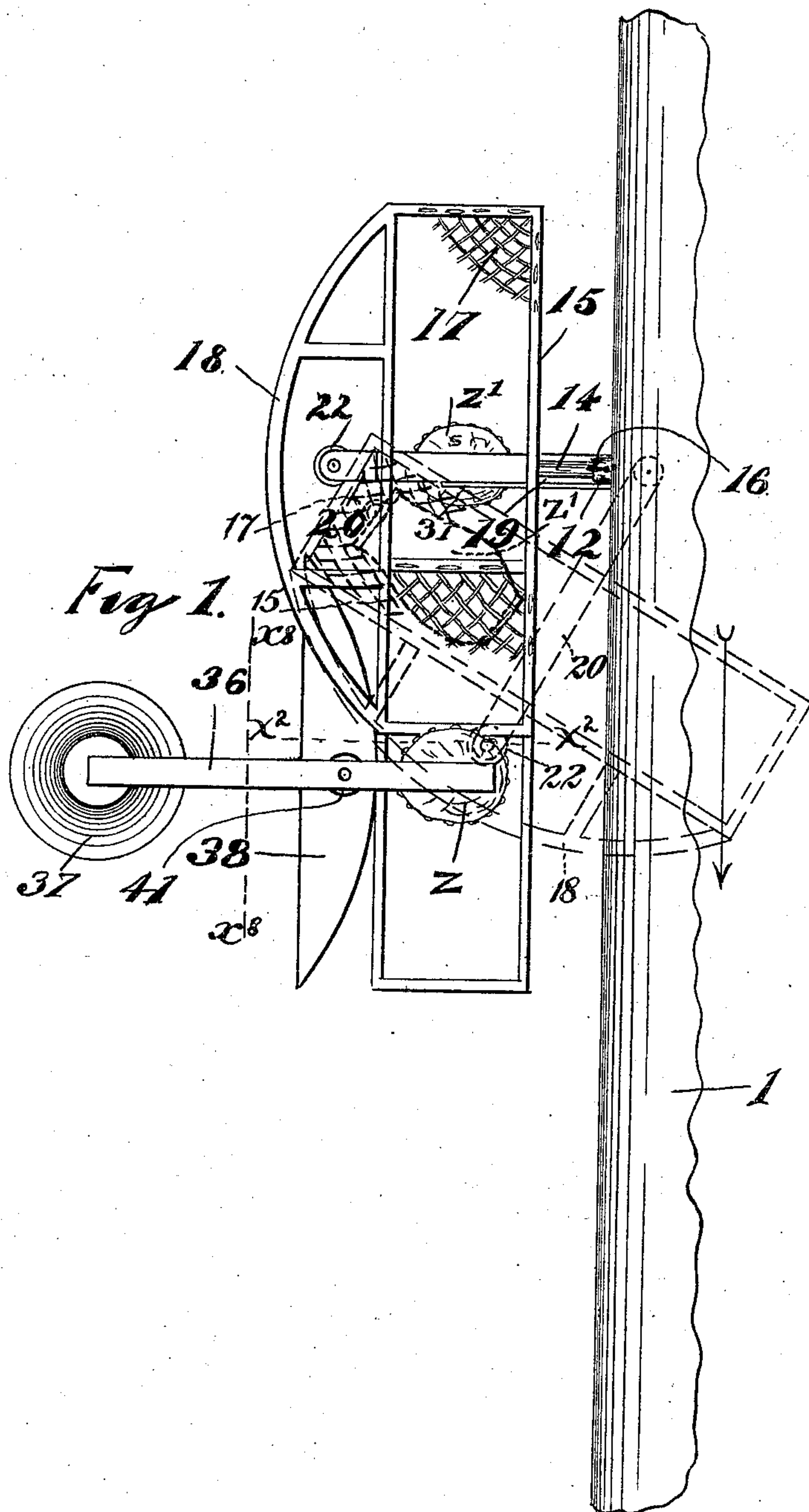


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MAIL BAG CRANE.
APPLICATION FILED NOV. 2, 1908.

933,896.

Patented Sept. 14, 1909.
4 SHEETS—SHEET 1.



