

(No Model.)

5 Sheets—Sheet 1.

B. D. AYARS, Jr.
MAIL BAG DELIVERING APPARATUS.

No. 539,373.

Patented May 14, 1895.

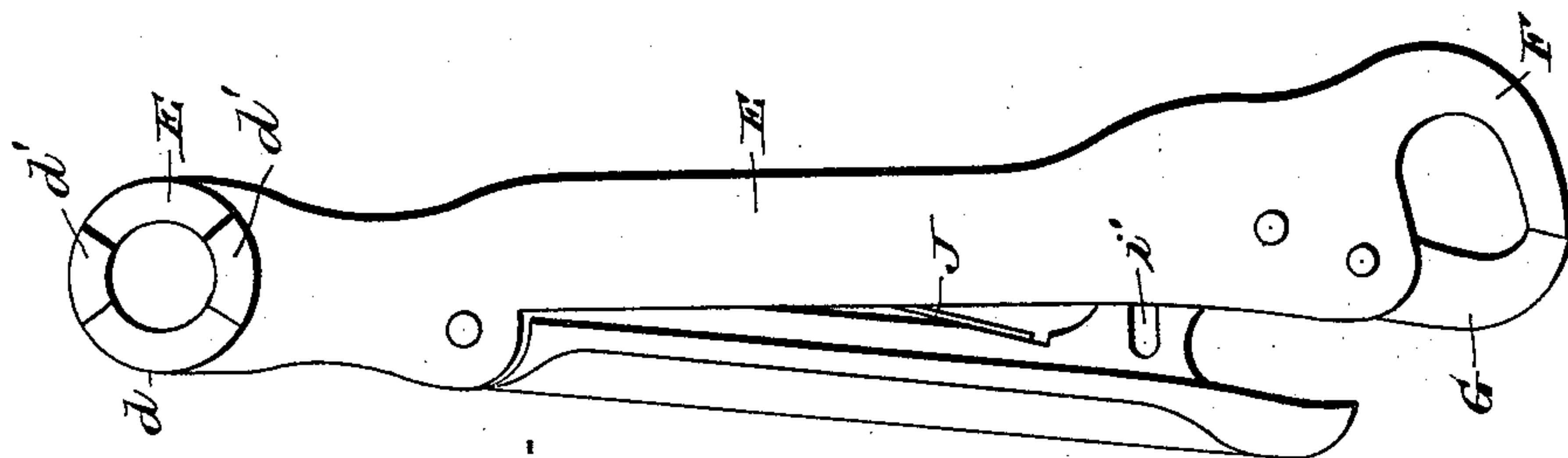


FIG. 7-

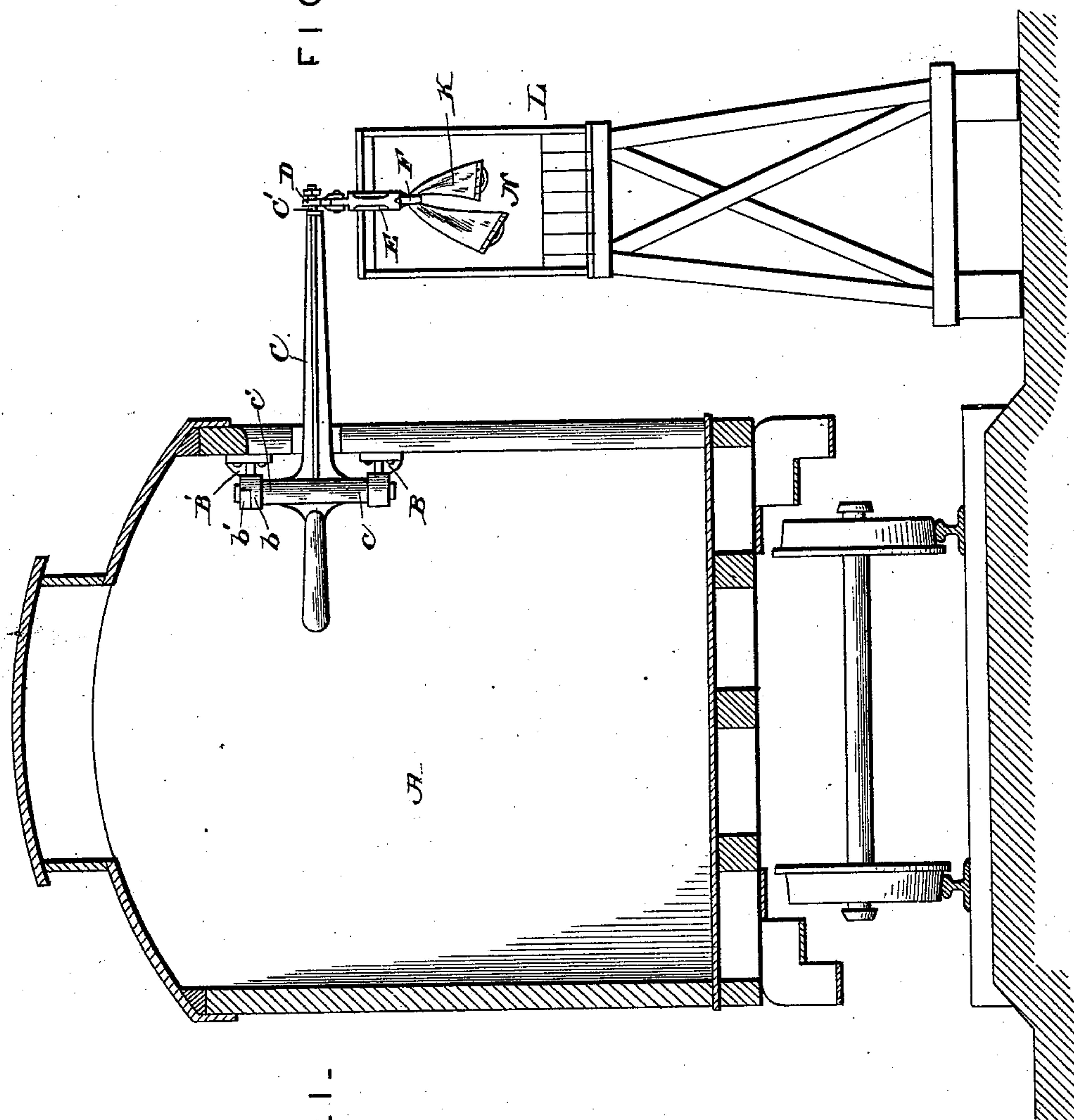


FIG. 1-

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(No Model.)

