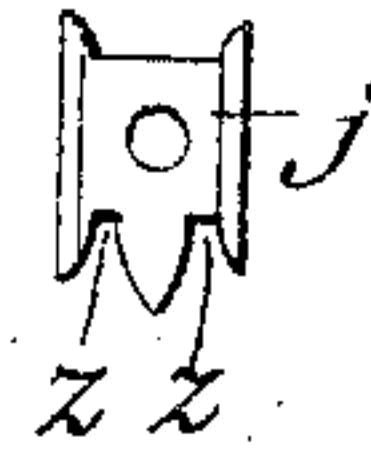


Fig. 4.

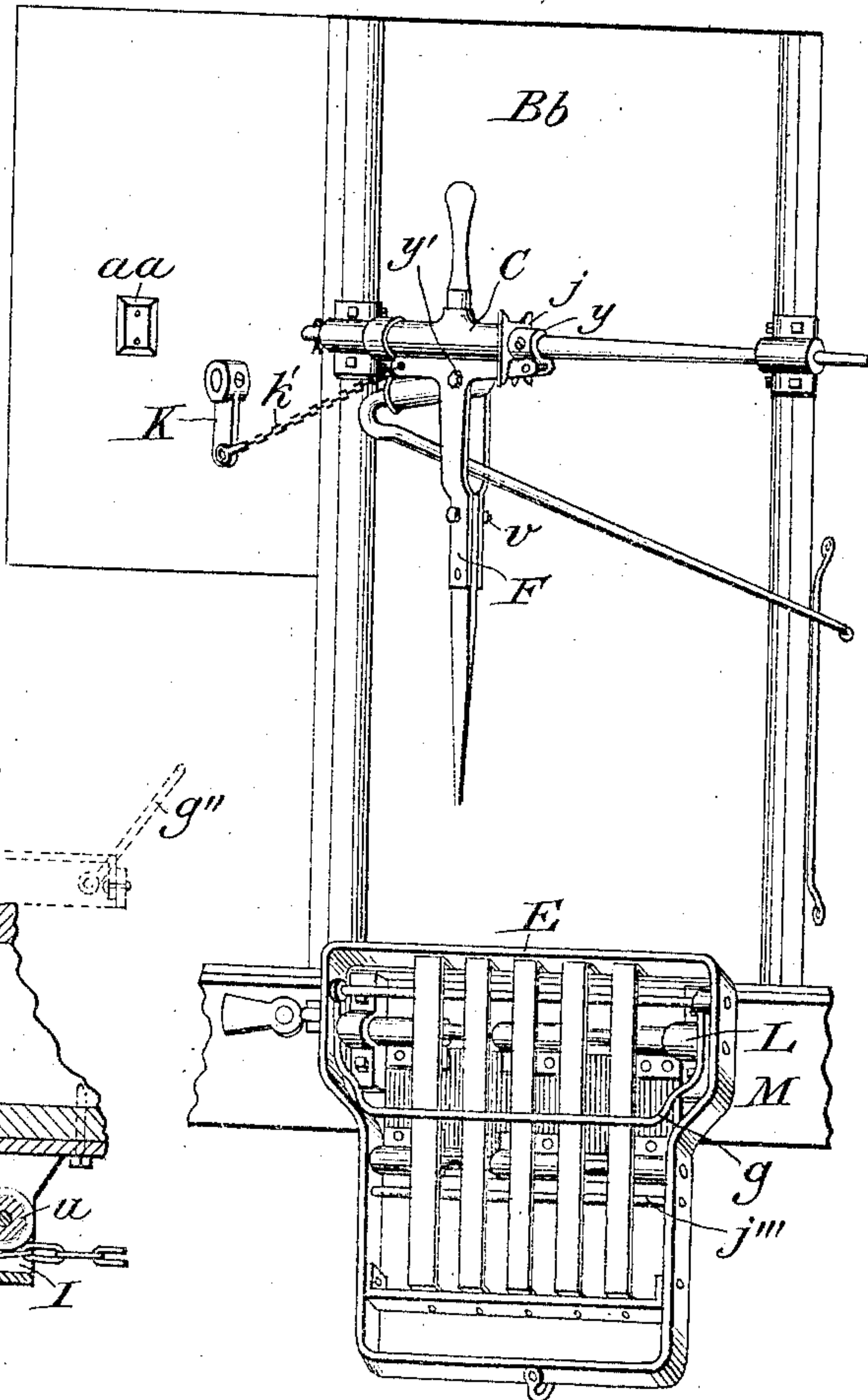


Fig. 5.

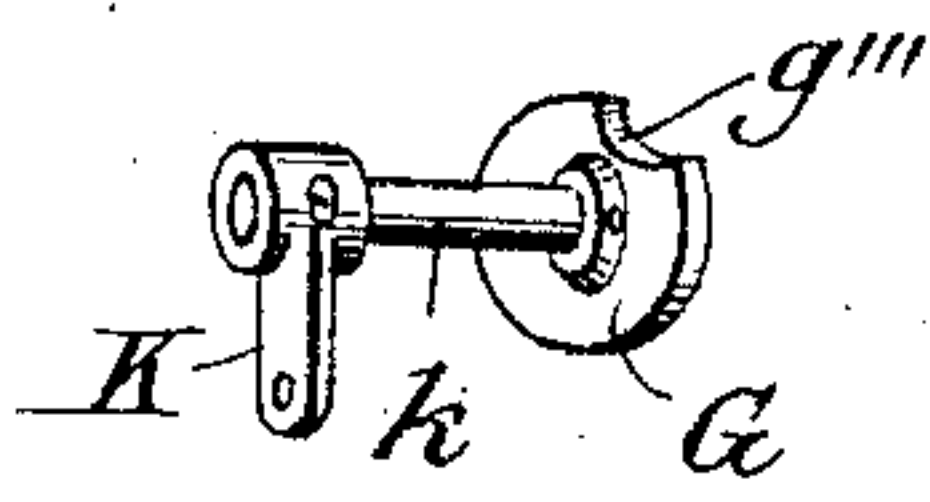
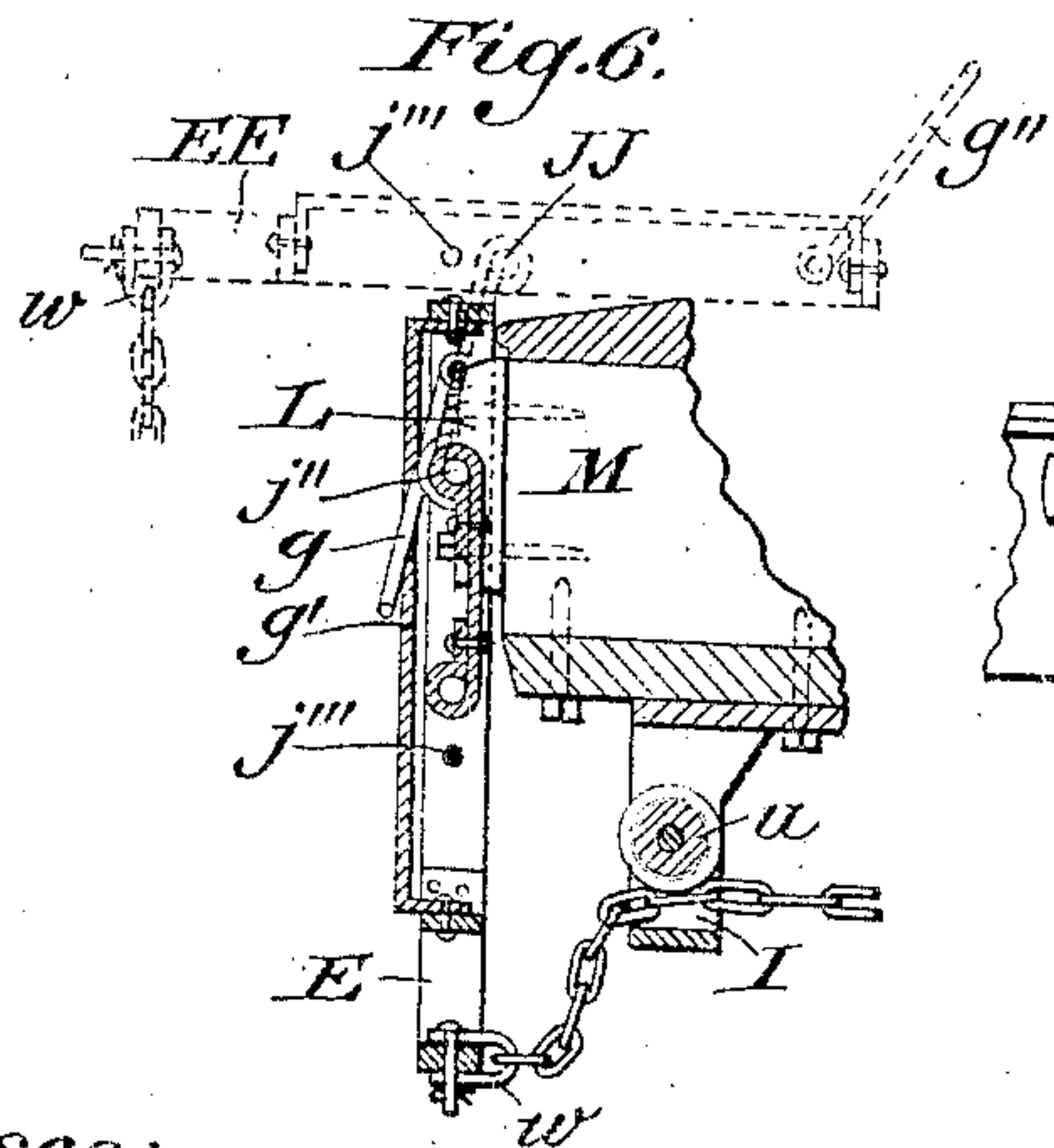


