

No. 880,550.

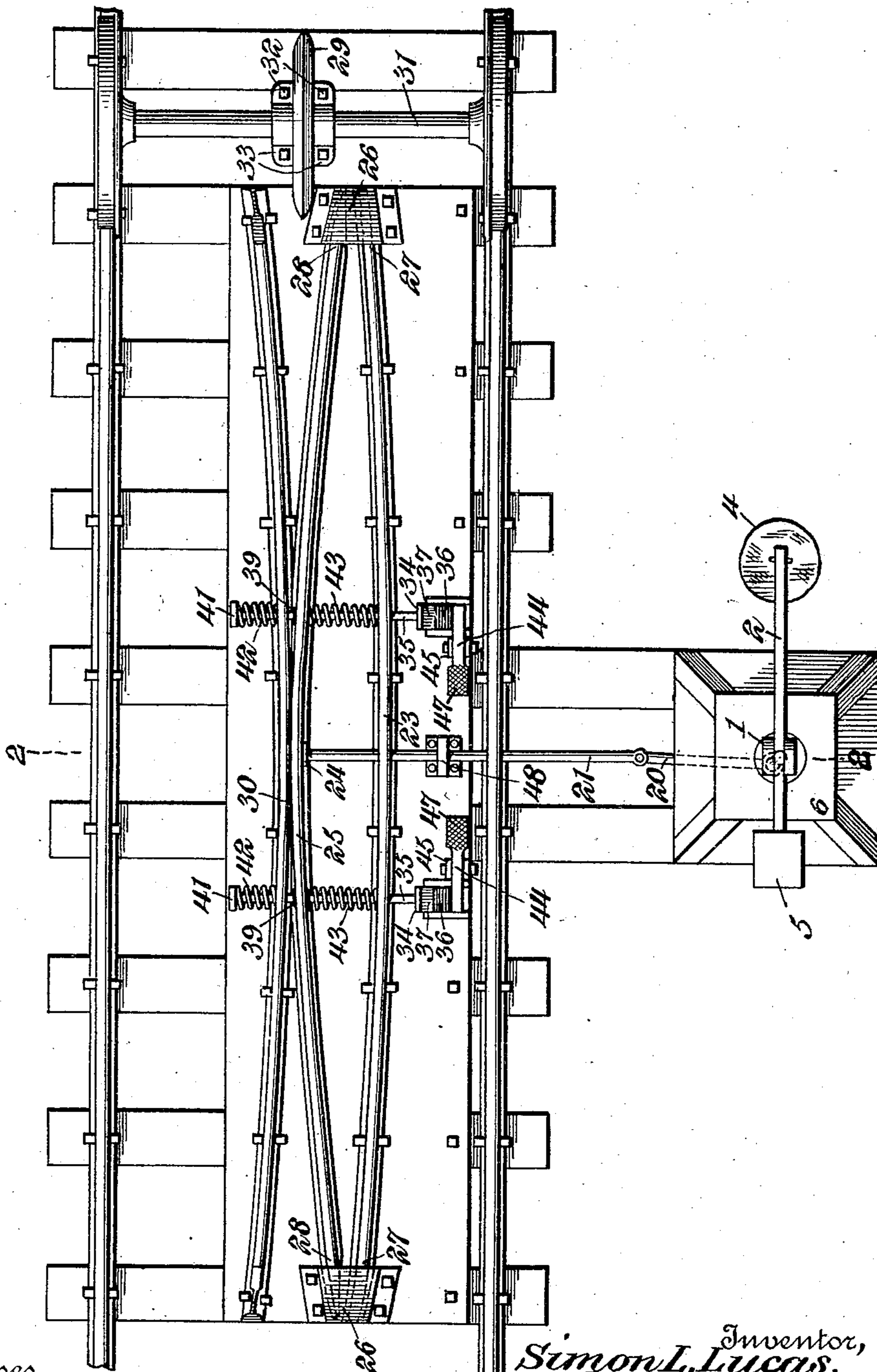
PATENTED MAR. 3, 1908.

S. L. LUCAS.
MAIL CRANE.

APPLICATION FILED OCT. 30, 1907.

2 SHEETS—SHEET 1..

Fig. 1.