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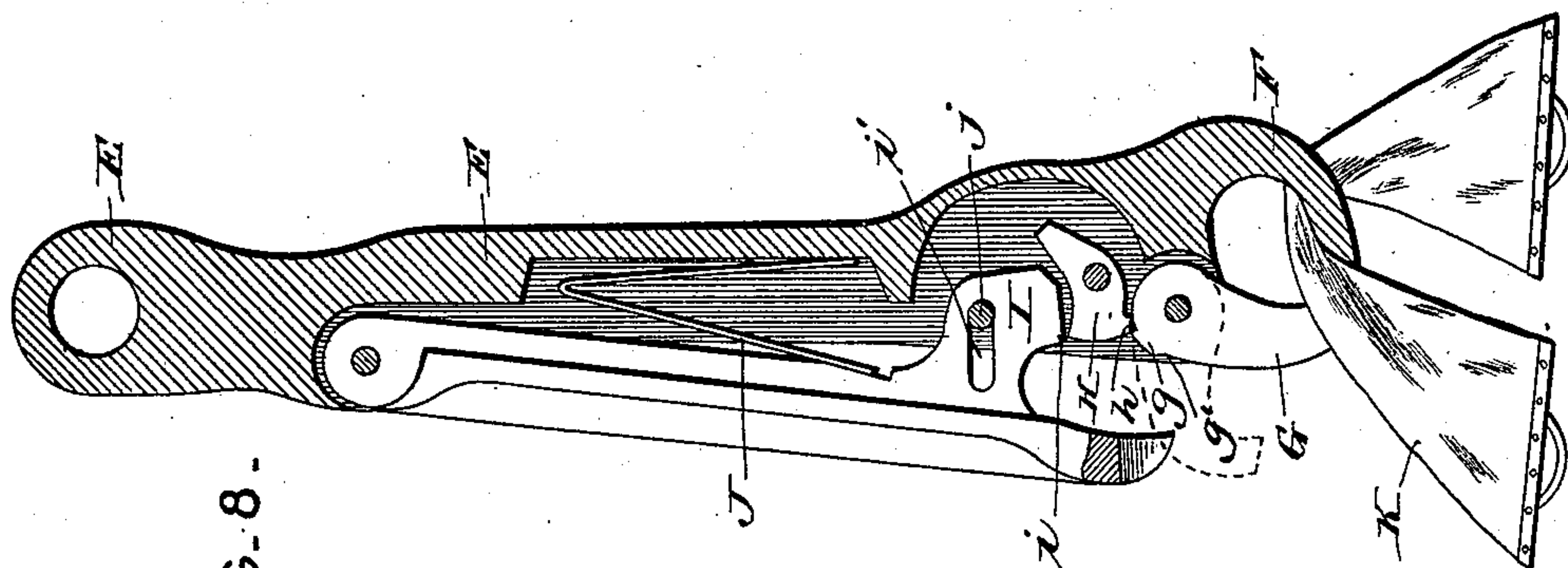


FIG. 8.