Fig. 6.



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3 SHEETS—SHEET 3.

Fig. 11.

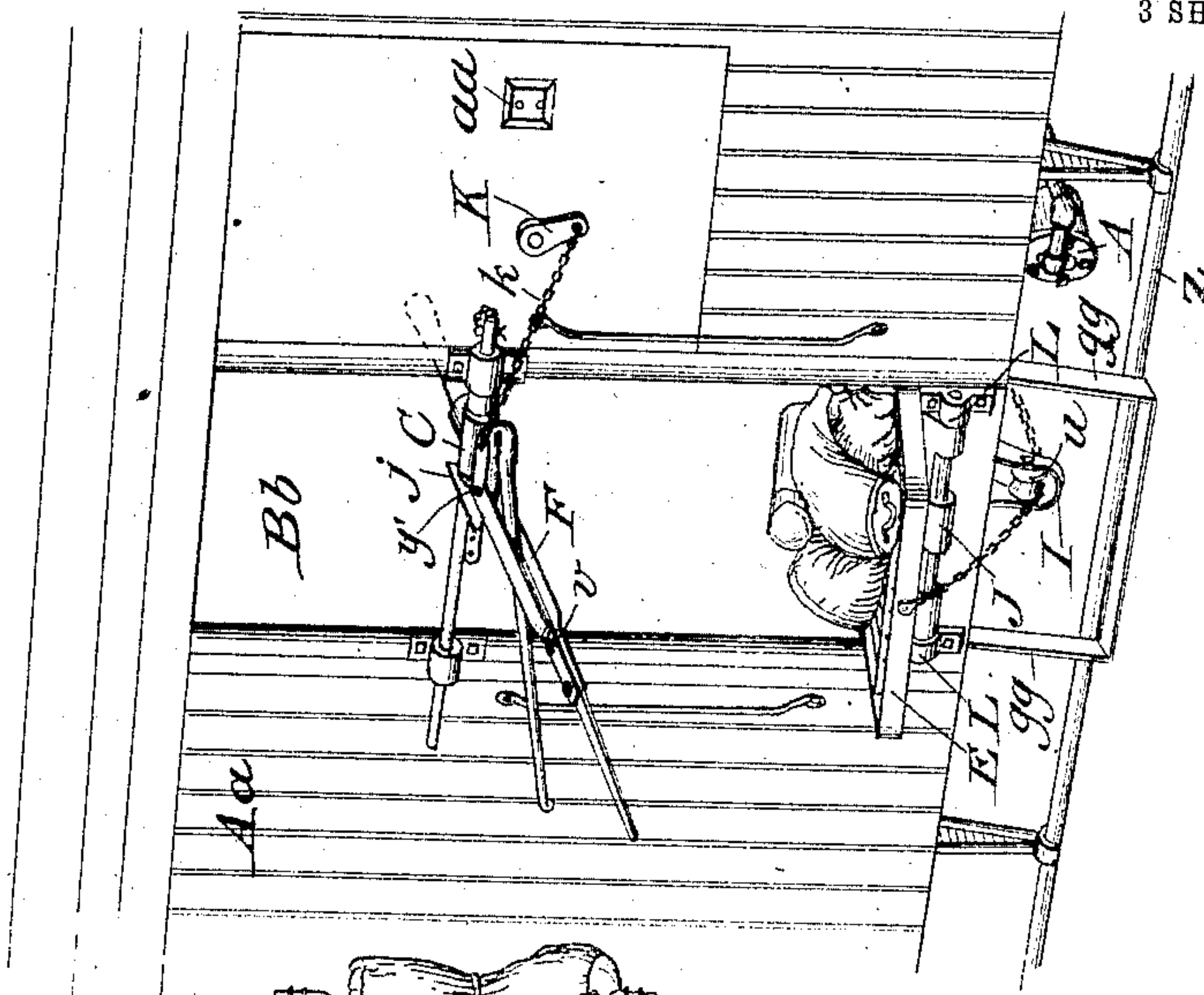


Fig. 10.