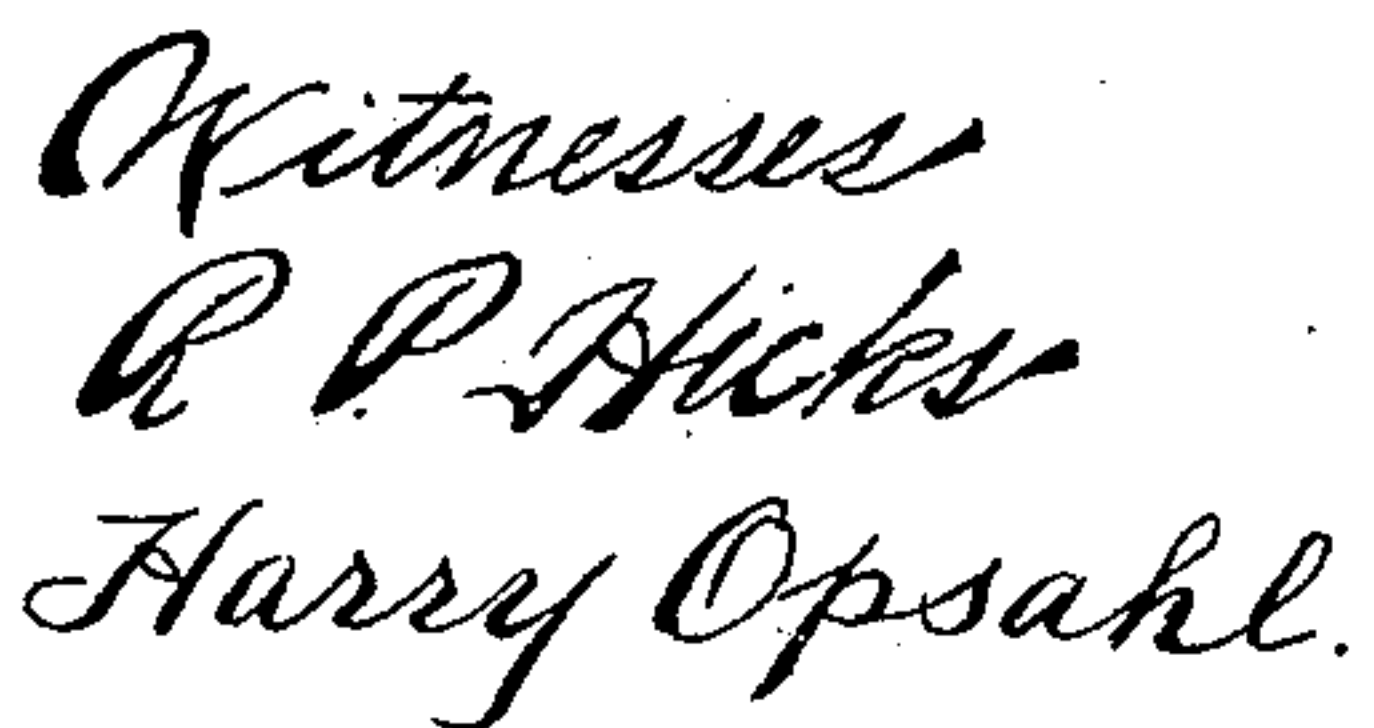
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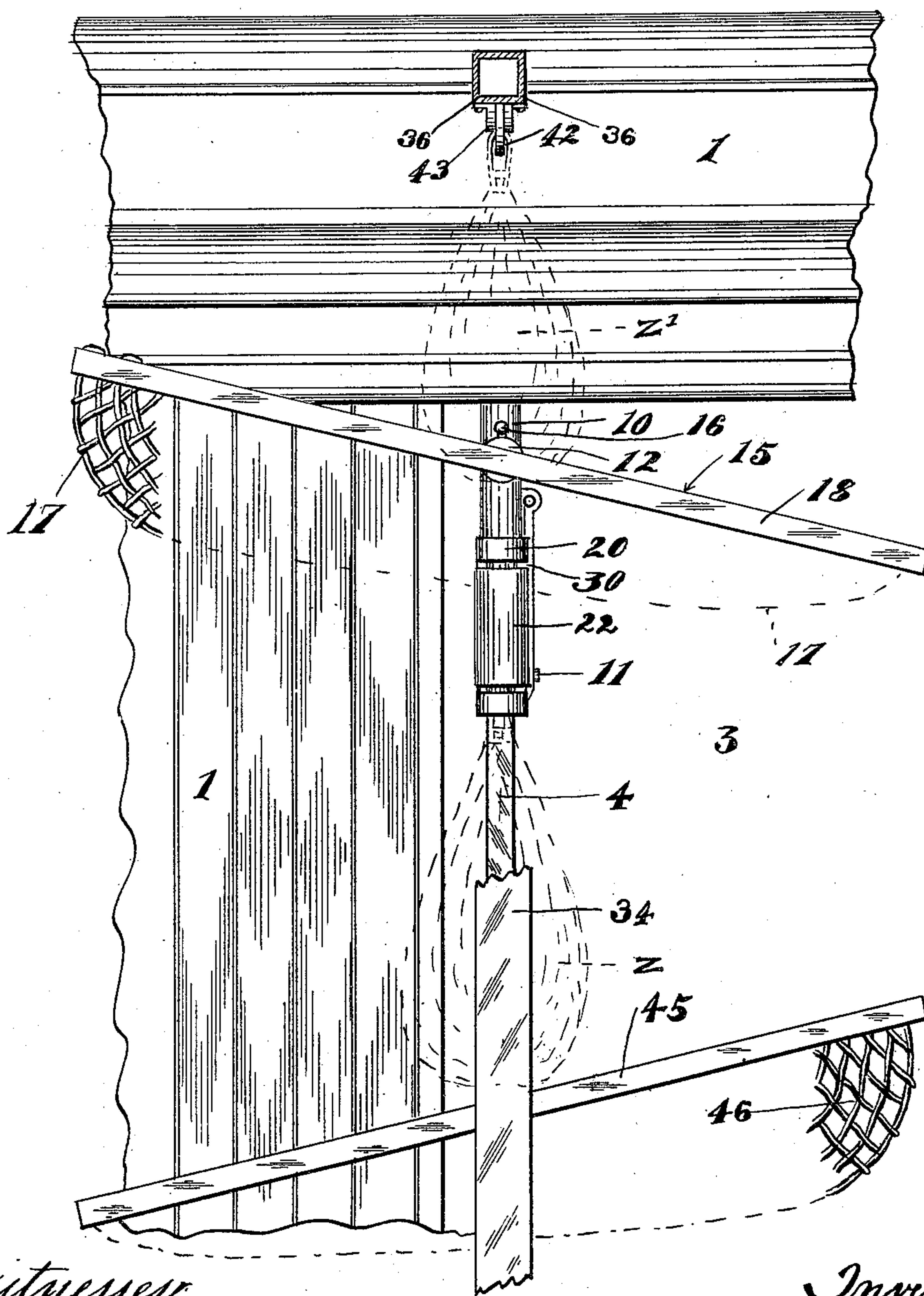
4 SHEETS--SHEET 2.