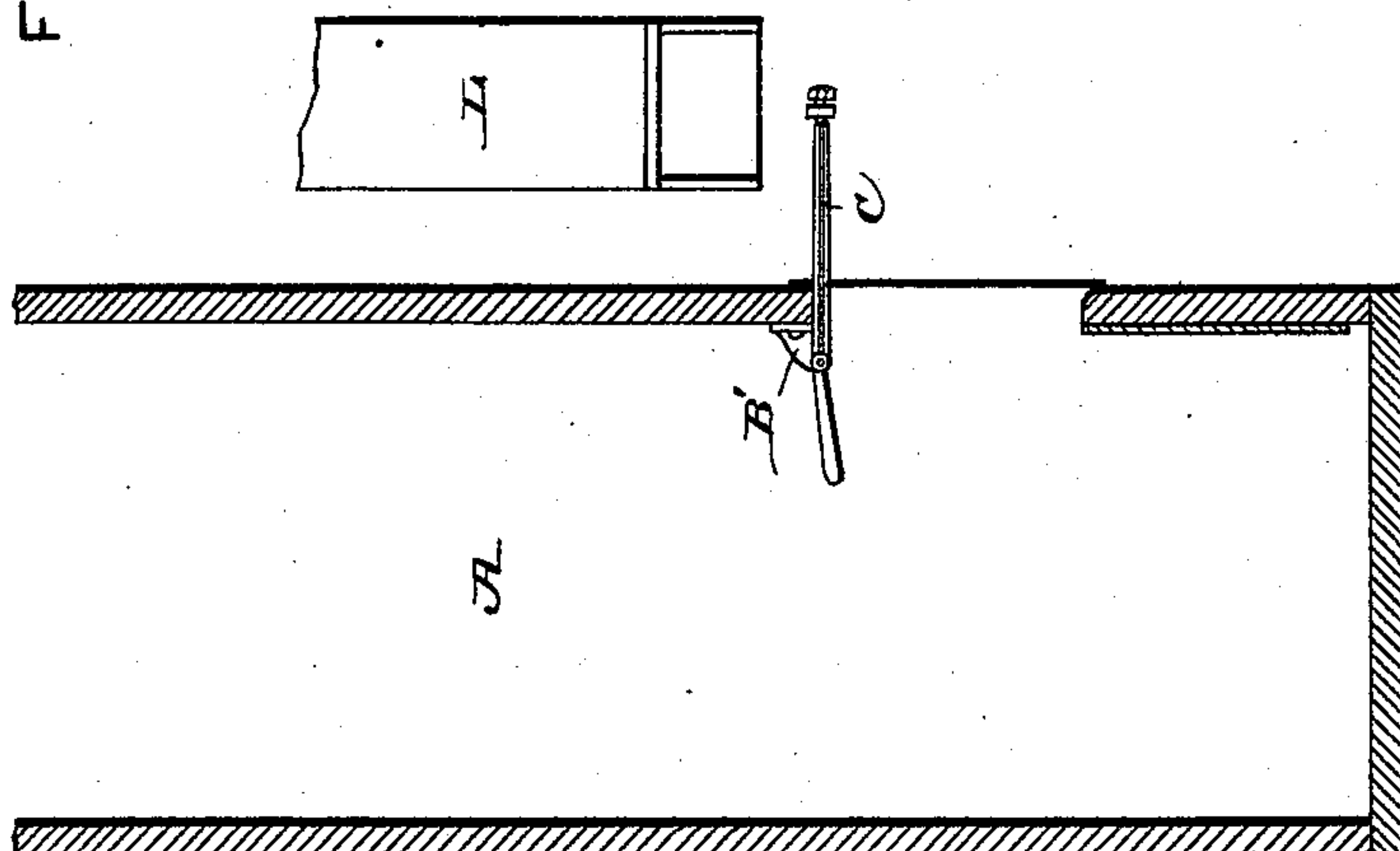


FIG. 3.

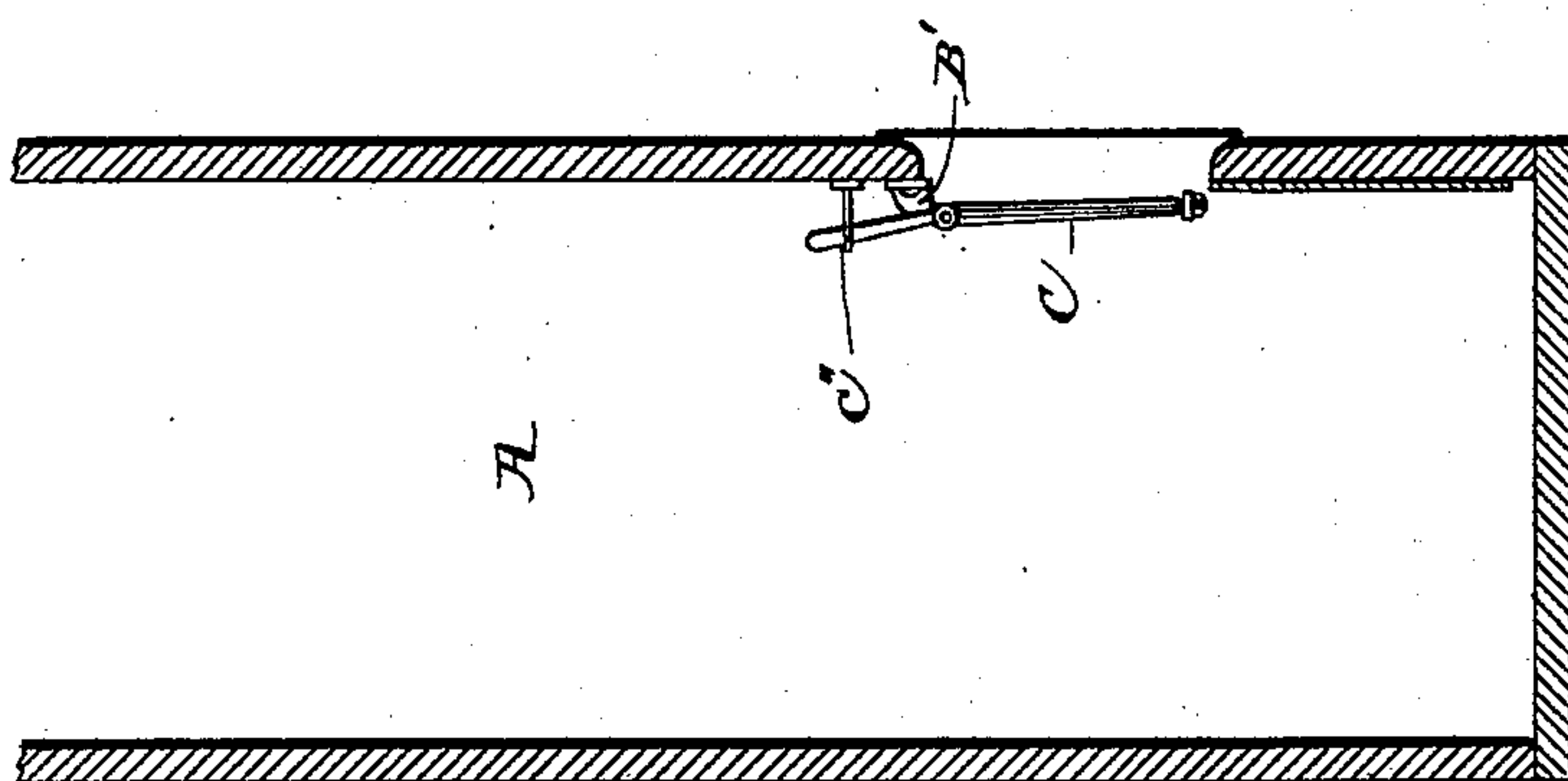


FIG. 2.