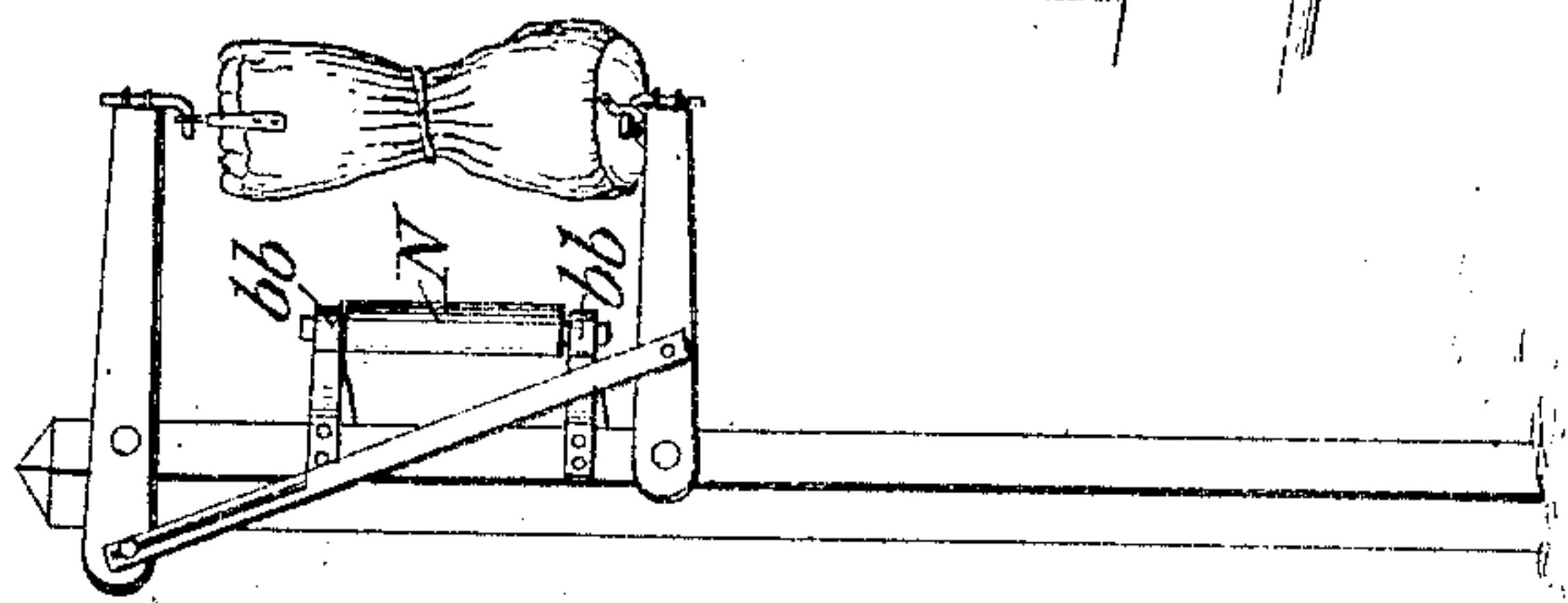
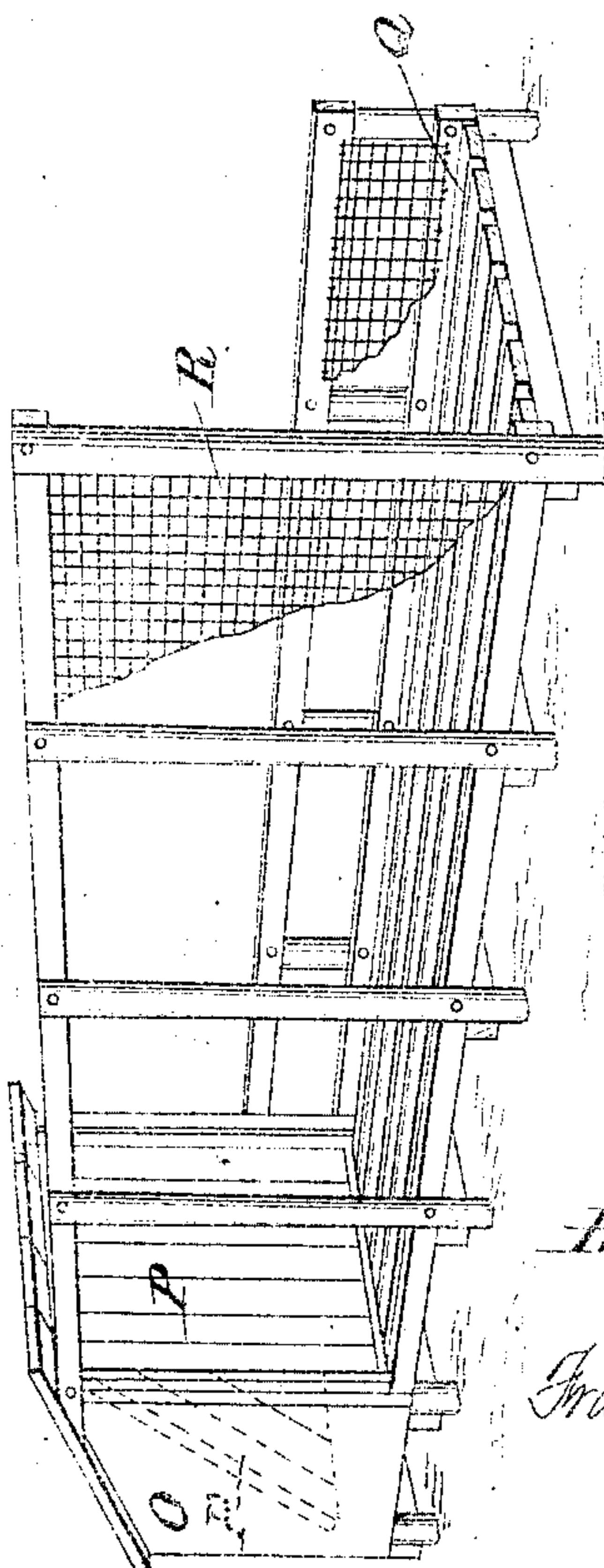


Fig. 9.



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UNITED STATES PATENT OFFICE.

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MAIL RECEIVING AND DELIVERING MECHANISM FOR RAILWAYS.

No. 827,056.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed December 16, 1905. Serial No. 292,055.

To all whom it may concern:

Be it known that I, FRANKLIN H. BURR, a citizen of the United States, residing at Atlantic, in the county of Cass and the State of Iowa, have invented certain new and useful Improvements in Mail Receiving and Delivering Mechanism for Railways; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to receiving and delivering mechanism for railway-cars, and has for its object the use of compressed air taken from the train-pipes to operate the delivering mechanism and to provide means whereby compressed air will be admitted automatically to the operating mechanism to actuate the delivery devices.

It consists, in combination with a car, of a delivering-frame arranged in the doorway thereof, of a hinge pivotally connecting said frame to said car, and means for swinging said frame upon said hinge.

It also consists, in combination with a car, of a catcher-crane pivotally connected thereto and a trigger or automatic arm pivotally connected to said catcher-crane and means for automatically operating said trigger-arm upon said pivotal connections.

It also consists of certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

It is further intended to provide a simple, durable, and efficient construction and one readily adapted to mail-cars now in use.

In the drawings, Figure 1 is a bottom plan view of the car, showing the arrangement of the air-pipes, cylinders, levers, and the automatic self-venting valve. Fig. 2 is a side elevation of the appliances inside of the car. Fig. 3 is a sectional view of the operating-valve with its frame-support cut away. Fig. 4 is a perspective view of the car appliances on the outside of the car. Fig. 5 is a perspective view of the operating-cam and crank connection thereto. Fig. 6 is a vertical cross-sectional view of the delivery-frame and its auxiliary appliances along line from E to w. Fig. 7 is a perspective view of the trigger-arm and catcher-crane. Fig. 8 is an end view of cam-locking device of the trigger-arm. Fig. 9 is a perspective view of the

receiving-box equipment at a station. Fig. 10 is a perspective view of a mail-crane equipment at a station. Fig. 11 is a perspective view of a car equipped with these appliances ready for operation. Fig. 12 is a perspective view of the slotted automatic bar.

In the drawings, Aa denote the car, and Bb denote the door of the car.

A is the compressed-air-operating cylinder cut away, showing the piston-rod and return coil-spring *ee* encircling the piston-rod, the operating-lever *b* being pivoted to the piston-rod at point *b'* and connected to the piston *ff* by means of piston-rod *e'e'*. When the compressed air is admitted to the operating-cylinder through supply-pipe *a'* behind the piston *ff*, the piston-rod is thrown out, as shown by dotted lines, carrying the operating-lever *b* to position, (shown by dotted lines,) the delivery-frame E in turn being connected by chain to operating-lever *b*. The swinging of the operating-lever *b* upsets the delivering-frame E from a horizontal position in the car Aa to a perpendicular position, to the position shown in Fig. 4. The upsetting or change of position of the delivery-frame E discharges the mail or other matter placed on the delivery-frame for that purpose. The coil-spring *ee* returns the piston and operating-lever to their normal positions ready for the next operation. The return of the piston *ff* with the operating-lever to their normal positions lessens the weight of the delivery-frame E in raising it into the car, as the moving weight of the piston and operating-lever would be attached to the delivery-frame by means of the chain connection to the operating-lever.