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Fig. 8.

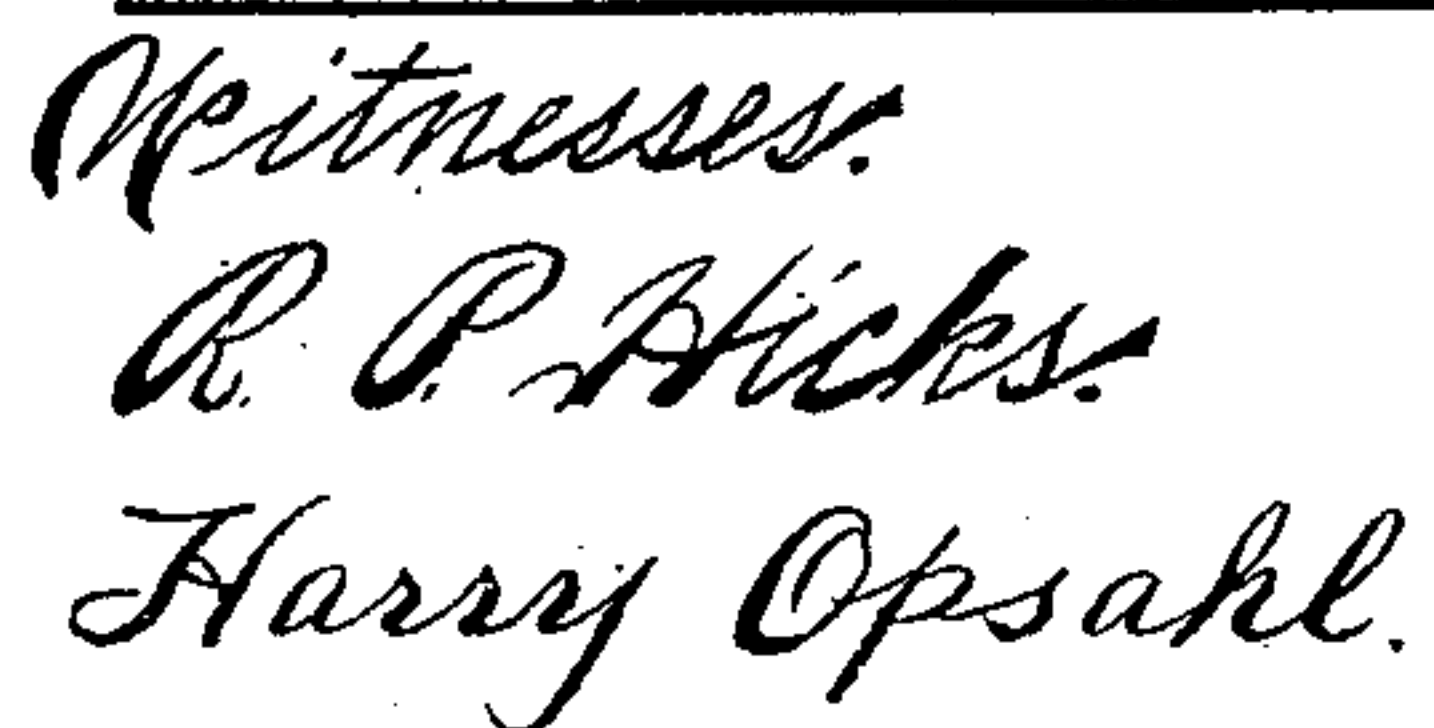


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UNITED STATES PATENT OFFICE.

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MAIL-BAG CRANE.

933,896.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed November 2, 1908. Serial No. 460,633.

To all whom it may concern:

Be it known that I, JOHN EDMAN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Mail-Bag Cranes; and I do hereby 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.

My invention has for its object to provide an improved mail bag delivery and pick-up mechanism for mail cars, and to this end, it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a fragmentary plan view, showing a portion of the mail car, and illustrating my invention applied thereto and to a crane located at the side of the track; Fig. 2 is a vertical section taken on the line $x^2 x^2$ of Fig. 1, some parts being broken away and some parts being indicated by dotted lines; Fig. 3 is a vertical section showing the upper portion of the vertical mast of the car crane and supports therefor; Fig. 4 is a detail in elevation of the upper bearing shown in Fig. 3; Fig. 5 is a plan view of a lock which is normally seated in, but is shown as removed from the bearing illustrated in Fig. 4; Fig. 6 is a detail plan view showing the lower bearing for the mast of the car crane; Fig. 7 is a detail in horizontal section taken approximately on the line $x^7 x^7$ of Fig. 2; Fig. 8 is a vertical section taken approximately on the line $x^8 x^8$ of Fig. 1, some parts being broken away, and the parts shown, being in slightly different positions from those shown in Fig. 2; Fig. 9 is an elevation of the crane which is located on the side of the track, and which, to distinguish the same from the so-called car crane, which is carried by the car, is designated as the station crane; and Fig. 10 is a view partly in plan and partly in vertical section on the line $x^{10} x^{10}$ of Fig. 9, some parts being removed.

The numeral 1 indicates the body and the numeral 2 one of the trucks of an ordinary mail car, the same having in its sides the customary door openings 3, only one of which is shown in the drawings. Mounted