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FIG. 4-

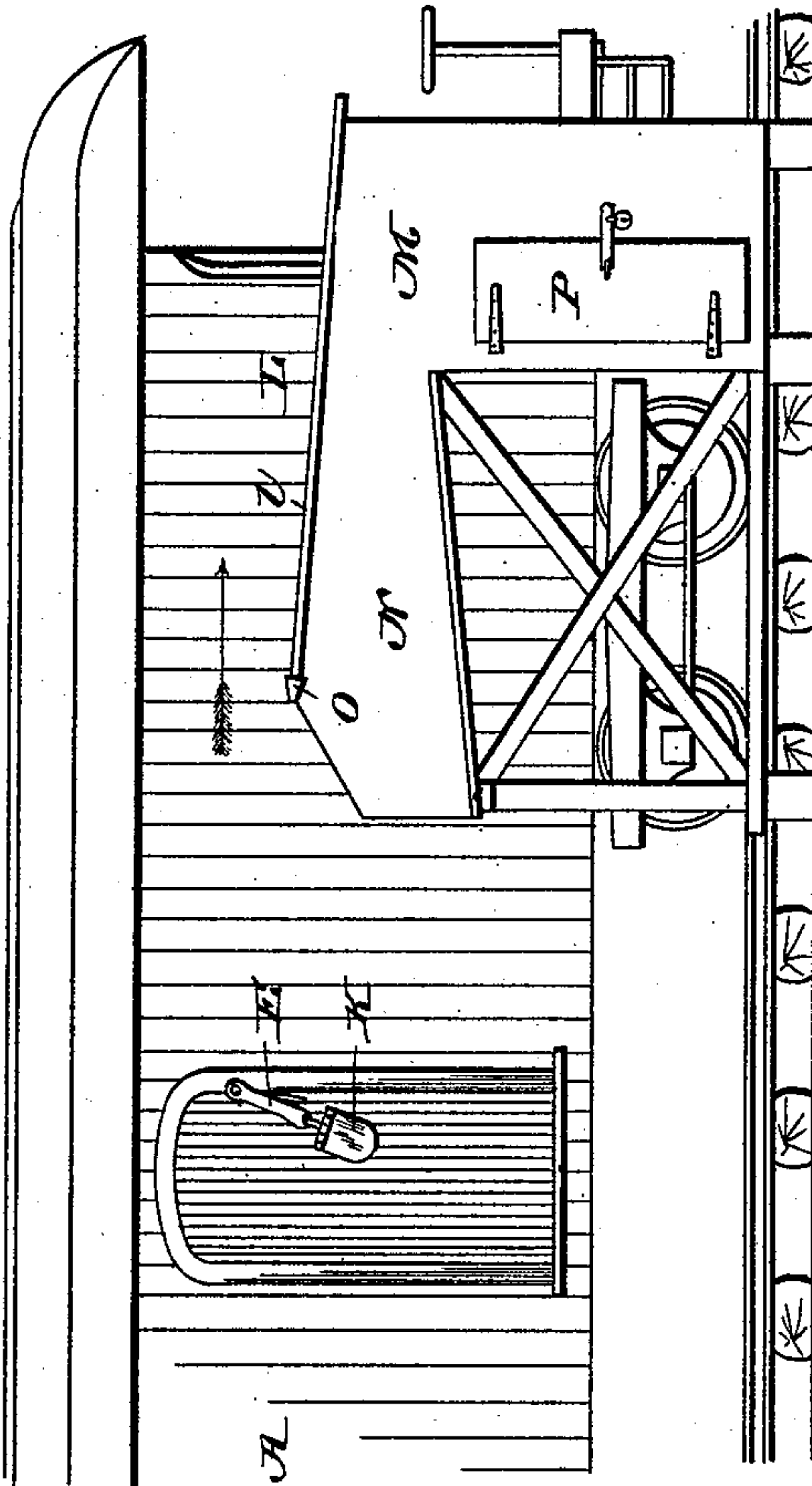
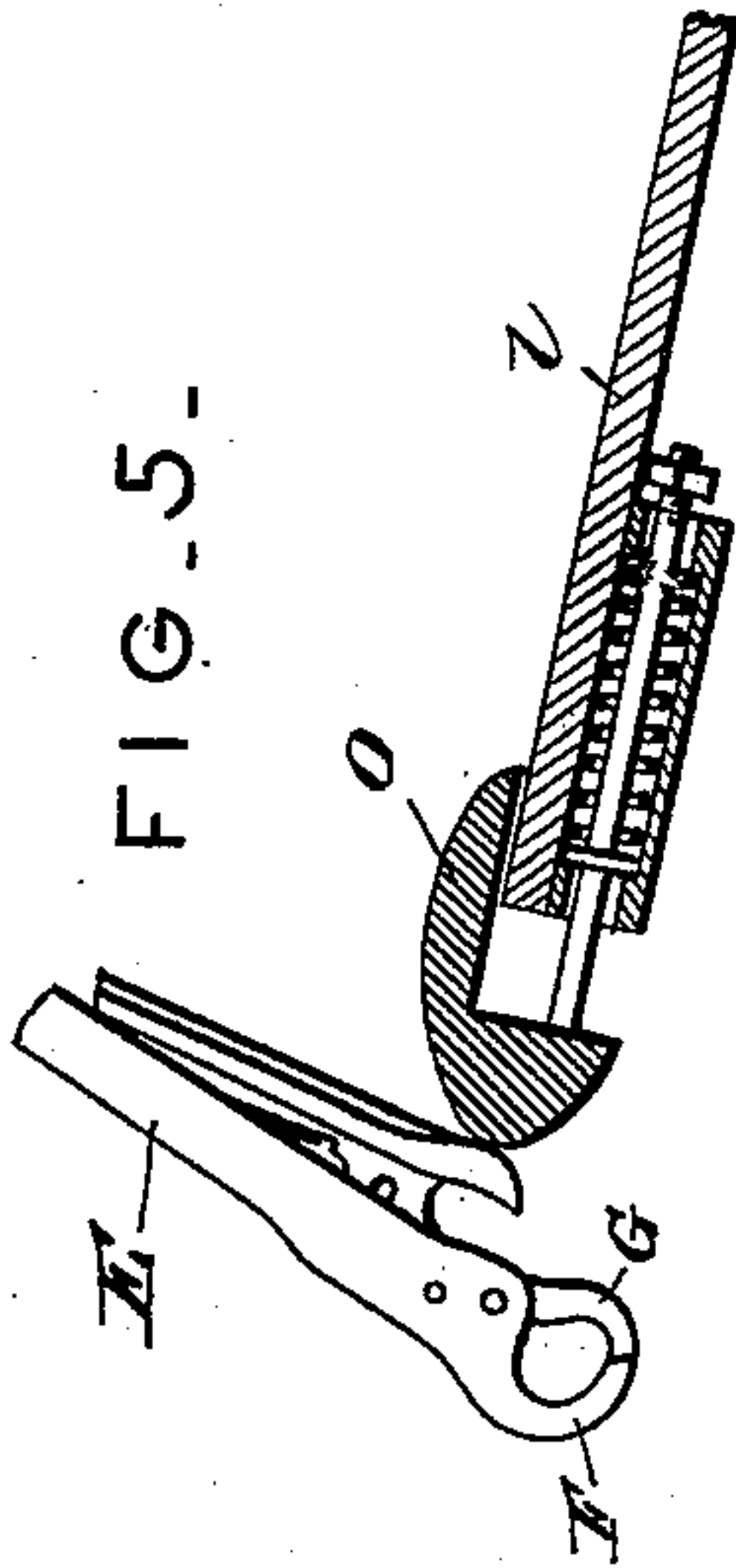