B is the extra or "mail" auxiliary compressed-air reservoir and receives its supply of compressed air by means of small supply-pipe *t*, connected to the regular auxiliary reservoir of the car.

t' is a check-valve and preserves the pressure of the air in the mail auxiliary when the air-pressure is reduced in the regular auxiliary reservoir by reason of the use of the pressure in the operating of the air-brake system.

C, Fig. 4, is the regular catcher-crane now in general use on all railroads and is hung in the doorway of a mail-car in the usual manner and rocks up into position to make the "catch" and when released from operative position falls by gravity into its normal posi-

tion, as shown in Fig. 4. The "catcher" is operated only by an operator on the inside of the car and by means of an operating-handle.

D, Fig. 3, is the automatic and self-venting operating-valve, with the supporting-framework cut away to show the detailed construction of the valve. This valve in operation performs six complete functions automatically, first, closing as a venting-valve and opening as an operating-valve; second, opening and closing as a check-valve, and, third, closing as an operating and opening as a venting-valve, or a triple valve in one, opening and closing in an automatic manner, six operations.

In operation the valve-lift *a*, automatically connected to the operating trigger-arm, lifts valve *n* by means of valve-stem *s*, which is a rigid part of valve *n*, that slides up and down through its supporting-frame *o* to the valve-seat *n''*. By this means the valve is closed as a venting-valve and opened as a check-valve by raising valve *m* from its seat *m''* and admits the compressed air from the extra or mail auxiliary compressed-air reservoir into the operating-cylinder through supply-pipe *a'* into port *r* and through outlet *d'* and pipe *a'* into the operating-cylinder A, Fig. 1.

The valve *m* is fitted with a sleeve *d''*, into which the smaller portion of valve-stem *s* works up and down in raising valve *m* from its seat *m''*. The bottom part of the sleeve *d''* is fitted with a piece of leather for a cushion for the valve-stem *s* or the portion that slides in the sleeve *d''* to keep this portion of the abuttal end of the stem *s* from "upsetting" or enlarging by concussion, so that they would stick together, for sticking together would in a measure destroy the complete automatic action of the valve D. The valve *n* to complete its functions drops lower down in its port *n'* than it raises valve *m* in its port *m'*. For this reason the valve-stem *s* must always slide in the sleeve *d''*.

The compressed air being admitted to the operating-cylinder A and said cylinder being fitted with piston *ff*, and piston-rod pivoted to operating-lever *b*, and operating-lever *b* being connected to the delivery-frame E, behind the piston *ff*, forces the piston and its connections, the operating-lever *b*, into the position shown by the dotted lines of the lever in Fig. 1. The operating-lever *b* being connected by chain *b'* to the delivery-frame E, then the movement of the operating-lever into the position shown by the dotted lines of the lever in Fig. 1 causes the delivery-frame E to upset and dump the mail or other packages placed thereon for the purposes of delivery.

The valve-lift *a* is connected to the operating-lever *b* by means of the chain *a'''* in a slackened condition. When the operating-lever *b* is pushed into the position shown by

the dotted lines of lever *b* in Fig. 1 by the action of the compressed air behind the piston *ff*, at the last part of the movement of the lever *b* the slack is drawn out of chain *a'''* at the same time and movement, carrying the valve-lift *a* to the position shown in Fig. 1 of valve-lift *a* by the dotted lines. When the valve-lift *a* is in this position, the stem *s* and valve *n* are deprived of their support and by means of the air-pressure in pipes and connections forces valve *n* and stem *s*, which is a part of the valve, to the bottom of port *n'*, and into their normal or operative position for the next operation. The valve *m* being deprived of the support of valve *n* drops to its seat *m''* by gravity and the air-pressure behind it in the extra or mail auxiliary reservoir B and checks the flow of air-pressure into the operating-cylinder A. The valve *n* drops down when deprived of its support, valve-lift *a*, in its port *n'* below the vent-holes *p* by reason of gravity and force of air-pressure behind it. This action releases the pressure of air in the operating-cylinder and allows it to flow back through its supply-pipe and out at the vent-holes *p*. The valve D is then a venting-valve. The release of the pressure behind the piston *ff* in the operating-cylinder A allows the coil-spring *ee* to return the piston and the operating-lever *b*, by means of its connection to the piston-rod of the piston *ff*, to their normal or operating positions, as shown in Fig. 1.

The valve D is made of the material in general use for the construction of valves. The detail view shows that the operating portions of the valve are constructed in diametrical opposition to each other, are automatically connected, and depend on each other for their opposing operating functions. The automatic and self-venting valve D as a whole, Fig. 3, as constructed operates only when set for use in a perpendicular manner. Gravity being a feature of its operation, to use set in a horizontal manner would require coil-springs to take the place of gravity.

E is the delivery-frame, pivotally hinged to the car Aa, to the sill of the car M, and underneath the door of the car by means of lugs LL. The pivotal connections at LL are made to the hinge J. The double hinge allows the delivery-frame to be pulled up into the car and placed in the position shown of the delivery-frame in the dotted lines in Fig. 6 and in position for the mail or other packages to be placed thereon for delivery, as is shown in Fig. 11. When the delivery-frame is in this position, the bail or back wall *g* is thrown back, as is shown in Fig. 6. When in this position, it serves as a back wall for the delivery-frame E, to keep the mail or other matter placed on it for delivery from slipping off from the delivery-frame, by its sudden and violent action in operation, it also directs in part the angle of the descent of the mail or

other matter placed on the frame for delivery at the station.

When the delivery-frame E is raised into the car for operation, it is dumped or upset by the action of the operating-cylinder A and its connections, the lever *b* and chain *b'*, connected to the delivery-frame E at *w*. In dumping or upsetting the delivery-frame E it first turns on its pivotal points JJ until the locking-rod *j'''* intercepts the hinge J. At this point the delivery-frame E, in connection with the hinge J, forms a crank that compels the hinge to turn on its pivotal points at *j''*. In the upsetting operation of the delivery-frame E it is first upset to an angle of about forty-five degrees. Then it is thrown out and down by the fact of its turning on the hinge J first on its lower pivotal points *j''* and then on all its pivotal points and in a descending manner at about an angle of forty-five degrees. The bail *g''*, in connection with the delivery-frame E and the chain-guide I, holds the frame at this angle, and the bail or back wall *g''* pushes the mail or other packages placed on the frame to be delivered at this angle required in the upsetting and dumping of the delivery-frame E. The locking-rod *j'''* is cushioned with rubber around it and is placed parallel with the hinge J in the delivery-frame E, Fig. 4. The open space EE in the delivery-frame E makes a step when hanging in its normal position, as shown in Fig. 4, as a means for getting into the car. When the delivery-frame is in operative position, as shown in dotted lines, Fig. 6, the space EE forms a space large enough for a mail sack or pouch to sag into it and keep it from slipping off from the frame E.

f is an automatic latch pivoted to the side of the car and is adapted to latch the frame to the side of the car to keep the delivery-frame E from vibrating or tipping when the frame is in the position as shown in Fig. 4. The latch *f* latches the frame E by weight of the frame in its descent in operation, causing the latch to rise on its heavy end when the frame strikes the angle of the latch next the frame and providing means for the frame to pass behind the latch to a latching position. In raising the frame E into the car it is raised at a different angle than its descending angle and is raised out of the latch, i. e., the frame rises out of latch, but descends into latch, therefore making a complete automatic latch.