inside of the car body, adjacent to the door opening and in position to swing outward through the door opening, is a so-called car crane, which, in its preferred form, is constructed as follows: An upright mast 4, shown as rectangular in cross section, has a rectangular shank 5 at its lower end, that is seated in a correspondingly formed pocket in a bearing plate 6 secured to the car floor adjacent to one end of the door opening. The upper end of the mast 4 fits the vertical seat of a bifurcated upper bearing 7, that is rigidly secured to the side of the car adjacent to the door opening. The bearing 7 is provided with a key or locking crank 8, having a cam acting inner end or head 9, which when turned against the mast 4, locks the same against vertical and lateral movements. The bearings 6 and 7, in practice, will be duplicated at the opposite sides of the car, so that a single car crane may be applied on either side of the car, for coöperation with station cranes, according to the direction in which the car is running. Mounted on the upper portion of the mast 4 for rotation thereon, is a sleeve 10, which as shown, is supported by and rests upon a pin 11 applied to said mast. The sleeve 10, at its upper and lower portions respectively, is provided with radially projecting, approximately parallel stub arms 12 and 13. The rounded inner end 14 of the basket supporting frame 15, is seated in the stub arm 12, and is adapted to be rigidly but adjustably secured thereto, by a set screw 16, shown as provided with a hand piece. The frame 15 supports a loosely depending basket 17, which is preferably made up of heavy cords or ropes woven to form a coarse net-like flexible body. Rigidly secured to the outer edge portion of the frame 15, is an approximately horizontal cam plate 18. The bag supporting arm of the car crane is made up of two sections 19 and 20 the latter of which telescopes into the former. At its inner end, the hollow arm section 19 is provided with a dove-tailed head 21, that fits a correspondingly formed seat in the stub arm 13, which seat is open at its top but closed at its bottom, so that the said arm section 19 may be lifted from working position, that is, detached from the stub arm 13. At its free end, the arm section 20 is bifurcated and provided with a quite long vertically extended roller 22. A coiled spring 23 contained within the arm section 19, yieldingly presses the arm sec-