FIG. 5-



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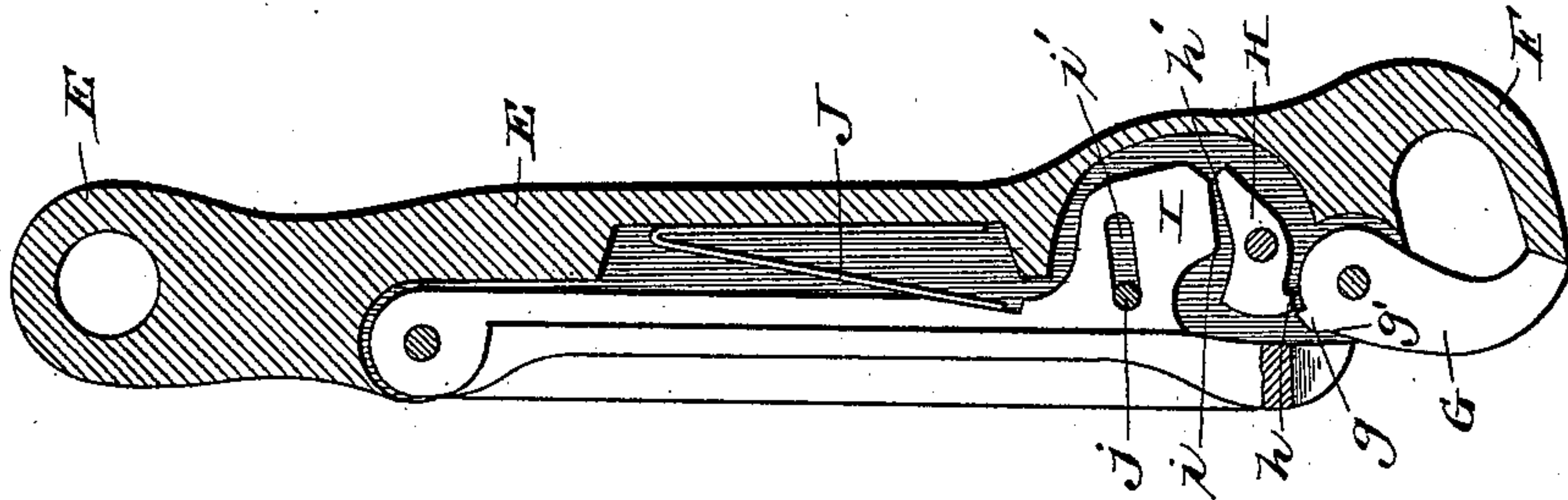
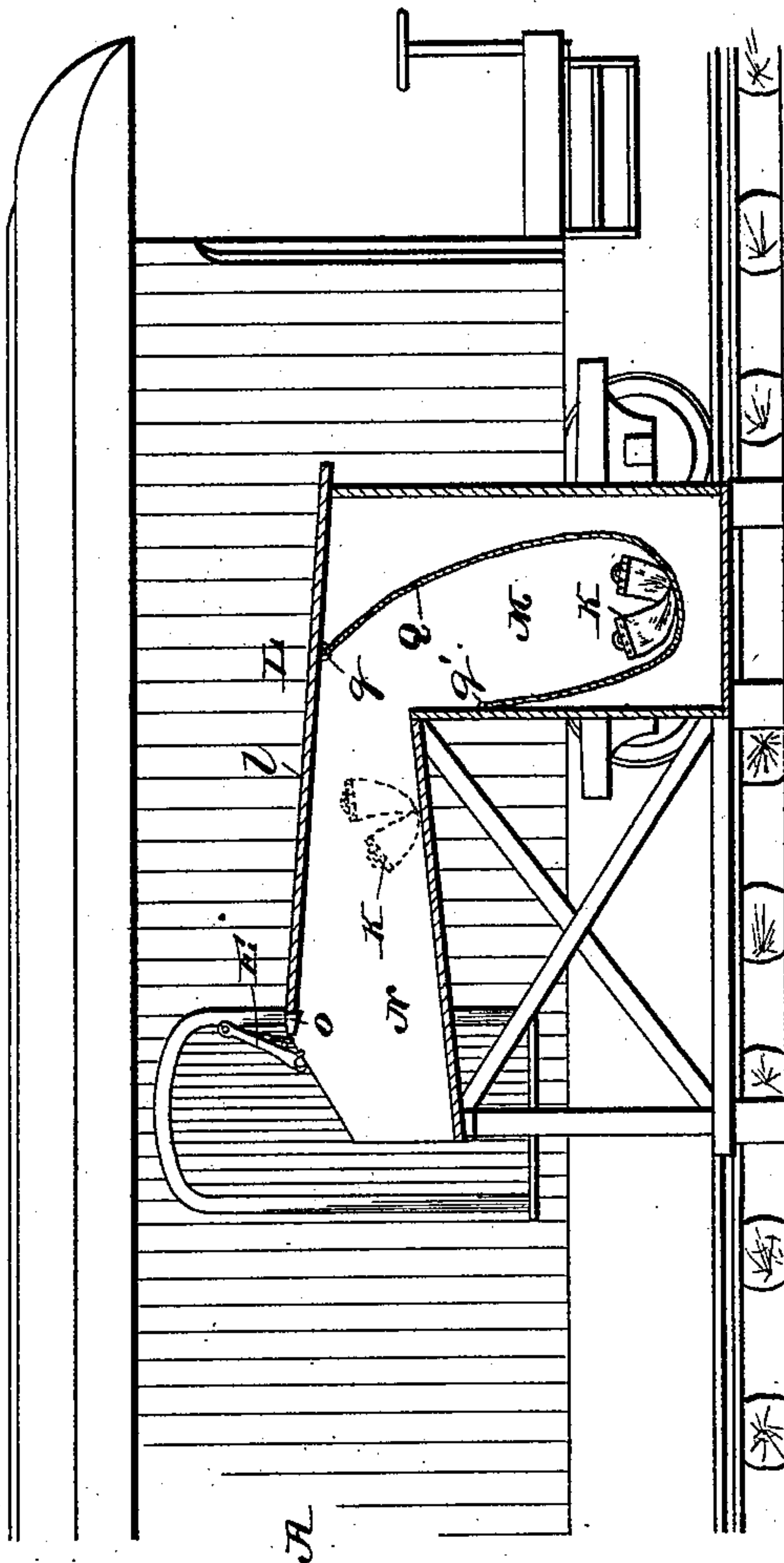


FIG. 9.