F is the trigger or automatic operating-arm that by reason of its contact with the roller-bracket N, Fig. 10, which is attached to the mail-crane post, Fig. 10, by means of a car in motion and the necessary automatic connections to the automatic and self-venting valve D, Fig. 3, opens the valve admitting the compressed air from the mail auxiliary compressed-air reservoir B to the com-

pressed-air-operating cylinder A, thereby setting in motion the mechanism that will receive and lock a mail-pouch to the catcher C, as shown in Fig. 7, and deliver from the car mail-sacks, pouches, and other packages that are placed on the delivery-frame E for delivery from the car into the receiving-box, Fig. 9, placed at the track side to receive it with safety and regularity.

The trigger and automatic operating-arm F and sack-locking device are two pieces of L-shaped flat pieces of steel that loop around the gooseneck of the catcher-crane and curve together at *v* in the trigger-arm F and clamp the trigger between the two flat L-shaped pieces by means of bolts that are rubber-cushioned around the bolts for the purpose of removing the shock of the impact of the trigger-arm F against the roller-bracket N, that is the contact-point of this automatic mechanism on the mail-crane post, Fig. 10. The L-shaped portion of the trigger-arm makes the sack-locking mechanism of the catcher C and is operated in an automatic manner by the operation of the trigger-arm in its automatic operation by contact with roller-bracket, that is attached to the mail-crane post, Fig. 10. The two flat L-shaped pieces of steel are pivoted to the catcher C at point *y'* and rocks back on the catcher-crane to the rubber cushion *aa*, placed on the car to reduce the shock of the trigger-arm when thrown back violently by impact with roller-bracket N, attached to the mail-crane post, Fig. 10, according to the speed of the train.

The trigger automatic and pouch-locking arm is in position for operation when it is raised by means of its attachment to the catcher-crane by the postal operator raising the catcher to make a catch of the pouch hung on the mail-crane, Fig. 10, for that purpose. The trigger-arm at this time is at right angles with the rocking bar of the catcher C and the car *Aa* and a little lower than a horizontal position to the car *Aa* and the rocking bar of the catcher C. The trigger-arm in this position has two functions to perform in connection with a car in motion and a mail-crane with a pouch hung up to be delivered to the train and a roller-bracket attached to the mail-crane post, first, to set the delivery mechanism in motion, and, second, to lock the pouch to be received on the cars in the arm of the catcher used to receive the pouch on the cars. When the trigger-arm turns back from contact at the automatic point N, Fig. 10, toward the car, the pouch is in process of being drawn from the mail-crane hangers by means of the catcher-crane C in such a manner that the L-shaped portion of the trigger-arm comes in behind the pouch, from the fact that the trigger-arm has changed its position from a right angle to rocking bar of the catcher C to a parallel position to the car and rocking

bar of the catcher C. When the trigger-arm by force of the momentum caused by the contact of the trigger-arm to the roller-bracket N, Fig. 10, is thrown back to the parallel position to the car and catcher, then the cam, Fig. 8, is released and partially turns around to locking position to the trigger-arm F. The locking-cam J is held in position by means of the jaw-angle of the locking-cam. The jaw-angle portion of the locking-cam is heavier than the other portion, and the hole in the cam that the rocking bar catcher goes through is out of center for the purpose of making the jaw portion of the cam *j* heavier. In raising the catcher on its rocking bar to its operating position, it is then in a horizontal position to the car. The locking-cam *j* by being interlocked in the cam-angles *zz* with *L* part of the trigger-arm F is raised into a corresponding position. When the trigger-arm F is turned back by reason of contact with the roller-bracket N, it releases the cam *j* from its interlocking support of the *L* portion of the trigger-arm F. The cam *j* now turns or falls by reason of gravity into a perpendicular position, and the straight side of cam *j* is against the edges of the *L* portion of the trigger-arm F, forming a lock and holding the trigger-arm in the position shown in Fig. 7. When the postal operator has released his hold to the handle of the catcher C, the catcher settles by gravity to the position shown in Fig. 7. To release the pouch from the lock, the postal operator raises the trigger-arm F until the cam *j* is released from the pressure against it. Then the cam *j* will again make a turn to a perpendicular position by reason of gravity to the position shown of cam *j* in Figs. 2, 4, 7. In this position the *L* portion of the trigger-arm will again interlock with the cam-angles *zz* and release the trigger-arm from its locking position.

The cam *j* is a flat piece of steel, Fig. 8, and pivoted around the rocking bar of the catcher C, as shown, and is held in position by means of a collar *y* and set-screw.

G is the rotary operating-cam, Fig. 5, and is rigidly fixed to crank-shaft *k*, the crank-shaft *k* first going through the slot *h''* of the slotted bar H, forming in this position a guide for the up-and-down movement of slotted bar H to the crank-lever K, to which it is rigidly affixed, the crank-lever *k* being in turn connected by chain *k'* to crank portion of the trigger-arm F to the crank portion *y''*. This completes the automatic connections from the roller-bracket N to the automatic cam G. The cam G is a round wheel, of cast-iron, with the cam-notch *g'''* supplied with a handle *dd* for the purpose of turning the cam G into position, so that the eccentric *i* will drop into the cam-notch *g'''*. In this position the cam is in operative position. The crank-lever K is on the outside of the car,

and the crank-shaft *k* goes through the side of the car through slotted bar H and is rigidly fixed to the operating-cam G.

The bar H is slotted at *h'* and *h''* and is movably supported by means of the eccentric *i*, which is pivoted to the slotted bar at *h'* and is rotatively supported by the cam G and guided in its up-and-down motion by means of the crank-shaft going through the slot *h''*, the bar H being between the cam G and the side wall of the car, and by means of its being movably supported at slot *h'''* and bolted to the side wall of the car, as is shown in Fig. 2. The slotted bar H moves up and down, as is shown by the dotted lines of bar H in Fig. 2, by means of the rotating of cam G, raising the bar H by means of its connections to the eccentric-wheel rotating out of cam-notch *g'''*.

Pivotaly connected to the slotted bar H at point *x'* is an automatic rod that has three movements, two by reason of the up-and-down motion of the automatic bar H and one by reason of its connection to the valve-lift *a* and the chain connection of the valve-lift *a* to the operating-lever *b*, being a movement horizontally toward the operating-lever *b* and corresponding to the movement of the lever *b*, and by reason of the horizontal movement releases the valve D from operating position and turns the valve D into a venting-valve for the operating-cylinder A.

The valve-lift *a* is rigidly clamped to the automatic rod *x''* between two nuts. This allows the valve-lift *a* to be raised and lowered into proper adjustment with the valve-stem *s*.

The automatic rod *x''* connects the automatic slotted bar H on the inside of the car, down through the floor or bottom of the car, to the automatic self-venting valve-lift *a* underneath and outside of the car.

The automatic rod *x''* works up and down for the same reasons and purposes claimed for the slotted bar H, and the dotted lines at the pivotal point *x'* and at the valve-lift *a* correspond with the dotted lines showing the up-and-down movement of the slotted bar H, Fig. 2. The automatic rod *x''* turns in a horizontal movement corresponding to the horizontal movement of the cam-lift *a*. (Shown by the dotted lines of the valve-lift *a* in Fig. 1.) When the valve-lift *a* is in this position, the valve-stem *s* can drop to the side of valve-lift *a*, closing the valve D, Fig. 3, as an operating-valve and opens the valve D as a venting-valve.