tion 20 outward. A screw 24 on the arm section 20 works in a slot 25 of the arm section 19, and limits the outward movement of the said arm section 20. A bag holding hook 26 is intermediately pivoted to bearings 27, secured to the bottom of the arm section 19. The free end of this hook 26 normally engages an abutment 28, also applied to the bottom of the said section 19. The upwardly extended arm or end of the hook 26 engages the notch cut in the bottom of the arm section 20, so that the free end of said hook will be moved downward and caused to release a bag applied thereto, when the arm section 20 is forced inward, against the tension of the spring 23. A coiled spring 29 attached at one end to the stub arm 12 bent around the sleeve 10 and attached to the side of the car, exerts a force which tends to swing the car crane from its extended position, shown in Figs. 1, 2 and 8, into a position within the car. To lock the said crane, in its extended position shown, a lock device, preferably in the form of a lever 30, is pivotally connected at its upper end to the sleeve 10, and at its lower end, is engageable with the pin or projection 11 of the non-rotary mast 4. A tripping bar 31 is connected to the arm section 20 by the screw 24 and by another screw 32, which latter works through a slot 33 in the arm section 19, see Figs. 2 and 7. The inner end of the tripping bar 31 is beveled for action on the lower end of the lock lever 30, so that when the arm section 20 is forced inward, the lock lever 30 will be released from the pin 11, thereby permitting the crane to be swung into the car by the spring 29.

The station crane, as shown, comprises a mast 34, having at its upper end horizontally projecting parallel arms 35 and 36. At its lower end, the mast 34 is shown as secured to a base 37, but in practice, it will be anchored to the ground or station platform by any suitable means. To the arm 36 the horizontally extended curved tripping cam 38 is secured, as best shown in Figs. 1, 9 and 10. This tripping cam 38 stands at the proper elevation to be engaged by the roller 22 of the extensible arm 19—20 of the car crane. An inverted approximately L-shaped bracket 39 is mounted to slide on the arms 35 and 36, toward and from the mast 34, and as shown, is yieldingly pressed outward by a pair of coiled springs 40. A quite long upright roller 41 is mounted on the bracket 39 and stands in a position to be engaged by the tripping cam 18, which, it will be remembered, is carried by the basket frame 15 of the car crane. A bag holding hook 42 is intermediately pivoted to a bearing 43 secured to the bottom of the outer end of the upper crane arm 35. The upwardly extended end or arm of this hook 42 engages a notch in the outwardly extended upper

end portion of the sliding bracket 39, while the free end of said hook is normally pressed against an abutment 44 on the said arm 35 by the springs 40. It will thus be seen also, that the engagement of the hook 42 with the abutment 44, limits the outward movement of the bracket 39.

The station crane is provided with a bag catching basket, which is substantially identical with that of the car crane, and as shown, it is made of a frame 45 and a woven body portion 46, secured thereto. The frame 45 has a rounded stem or shaft 47 seated in a sleeve-like arm 48 of the mast 34. A set screw 49, which is shown as provided with a hand piece 50, serves to lock the stem 47, and hence, of the frame 45, against both endwise and oscillatory movements in respect to the arm 48.