FIG. 6.



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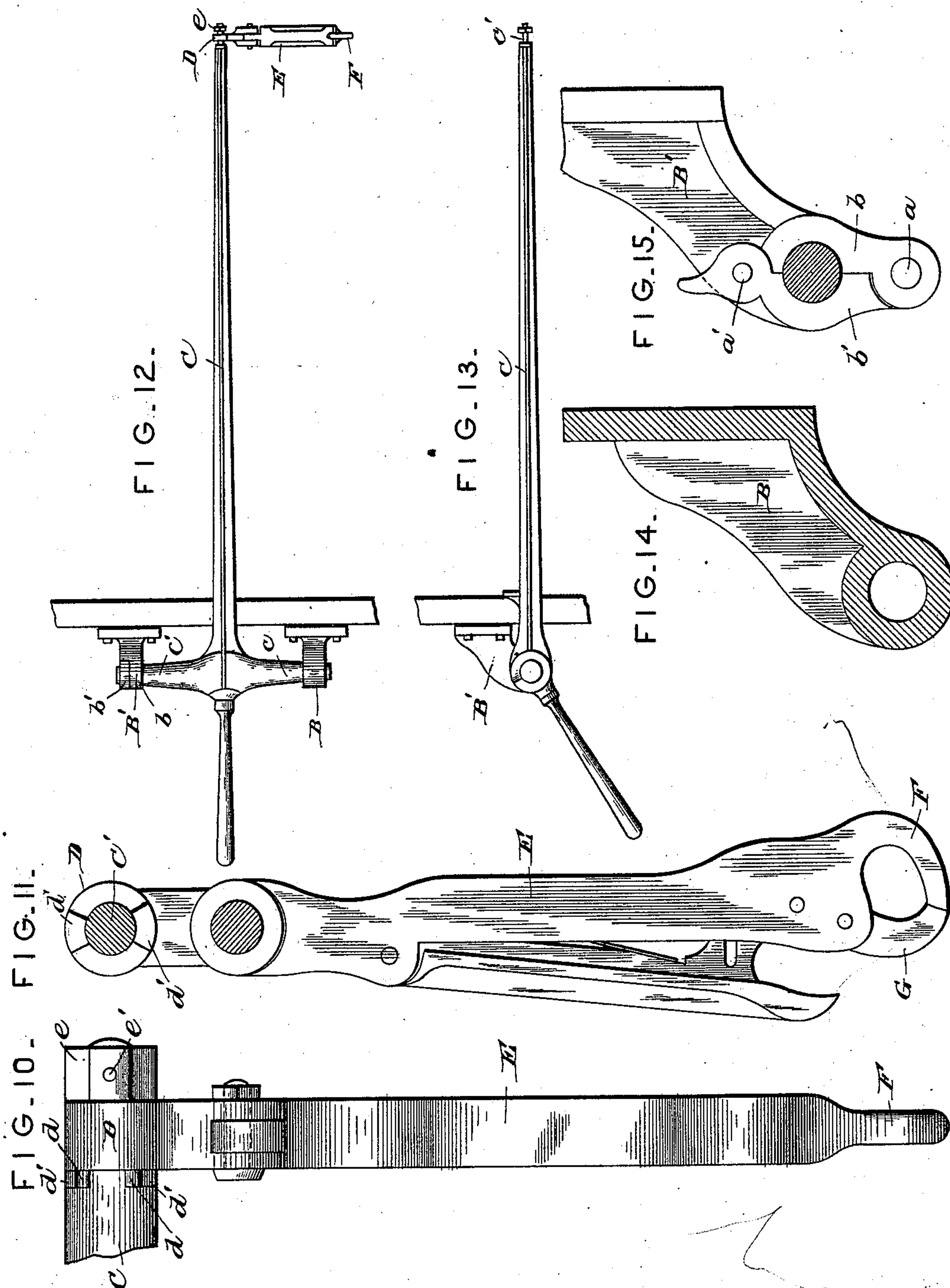
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UNITED STATES PATENT OFFICE.

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MAIL-BAG-DELIVERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 539,373, dated May 14, 1895.

Application filed June 5, 1893. Serial No. 476,549. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN D. AYARS, Jr., a citizen of the United States, residing at Chester, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Mail-Bag-Delivering Apparatus, (Case A;) 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to means for delivering mails or packages from moving trains and it has for its object to furnish an apparatus whereby the mail bags and other packages may be thrown from the moving trains into locked receptacles where they will be secure until taken therefrom by the proper persons, thus obviating a number of difficulties and dangers which will be hereinafter referred to.

With this object in view, my invention consists in the improved construction, arrangement and combination of parts hereinafter fully described and afterward specifically pointed out in the claims.

In the drawings accompanying this specification, Figure 1 is a transverse sectional view through a car on a plane passing through the door-opening and a front elevation of the receiver, the various parts being in the position they assume just before reaching the receiver to deliver the bag or package. Fig. 2 is a horizontal longitudinal section through one end of a car, showing the delivery-arm in the position in which it is held inside the car when not in use. Fig. 3 is a similar section through one end of a car and a top plan view of a receiver with the delivery-arm and connecting parts in the same positions as in Fig. 1. Fig. 4 is a side elevation of one end of a car and the receiver with the parts in the same positions as shown in Figs. 1 and 3 just before the delivery takes place. Fig. 5 is a detail view, being a vertical sectional view of a spring-buffer edge which I may use at the opening of the receiver. Fig. 6 is a

vertical longitudinal section through the receiver, showing in side elevation part of a car just after the delivery of a mail-bag, the delivered bag being shown in full lines in the bottom of the receiver and in dotted lines in the chute through which it is thrown. Fig. 7 is a side elevation of the swing trip-arm upon which the bag or package is hung for delivery, the parts thereof being in the position they normally assume while holding the bag or package. Fig. 8 is a longitudinal sectional view through the same with parts in the same positions. Fig. 9 is a longitudinal sectional view through the same, showing the parts in the positions they assume when the trip-arm strikes the receiver-buffer, whereby the retaining-finger is released. Fig. 10 is a detail view in elevation, showing the outer end of the delivery-arm broken away, with the trip attached thereto by means of an intermediate link. Fig. 11 is a view of the trip-arm and intermediate link in elevation, showing the delivery-arm and the connecting pivot-pin in section. Fig. 12 is a detail view showing a manner of detachably pivoting the delivery-arm to the car. Fig. 13 is a view of the same in top plan. Fig. 14 is a detail view showing the lower bracket of the delivery-arm pivot, and Fig. 15 is a detail view showing the upper or detachable hinge-bracket of the delivery-arm.