The down movement of the slotted bar H and automatic rod *x''* and connecting valve-lift *a* is made by turning the rotary cam G, by means of the handle *dd*, to a position to receive the eccentric *i* into the cam-notch *g'''*. When the eccentric is lowered into the cam-notch *g'''*, the slotted bar H and its connecting-rod *x''* and valve-lift *a* are lowered into a

corresponding position or to the position shown by the dotted lines of the bar H and the valve-lift *a* and the rod *x''*, as shown in Figs. 1 and 2. When the automatic bar H and its connections drop to the position of the dotted lines, as shown in the dotted lines in Figs. 1 and 2, the valve-lift *a* has dropped out of contact (side contact) of the valve-stem *s*, allowing the valve-lift *a* to rotate back into operating position under the valve-stem *s* by means of handle *x* and return coil-spring attached thereto, as shown in Fig. 2, of valve-stem *s*.

h is an L-shaped automatic locking device for the delivery-frame E and is pivotally clamped to the rod *x''* and pivotally attached to the side of the car and works back and forth in the slot *h'* and is raised and lowered in connection with the raising and lowering of the rod *x''*. When the delivery-frame E is raised into the car, the outside of the frame strikes the beveled portion of the latch *x'*, which forces the latch back in such a manner that the delivery-frame passes below the latch *h*. When in this position, the latch *h* settles by gravity into the position shown by the dotted lines of latch *h* in Fig. 2.

*K*² is a pressure-gage for air and is connected to a supply-pipe *a* below the floor of the car. The pressure-gage is used to show the amount of air-pressure in the extra or mail auxiliary compressed-air reservoir.

ee are lugs supporting pivotally an emergency operation-bar *c'*. This bar is connected to automatic bar H by means of a chain *c''*, which winds around bar *c'*.

cc represent the handle to the emergency-bar *c'* to rotate bar *c'* with, and the winding of the chain *c''* around the bar *c* raises the automatic bar H and its connections, the rod *x''* and its connections, the valve-lift *a*, which operates the valve D, setting in operation the compressed-air mechanism for the purposes set forth.

I is the chain-guide for the operating-chain *a'''*, connection between the delivery-frame E, and the operating-cylinder A. The chain-guide *I* is a stirrup, of cast-iron or other suitable material, with a bevel-edged concaved-edge roller-wheel for chain to roll on and in connection with the bail *g* and the delivery-frame E and the hinge-lock *j'''* and with the air-pressure mechanism directs and controls the manner and the direction of the delivery of the mail or other matter from the car.

The receiving-box, Fig. 9, is built of posts, dimension-lumber, screen-wire, or any other suitable material and can be placed six feet from the nearest rail. The back side of the box is made about four and one-half feet high and the front side or side nearest the track is made about two and one-half feet high and are made of any suitable material. The length is made according to what is the usual speed of the train, the length needing

to be about, in feet, two-thirds of the miles per hour of the speed of the train. The width varies according to the amount of the despatch of mails, but will average about two and one-half feet. The receiving-box mail-crane, Figs. 9, 10, would be the arrangement for a double-track railroad. The additional equipment for a single-track railroad would be the air-cushion box O for the open end of Fig. 9 and an additional mail-crane, Fig. 10, at the other end and the mail-crane post equipped with roller-bracket N. To arrange this receiving-box to receive the despatch of mails between a double or four track road, the back-wall R would be hinged in the middle of its height from the ground in a manner to turn down to the height of the front wall Q, and the front wall *q* would be built in a similar manner as the back wall R, when it could be raised and lowered in the same manner and for the same purposes.

O is the dead-air space or the air-cushion end, the door P hinged at the top and swinging, as is shown by dotted lines of door P.

It is considered a delivery of mail or other matter placed on the delivery-frame for that purpose for it to be delivered into any portion of the receiving-box in a safe and regular manner.

N, Fig. 10, is a roller, of wood or other suitable material, rounded, so that in contact with trigger-arm F it will roll. A portion of the roller is turned smaller, so that the shoulder will form a support for the roller in the eyes of the bracket *bb bb* made to receive it. The roller *n* constitutes the contact-point of the trigger-arm F and the automatic operation of the delivering mechanism.

The mail-crane post, Fig. 10, is a pattern of the mail-crane now in general use.

gg gg, Fig. 11, represent a bracket and guide to the delivery-frame E, keeping the delivery-frame from turning under the car and directs the frame E downward in such a manner as to throw the top part of the frame E back, so that the frame will latch to the side of the car by means of the latch *f*, Fig. 4. This bracket and guide *gg* is cushioned to the truss-rods of the car by means of a piece of hose placed around the truss-rod and between the rod and the truss-rods.

In operation the cam-notch *g'''* is adjusted to receive the eccentric *i*. The delivery-frame E is then raised into the car with an iron hook or other means. Place the mail or other packages to be delivered on the delivery-frame, and with a train in motion and passing the mail-crane post and by contact with the roller-bracket and trigger-arm F the mechanism will be set in motion, that will despatch the mails or other packages into the receiving-box and lock the post hung on the crane for delivery to the car securely in the catcher.

From the foregoing description, taken in

connection with the accompanying drawings, mode of operation and advantages of my invention will be readily understood, and various changes in form, proportion, and minor details of my invention may be resorted to without departing from the spirit of my invention or sacrificing any of the principles or advantages thereof.

What I claim as new is—

1. In a delivery mechanism for railway-cars, the combination of a delivering-frame having a pivotal attachment to said cars, a compressed-air-operating cylinder having a piston pivotally attached to a swinging operating-lever, which is pivotally attached to said cars, and to said delivering-frame, and means for automatically swinging said lever whereby said delivering-frame is tilted and dumped, substantially as set forth.
2. In a delivering mechanism for railway-cars, the combination of a delivering-frame pivotally attached to said cars, a compressed-air-operating cylinder having a piston pivotally attached to a swinging lever which is pivotally attached to said cars, and to said delivering-frame and means for operating said lever automatically, whereby said delivering-frame is tilted and dumped, a rubber-cushioned locking-bar for the purpose of checking the tilting of the delivery-frame at pivot-points of the hinge and delivery-frame, and forming a crank leverage and making the hinge turn on its pivotal points next to the car, whereby the tilting and dumping of the delivery-frame is regulated and controlled, substantially as set forth.
3. In a delivering mechanism for railway-cars, the combination of a delivery-frame pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally attached to a swinging operating-lever, said lever being pivotally attached to said cars, and to said delivery-frame, and means for operating said levers whereby said delivering-frame is tilted and dumped, a back wall or guide attached to said frame in a pivotal manner, to keep the mail-sacks pouches or other packages placed on the delivering-frame, from slipping off from the frame by means of centrifugal force, and for the purpose of guiding and regulating the angle of the delivering of the mail-sacks and other matter being delivered, substantially as set forth.
4. In a delivering mechanism for railway-cars, the combination of a delivery-frame pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally attached to a swinging operating-lever, said lever being pivotally attached to said cars and to said delivering-frame and automatic means for operating said levers, whereby said delivery-frame is tilted and dumped, a rubber-cushioned locking-bar, a back wall and angle-of-delivery guide for mail-sacks, a chain-guide that by reason of its position un-

der the car and to its position relative to the outer edge of the car, guides directs and regulates the angle of the delivering-frame in tilting, and regulates the manner of its descending into its normal or inoperative position, substantially as set forth.

5. In a delivering mechanism for railway-cars, the combination of a delivery-frame pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally attached to a swinging operating-lever, said lever being pivotally attached to said cars, and to said delivering-frame, and automatic means for operating said levers, whereby said delivering-frame is tilted and dumped, a rubber-cushioned locking-bar, a back wall and angle-of-delivery guide for mail-sacks, a chain-guide by reason of its position, a bracket rigidly attached underneath the car and guides the delivering-frame in its descent and keeps the said delivering-frame from tilting under the car and coming in contact with the chain-guide, as substantially set forth.

6. In a delivering mechanism for railway-cars, the combination of a delivering-frame pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally attached to a swinging operating-lever, said lever being pivotally attached to said delivering-frame, and automatic means for operating said lever, whereby said delivering-frame is tilted and dumped, a bracket rigidly attached to the car underneath forming a support and guide for the delivering-frame, a latch pivoted to the side of the car, for the purposes set forth, and as substantially described.