Let it be assumed that a mail bag is to be delivered from the station crane into the mail car of a passing train, and that another mail bag is to be delivered from the said mail car to the basket of the said station crane. The one mail bag, indicated by the character Z, is hung from the hook 42 of the station crane, and the other bag Z¹ is hung from the hook 26 of the car crane. When the train closely approaches the station crane, the car crane should be turned outward, as shown in the drawings, and locked in such position by engagement of the lock lever 30 with the pin 11, as already described. The basket 45—46 of the station crane should be inclined in the direction from which the train is approaching, and the basket 15—17 of the car crane should be inclined in the direction of the travel of the train, as best shown in Fig. 8. When the car crane passes the station crane, the roller 22 of the extensible arm 19—20 of the car crane, will be engaged by the fixed cam 38 of the station crane, and the arm section 20 will be forced inward; and approximately simultaneous therewith, the roller 41 of the station crane will be engaged by the tripping cam 18 of the car crane, and the bracket 39 will be thereby caused to move in a direction away from the passing car. The movement of the arm section 20 turns the hook 26 downward, and drops the mail bag Z¹ into the basket 45—46 of the station crane, and, at the same time, the movement of the said bracket 39 turns the hook 42 downward, and drops the mail bag Z into the basket 15—17 of the car crane. At the extreme inward movement of the arm member 20, and at a time just after the mail bags Z and Z¹ have been dropped respectively into the baskets of the car crane, and of the station crane, the beveled inner end of the trip bar 31 is forced against the lock lever 30, thereby disengaging the same from the fixed pin 11, and permitting the spring 29 to swing the car crane inside of the car.

In Fig. 1, the dotted lines show the car crane swung about one-half way into the car, after it has passed the station crane. As is evident, when the lock key 8 is first re-
 5 moved, the non-rotary mast 4, with the basket and extensible arm, may be detached from their bearings 6 and 7 by first raising the said mast so that its lower end 5 will be above said bearing 6, and then moving the
 10 upper end of said mast laterally toward the right in respect to Fig. 4, it being understood that the right hand side of said bearing 7, is open so as to permit of such removal. This permits the car crane to be
 15 transferred from one side to the other of the car. Even when the mast is left attached to the car, the extensible arm 19—20 may, as already indicated, be lifted out of the dove-tailed seat in the stub arm 13 of the
 20 sleeve 10; and, when the set screw 16 is loosened, the basket 15—17 may also be removed from the stub arm 12 of said sleeve.

What I claim is:

- 25 1. The combination with a station crane having a movable bracket and a bag holding hook, arranged to be tripped by movement of said bracket, of a tripping cam carried by a car and operative through said bracket to trip the hook of said crane.
- 30 2. The combination with a station crane having a spring pressed roller equipped bracket, and a bag holding hook arranged to be tripped by movement of said bracket, of a tripping cam carried by a car and op-
 35 erative on the roller of said bracket to cause said hook to drop the mail bag, and a basket also carried by the car, and into which the bag is adapted to be dropped from said hook.
- 40 3. The combination with a station crane, provided with an extending arm, a bag holding hook pivotally connected to said arm, a spring pressed bracket mounted on said crane and operative on said hook to hold the
 45 same in an operative position, and movable to trip the same, of a car having a door opening in its side, and a car crane mounted on said car and comprising a receiving basket, a tripping cam operative through the
 50 bracket of said station crane to trip the hook of the latter, means tending to swing said

car crane into the car, a lock for holding the same turned outward, and means rendered operative by a part on said station crane for tripping the lock of said car crane. 55

4. The combination with a car, of a mail delivery crane mounted thereon, and provided with an extended arm, a bag holding hook applied to said arm, means tending to move said arm into the car, a lock for hold-
 60 ing said arm turned out of the car, and means adapted to be operated by a projection at one side of the track, to first release the bag holding hook, and then to release said lock, substantially as described. 65

5. The combination with a car and a car crane carried thereby, the said crane having a projecting basket, a tripping cam and an arm provided with a bag holding hook, of a station crane provided with a basket, a trip-
 70 ping cam and a bag holding hook, the said parts being arranged for co-action, to cause a mail bag held by the hook of the car crane to be deposited in the basket of the station crane, and the mail bag held by the hook
 75 of a station crane to be delivered into the basket of said car crane, substantially as described.

6. A pair of mail cranes, one located at the side of a track and the other carried by
 80 a car, the said cranes having reversely inclined baskets, mail bag holding devices and hook tripping devices, the said parts being arranged for the transfer of the mail bags from the hook of one crane to the basket
 85 of the other, when the one crane is moved past the other, substantially as described.

7. A mail crane having a swinging arm provided with an extensible outer end section, and with a bag holding hook operated
 90 by the said movable outer end section, means tending to swing the said arm, a lock for securing said arm against swinging movement, and a trip for said lock, carried by the said movable outer end arm section, sub-
 95 stantially as described.

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

JOHN EDMAN.

Witnesses:

H. D. KILGORE,
 F. D. MERCHANT.