Like parts are designated by the same letters in all the figures of the drawings.

Referring to the drawings by letters, A is a mail or express car of any ordinary or approved construction having the usual doorway. To the side of such a car just inside of one of the doors, are attached brackets B B' which are shown in several figures of the drawings as simply ordinary pivot brackets but which I show in an approved form in Figs. 12, 13, 14 and 15. The lower bracket B is simply an ordinary pivot bracket with an opening to receive the lower end of a pintle and the upper bracket B', is composed of a stationary portion *b* to which is hinged a piece *b'* each of these parts containing one half of the opening which is to embrace the upper end of a pintle as hereinafter described. The

piece b' is pivoted to the stationary portion b of the bracket B' by a pin at a and is secured in position to hold the pintle, by a pin a' .

C is an arm substantially similar to the well known mail bag catcher having a pintle (or trunnions) the lower end c of which enters the opening in the bracket B while the upper end c' is embraced and held between the parts b and b' of the bracket B' . The brackets being attached at one side of the door, they are so shaped, as shown in Figs. 3 and 13, that the pivotal points will be opposite the door space so that the arm C may be projected out at a right angle to the car, and the arm is provided with a suitable handle, inside the car for manipulating it. When not in use, the arm will be held within the car by a suitable catch as at c'' in Fig. 2.

The arm C at its outer end is made smaller, as at C' , Fig. 13, and on this portion C' is pivoted either the upper end of a link D as in Figs. 1, 10, 11 and 12, or the upper end of a trip arm E , as in Figs. 4 and 6. In either case the construction of the outer end of the arm could be the same and it will be provided, in the full sized portion just inside the reduced part C' , with segmental spaces d to receive inward segmental projections d' on the upper end of the link D or trip arm E , the construction being clearly shown in Figs. 10 and 11. These spaces are larger than the projections d' and a limited pivotal movement is thus provided for, for purposes hereinafter explained. When the link D or trip arm E is slipped on the pivot part C' of delivery arm C , it is secured thereon by any suitable means, as for instance by a nut e which may be locked in any suitable manner, as by a pin e' (Fig. 10).

As before stated, the link D may be interposed between the delivery arm C and trip arm E , or the trip arm pivoted directly to the delivery arm. When the trip arm is pivoted direct, there should be a greater movement allowed than when the link is used and in some instances the movement could be unlimited. A single segmental space might also be used in which case there is only one segmental projection.

The trip arm E is provided at its outer end with a hook F and the main body of the trip arm is hollowed out to permit of a finger G , dog H and trigger I .

The finger G corresponds with the hook F in shape and when the mail bag, or package is held ready for delivery, the finger is a continuation of the hook forming a closed ring in which position the finger is held by the dog H which is pivoted in the body of the trip arm and has a tooth h which is held in engagement with a tooth g of the finger, by contact between the upper front corner of the dog and the lower end i of the trigger, as in Fig. 8. The trigger I is pivoted at its upper end in the trip-arm and is normally actuated toward its outside position by a spring J . Its motion is limited by a pin j passing through a slot i' . When the trigger is pressed inward

to the position shown in Fig. 9, its lower end i bears against the rear upper portion h' of the dog H thus raising the front portion of the dog out of contact with the finger G and leaving the finger loosely pivoted so that it will offer no resistance to the passage of the mail bag or catcher off the hook F . When the finger is thus suddenly released, the trigger will fly back to its normal position, as shown in Fig. 8 and this will occur more quickly than the bag or package will pass off the hook so that when, by the contact of the bag or package, the finger is extended to the position shown in dotted lines in Fig. 8, it will be held in that position by the dog bearing on the notch g' of the finger G thus normally holding the hook open to receive a bag or package. The ordinary mail bag K may be hung by its middle on the hook F , as in Figs. 1 and 8, or by its end loops as in Fig. 4, it being only necessary to hang it so that it will not bind, but will freely move upon and off the hook F when the finger G is released.

L represents my mail receiver which is erected by the side of the track and which is provided with a principal compartment M and a chute N . The receiver is supported upon any suitable foundation or frame work and the roof l covers the main compartment M and nearly all of chute N , ending at the opening of the chute in a buffer O which may be made of hard wood, or of leather, rubber or any other suitable material. It may be solid or have a spring backing as shown in Fig. 5. The floor n of the chute is inclined downward and outward and extends a slight distance beyond the buffer O , so that any rain which may drive in the chute will be drained outward and thus prevented from running into the receiver and injuring its contents. The receiver is provided with a suitable door P which may be properly locked. Inside the receiver is a canvas Q which is secured to the roof at q , carried down in a loop and secured to the back or side by strong springs and again up and secured at the other end at q' to the side of compartment M , thus forming a bag—open at the sides—to receive the mail or package thrown into the compartment, thus preventing injury by contact with hard substances.