7. In a delivering mechanism for railway-cars, the combination of a delivering-frame pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally attached to a swinging lever, said lever being pivotally attached to said cars and delivering-frame, and automatic means for operating said lever, whereby said delivering-frame is tilted and dumped, a piston-rod connection between said piston and swinging lever, a return coil-spring around said piston-rod, for purposes set forth, and as substantially described.

8. In a delivering mechanism for railway-cars, the combination of a delivering frame pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally attached to a swinging lever, said lever being pivotally attached to said cars and delivering-frame, and means to automatically actuate said lever, a slack-chain connection between said lever and the valve-lift, for the purposes set forth and as substantially described.

9. In a delivering mechanism for railway-cars, the combination of a delivery-frame pivotally attached to said cars, a compressed-

air-operating cylinder, having a piston pivotally connected to its piston-rod, a swinging lever, pivotally attached to said cars, and to said delivering-frame, and means for automatically actuating said lever, whereby said delivering-frame is tilted and dumped, an extra or "mail" compressed-air reservoir, and a supply-pipe connecting the extra or mail auxiliary compressed-air reservoir, with the compressed-air-operating cylinder, as means to actuate the said cylinder, a check-valve controlling the admission of compressed air to the operating-cylinder, as substantially described, and for purposes set forth.

10. In a delivering mechanism for railway-cars, the combination of a delivering-frame, pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally connected to its piston-rod, a swinging lever, pivotally attached to said cars, and to the said delivering-frame, and means for automatically actuating said lever, whereby the said delivering-frame is tilted and dumped, an extra or "mail" auxiliary compressed-air reservoir, and a supply-pipe connecting the extra or "mail" auxiliary reservoir with the operating-cylinder, as means of admitting the compressed air into the operating-cylinder, an operating automatic valve, for the purpose of providing means for the admission of the compressed air to the operating-cylinder, as substantially set forth and described.

11. In a delivering mechanism for railway-cars, the combination of a delivering-frame pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally connected to its piston-rod, a swinging lever pivotally attached to said cars, and to said delivering-frame, and means for automatically actuating said lever, whereby the said delivering-frame is tilted and dumped, an extra or "mail" auxiliary compressed-air reservoir, a supply-pipe as means of supplying the compressed air to the operating-cylinder, a slack-chain connection between the swinging operating-lever and the valve-lift, a valve that relieves the pressure of air in the operating-cylinder, and allows by the means of the reduction of air-pressure in said cylinder, for the swinging lever, and its connections to the piston to return to an operating position, by means set forth and substantially described.

12. In a delivering mechanism for railway-cars, the combination of a delivering-frame pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally attached to a swinging lever pivotally attached to said cars and said delivering-frame, and means for automatically actuating said lever, whereby said delivering-frame is tilted and dumped, an extra or "mail" auxiliary reservoir, a supply-pipe as means of supplying the compressed air to the oper-

ating-cylinder, an operating automatic valve, an operating automatic check-valve, an operating automatic venting-valve, a slack-chain connection between the operating-lever and the valve-lift, a valve-lift, and means for automatically actuating the same, as set forth, and substantially described.

13. In a delivering mechanism for railway-cars, the combination of a delivering-frame pivotally attached to said cars, a compressed-air-operating cylinder, having a piston pivotally connected to a swinging lever pivotally attached to said cars and delivering-frame, and means for automatically actuating the same whereby the said delivering-frame is tilted and dumped, an extra or "mail" auxiliary compressed-air reservoir, a supply-pipe as means of supplying the compressed air to the operating-cylinder a small pipe connection between the extra or "mail" auxiliary compressed-air reservoir, and the regular compressed-air auxiliary reservoir, as a source of supply of air-pressure to the extra or "mail" compressed-air reservoir, and a check-valve in said supply-pipe to retain the pressure in the said extra or "mail" auxiliary compressed-air reservoir, when the pressure is reduced in the regular auxiliary reservoir in the use of compressed air in operating the brakes or for other purposes, by means of these connections the compressed air can be used as an operating force in the operating-cylinder used to operate this system of mail-delivering, without affecting the brakes or their operation, and as the regular auxiliary compressed-air reservoir charges with pressure slower than the train-pipes, and the source of supply to the extra or "mail" auxiliary compressed-air reservoir being smaller than the source to said regular auxiliary compressed-air reservoir, causes the extra or "mail" auxiliary reservoir to charge with air-pressure still slower, whereby the regular source of supply of compressed air can at all times keep up the equilibrium of air-pressure in the train-pipes and the regular auxiliary reservoir, and allow for the use of air-pressure taken from the source of supply to the air-brake system, to actuate the necessary mechanism to operate this system of mail delivery, as set forth, and described.

14. In a delivering mechanism for railway-cars, the combination of an air-compressor, and means for operating the said compressor; a combination of supply-pipes and operating-valves, whereby by the arrangement of pipes valves and reservoirs the compressed air that is necessary to actuate the mechanism for mail-delivering purposes, whereby the air-pressure used in actuating the said delivering mechanism, when released into the operating-cylinder in actuating the said operating-cylinder mail-delivering mechanism, flows in a direction opposite to the direction the said air-pressure flows when released in

the operation of the braking system, whereby the compressed air can be used for the purpose of actuating the mail-delivering mechanism, without setting or affecting the braking system, as set forth, and substantially described.

15. In a delivering mechanism for railway-cars, the combination of a car, an air-compressor and means for operating the same, a combination of supply-pipes, reservoirs and operating-valves, whereby by the arrangement of pipes, valves, and reservoirs, the compressed air that is necessary to actuate the mail-delivering mechanism for mail-delivering purposes, whereby the compressed air used in operating the mail-delivering mechanism, when released into the operating-cylinder used to operate the said mail-delivering mechanism, flows in a direction opposite to the direction the said compressed air flows when released in the operation of the braking system on said cars, whereby the compressed air stored in the auxiliary reservoir of said cars, for the purpose of operating the braking system of said cars, can be used for the purpose of operating the said mail-delivering mechanism for the purposes set forth, without "setting" or affecting the said braking system of said cars, by means of the taking of said compressed air for the purpose of operating the said mail-delivering mechanism for the purposes set forth, an automatic operating, checking, and venting valve, with a sleeve connection being the lower portion of the checking-valve as shown, and fitted with a cushion adapted to engage the stem portion of the operating-valve used to operate the said checking-valve, and adapted, to work in said sleeve of said checking-valve and against said cushion in said sleeve for the purposes set forth and described, with a stem portion of the said operating-valve, extending to the outside of the supporting-frame of said valve, as a means of operating said valve, for the purposes set forth, and as substantially described.

16. In a delivering mechanism for railway-cars, the combination of an operating, a checking, and a venting valve, with a sleeve connection between the operating portions of said valve, means for operating said valve from the inside of the said cars, for the purpose of setting said delivering mechanism in motion, for the purposes named, and as substantially described.

17. In a delivering mechanism for railway-cars, the combination of a car and delivering-frame pivotally attached to said car, a latch for said delivering-frame attached to said car, and the said delivering-frame latched in a manner described, a step made in the delivering-frame for the purposes named, and as substantially described.

18. In a delivering mechanism for railway-cars, the combination of a delivering-frame,

an air-operating cylinder, and means for actuating the same by air-pressure, an extra or "mail" auxiliary compressed-air reservoir, an air-pressure gage, connected by supply-pipe to the extra or "mail" auxiliary air-reservoir, for the purposes named and set forth.

19. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car, and adapted to rock from a horizontal to a perpendicular position, an automatic trigger-arm pivotally attached to said catcher-crane, adapted to rotate rearwardly to the position of the catcher-crane, for the purposes named, and as substantially described.