The operation of my invention may be described as follows: The delivery bar being inside the car—as in Fig. 2—and the trip bar suspended therefrom either directly, or by means of the intermediate link, with the finger G in the position shown in dotted lines in Fig. 8, the mail bag is hung on the hook F . The catch c'' is loosened and by means of the handle, the delivery bar C is swung out to a position substantially at right angles to the length of the car—as in Figs. 1, 3, 4, 6, 12 and 13—when the trip bar will be directly in line with the buffer O of the receiver L and the bag directly in line with the chute N of the receiver. The continued motion of the train brings the trigger J of the trip bar E into vio-

lent contact with the buffer, forcing the trigger to the position shown in Fig. 9 causing the lower edge *i* of the flange of the trigger to press the inner end *h'* of the dog H downward, thus raising the tooth *h* of the pawl out of contact with the tooth *g* of the finger G, leaving the finger free to swing freely on its pivot pin. The continued motion of the bag due to its momentum, causes it to ride off the hook F into the receiver through the chute N, forcing the finger G into the position shown in dotted lines in Fig. 8, causing the trip arm to swing upon its pivots and ride over the top of the receiver. The return of the trigger I from the position of Fig. 9 to its normal position as in Fig. 8, which is effected by the spring J causes the part *i* to again press the forward end of dog H downward, bringing the tooth *h* into the notch *g'* of the finger, thus locking the finger in its dotted line, or open position of Fig. 9. The delivery arm is now turned back into the car again and secured by catch *c''* when the apparatus is again ready for operation. When the mail bag is thrown into the receiver, it strikes against the canvas Q and then drops down into the bottom of the bend of the canvas, thus preventing injury to the bag or contents which might result from contact with a hard substance such as the wall of the receiver. In the receiver the mail bag or package is secured against the weather and is there under lock and key, only authorized persons being able to get at it.

By the use of my apparatus all danger of the bag striking and injuring bystanders is obviated. There is no possibility of the bag striking some adjacent object, such, for instance as a car on a siding,—rebounding under the wheels of a train (as has very often been the case) and resulting in the injury or destruction of the contents. Neither can the mail be thrown into a ditch, sometimes containing water or mud, and the bag and contents be thus damaged. All these and other difficulties are entirely obviated by the use of my invention, and the cost of the apparatus will be of minor importance when the great advantages attending its use are taken into consideration.

I have particularly described the construction and operation of the apparatus but I desire it to be understood that I do not confine myself to any such specific construction. Many of the details may be varied without departing from the spirit of the invention. The delivery arm might be attached in a different manner and its sustaining brackets might be secured on the outside of the car, especially where the door was too narrow to permit of its proper swinging out and in.

The trip arm which I have particularly described forms the subject matter of another application for patent of even date herewith and any other construction of trip arm might be used in connection with the main apparatus, without departing from the spirit of my invention.

It will be understood also, that the object of the canvas receptacle is to prevent injury to the bag, and that I claim the right to vary the construction of this inner receptacle so long as I provide for its yielding when the bag strikes it.

Having thus fully described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a mail delivering apparatus for railway service the combination with the bag holder suspended on the car to swing in a direction opposite to the direction of movement of the car and a releasing mechanism for the bag, of a receiver located beside the track in the path of travel of the bag and a buffer located in the path of travel of the bag releasing mechanism; substantially as described.

2. In a mail delivering apparatus for railway service the combination with a bag holder suspended from a support, to swing in a direction opposite to the direction of movement of the car, said support being mounted on the car to move toward and from the door opening and a trip arm for releasing the holder, of the receiver having the flaring mouth located in the path of travel of the bag and a buffer located in the path of travel of the trip arm and above the top of the bag whereby as the car passes, the bag is released and its momentum carries it into the receptacle; substantially as described.

3. In a mail delivering apparatus for railway service the combination with the horizontally swinging arm mounted on the car to swing toward and from the door opening and the bag holding and releasing mechanism movably mounted on the end thereof to yield rearward, of the receiver located beside the track with its mouth in the path of travel of the bag and a buffer located in the path of travel of the bag releasing mechanism whereby the bag is released and deposited in the receiver; substantially as described.

4. In a mail delivering apparatus for railway service, the combination with the horizontally swinging arm mounted on the car and having a horizontal bearing on its outer end, of the bag holding and releasing mechanism journaled on and suspended below said horizontal bearing whereby it is free to swing rearwardly, the receiver located beside the track in the path of travel of the bag and a buffer located in the path of travel of the bag releasing mechanism; substantially as described.

5. In a mail delivering apparatus for railway service the combination with the arm swinging on a vertical center on the car and the handle for controlling its movements, adapted to project into the car, of the bag holder suspended on the arm to yield rearward, the releasing or tripping lever carried by the holder for releasing the bag, the buffer located at the side of the track in the path of

travel of the releasing or tripping lever and the receiver for the bag located below and in proximity to the buffer; substantially as described.

5 6. In a mail delivering apparatus for railway service, the combination with the swinging arm mounted on the car and a handle for controlling its movements, of the pendulous bag holder loosely mounted on the arm to
10 swing rearward, with the trip or releasing lever on the forward side, the receiver having the open mouth into which the bag passes and the buffer formed on the upper edge of said mouth; substantially as described.

15 7. In a mail bag delivering apparatus for railway service, the combination with the bag carrier mounted on the car with a releasing mechanism for the bag, of the receiver having the mouth with a downwardly and outwardly inclined bottom located in the path of
20 the bag, whereby the entrance of the bag is facilitated and drainage into the receiver is prevented, substantially as described.

25 8. In a mail bag delivering apparatus for railway service, the combination with the bag carrier mounted on the car with a releasing mechanism for the bag, of the receiver having the mouth with an outwardly and upwardly inclined top located in the path of
30 travel of the bag, whereby the entrance of the

bag is facilitated and contact of the carrier, save with the forward portion of the receiver top is prevented, substantially as described.

9. In a mail bag delivering apparatus, for railway service, the combination with the bag
35 carrier mounted on the car and having a releasing lever, of a receiver lying in the path of the bag and a spring pressed buffer lying in the path of the releasing lever; substantially as described. 40

10. In a mail bag delivering apparatus, for railway service, the combination with the bag carrier mounted on the car and having a releasing lever, of a receiver lying in the path
45 of the bag and a spring pressed buffer on the edge of the receiver mouth in the path of the releasing lever; substantially as described.

11. In a mail delivering apparatus the combination with a delivery arm pivoted to the car whereby it may be swung out at substantially a right angle thereto, of a vertically
50 swinging arm pivoted on said delivery arm near its outer end for carrying and delivering the mail bag, substantially as set forth.

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

BENJ. D. AYARS, JR.

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