20. In a mail receiving and delivering mechanism, for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car, an automatic trigger-arm pivotally attached to said catcher-crane and adapted to rotate rearwardly to the position of the catcher-crane, and means to automatically operate said trigger-arm, an L-shaped portion of the trigger-arm, used as a crank-lever, for the purposes set forth.

21. In a mail receiving and delivering mechanism, for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car, and adapted to rock from a perpendicular to a horizontal or operative position, an automatic trigger-arm pivotally attached to said crane and adapted to rotate rearwardly to the position of the catcher-crane, and means to automatically operate said trigger-arm, a crank or L-shaped portion of the trigger-arm, a rotary operating-cam, connected by means of a chain attached to said L-shaped crank to a crank and crank-shaft through the side of said car to the said cam on the inside of said car, for purposes named, and set forth.

22. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car and adapted to rock from a vertical to a horizontal or operative position an automatic trigger-arm pivotally attached to the said catcher-crane and adapted to rotate rearwardly to the position of the catcher-crane, and means to automatically operate said trigger-arm, a crank on the L-shaped portion of the trigger-arm, a rotary cam pivotally attached to said crank, a slotted automatic operating-bar movably supported and guided by the crank-shaft connection to the said L-shaped portion of the trigger-arm, and movably supported by being bolted to the side wall of the car, with an eccentric pivoted in a vertical position to the slotted automatic bar, and adapted to fit in the cam-notch of the said rotary cam and by automatic means in the operation of the said trigger-arm and its con-

nections to the said rotary cam and cause the said cam to rotate, and rotate the said eccentric out of the cam-notch, as set forth and substantially described.

23. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car, and adapted to rock from a vertical to a horizontal or operative position, an automatic trigger-arm pivotally connected to said catcher-crane and adapted to rotate rearwardly to the position of the catcher or crane, and means to automatically operate said trigger-arm, a crank or the L-shaped portion of the trigger-arm, a rotary cam pivotally attached to said crank, a slotted automatic bar movably supported and guided by the crank-shaft connection to the trigger-arm and being bolted to the side of the car, an automatic rod rigidly attached to the said slotted bar in its up-and-down movement, and pivotally attached to said slotted bar, for the purpose of allowing the automatic rod an additional movement in a horizontal manner, by means of its rigid connection to the valve-lift, said valve-lift being connected to the swinging automatic lever, by slack-chain connection, as set forth, and substantially described.

24. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car a trigger-arm pivotally attached to said catcher-crane, and means for automatically operating said trigger-arm, a rotary cam a slotted bar an automatic rod, rigidly attached for the up-and-down movement of the slotted automatic bar, a crank-locking lever pivotally attached to said car, and raised out of its lock by the up movement of the automatic rod, and used to lock the delivering-frame into a position for operation, as set forth, and substantially described.

25. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car, a trigger-arm pivotally attached to said crane, and means for automatically operating said trigger-arm, a rotary cam, a slotted bar, an automatic rod with a handle attached to said rod, said handle being connected to the side of the car by means of a coil return-spring, for the purpose of returning the valve-lift into operative position, and by means of the leverage in said handle, turn the valve-lift out of operating position manually in cases of emergency, as set forth, and substantially described.

26. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car and adapted to rock on its pivots from a vertical to a horizontal or operating position, an L-shaped automatic trig-

ger-arm pivotally attached to said crane and adapted to rotate rearwardly to the position of the catcher-crane, and automatic means for operating said trigger-arm, the L portion of the trigger-arm being parallel to the rocking bar of the catcher-crane, the automatic operation of the trigger-arm brings the L or crank portion of the trigger-arm to a right angle to the position of the rocking bar of said catcher-crane, and in this position forms a bag-locking mechanism to the catcher-crane, as set forth, and substantially described.

27. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached thereto, a trigger automatic arm attached pivotally to the said catcher-crane, the L-shaped portion of the said trigger-arm being in a parallel position to the rocking bar of the catcher-crane, by means of the automatic connection of the catcher-crane in its automatic contact with the roller-bracket on the mail-crane, the said trigger-arm is forced rearwardly to the position of the catcher-crane, bringing the L or locking-crank portion of the trigger-arm into a right-angle position to the rocking bar of said catcher-crane and forming a sack-locking mechanism for the catcher-crane, as set forth, and substantially described.

28. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached thereto, a trigger-arm pivotally attached to said catcher-crane and rotating rearwardly to the position to the said catcher-crane, with the L part of said trigger-arm in a parallel position to the rocking bar of the said catcher-crane, a locking-cam pivotally attached to said rocking bar of said catcher-crane and fitted with jaw-angles adapted to interlock with the L or crank portion of the trigger-arm, for the purposes named, and substantially described.

29. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, having a car-door, a catcher-crane pivotally attached to said car and car-door, an automatic trigger-arm pivotally attached to said catcher-crane and adapted to rotate rearwardly to the position of the catcher-crane said catcher-crane adapted to rock into operative position on its pivotal points and carrying the automatic trigger-arm into its operative position with the movement of said catcher-crane, as set forth, and substantially described.

30. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car, an automatic trigger-arm pivotally attached to said catcher-crane and adapted to rotate rearwardly to the position of said catcher-crane, and said trigger-arm

adapted to contact with the roller-bracket rigidly attached to the mail-crane post, means of rubber-cushioning the connecting-bolts of the trigger-arm for the purpose of removing the shock of the contact with said roller-bracket, and means for cushioning the side of the said car for the purpose of removing the shock of the impact of the trigger-arm against the side of said car, as set forth, and substantially described.

31. In a mail receiving and delivering mechanism for railway-cars, the combination of a car, a catcher-crane pivotally attached to said car, an automatic trigger-arm pivotally attached to said catcher-crane and adapted to rotate rearwardly to the position of the catcher-crane, a mail-crane post with a roller-bracket rigidly attached thereto, and adapted to roll on its supporting-bearings by contact of the trigger-arm and adapted to engage the trigger-arm in its automatic operation as set forth, and substantially described.

32. In a mail receiving and delivering mechanism for railway-cars, the combination of a car a catcher-crane pivotally attached to said car, a trigger-arm pivotally attached to said catcher-crane and adapted to rotate rearwardly to the position of the catcher-crane and adapted to be raised into operative position by means of the rocking of the said catcher-crane into operative position, a mail-crane post with a roller-bracket rigidly attached thereto, said bracket adapted to engage the said trigger-arm in its automatic operation of the delivering mechanism whereby the said delivering mechanism is tilted and dumped, a mail-crane with a

pouch suspended in position to be received by said catcher-crane in the passing of the car, a receiving-box stationed on the right of way to receive the mail to be delivered as set forth, by means of the passing of the car, and by means as set forth and the passing of said car, the pouch suspended on the said crane is received by said catcher-crane and locked automatically in said catcher-crane, as set forth and substantially described.

33. In a mail receiving and delivering mechanism for railway-cars, a receiving-box placed in proper position alongside the track of a railway, with an inclosed dead-air space at each end of said receiving-box, with a door hung at the top and adapted to swing inwardly, whereby an air-cushion is made to check the momentum of mail or other matter despatched from trains running at high speed, a high back wall as part of said receiving-box to shield the mail from being thrown over and become a source of danger to bystanders, and to direct mail despatched from a moving train, toward the air-cushioned ends, and a low front wall, low to not interfere with the despatched mail going into the said receiving-box, and high enough to keep the despatched mail from being drawn out of the said receiving-box by air-currents or from any other cause, as set forth, and substantially described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANKLIN H. BURR.

Witnesses:

D. S. ELDRIDGE,
C. P. HUBBARD.