Witnesses

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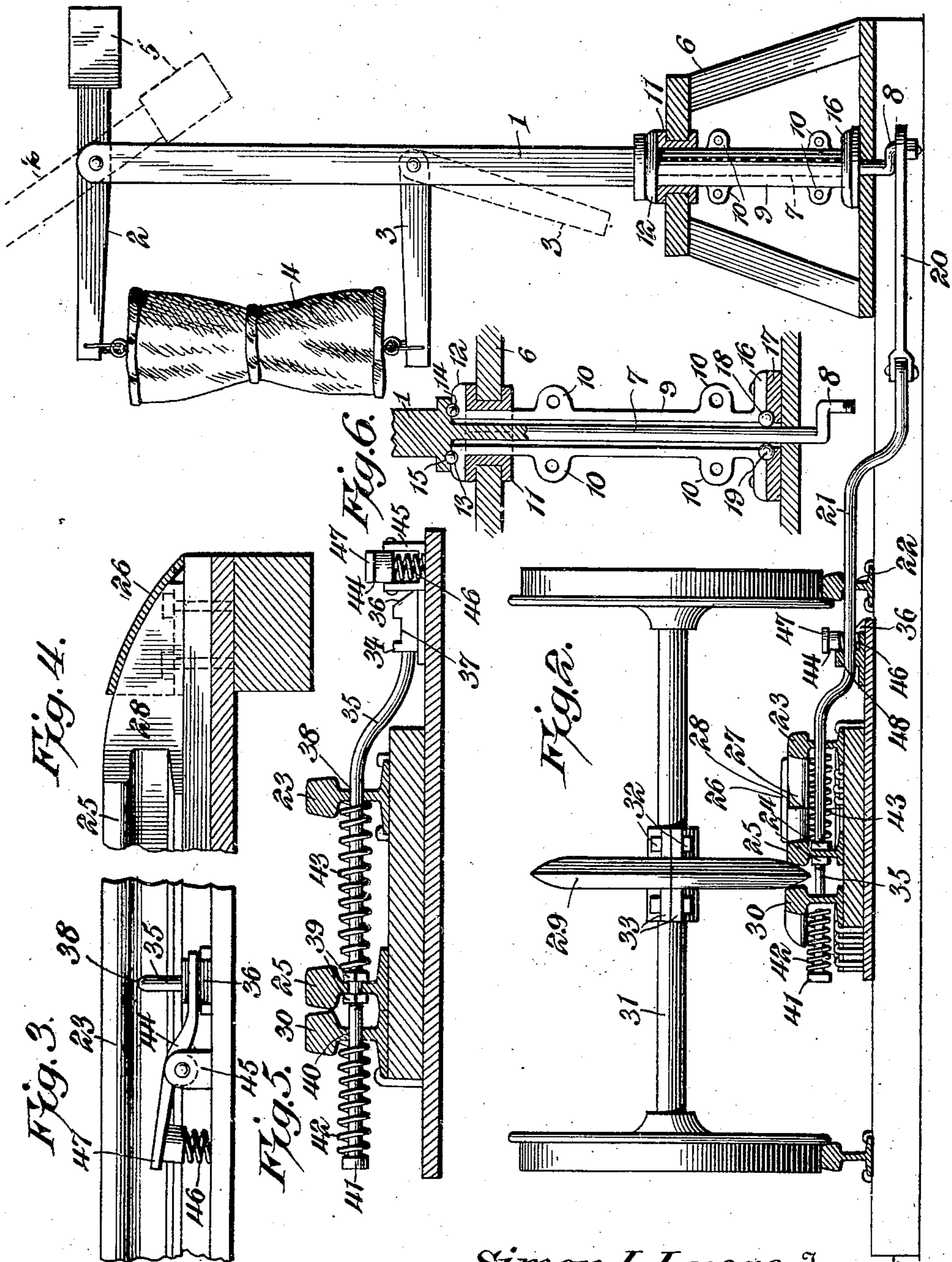
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UNITED STATES PATENT OFFICE.

SIMON L. LUCAS, OF MULBERRY, FLORIDA.

MAIL-CRANE.

No. 880,550.

Specification of Letters Patent.

Patented March 3, 1908.

Application filed October 30, 1907. Serial No. 399,847.

To all whom it may concern:

Be it known that I, SIMON L. LUCAS, a citizen of the United States, residing at Mulberry, in the county of Polk and State of Florida, have invented a new and useful Mail-Crane, of which the following is a specification.

The invention relates to improvements in mail cranes.

10 The object of the present invention is to improve the construction of mail cranes, and to provide a simple and comparatively inexpensive one, designed to be normally arranged in an inoperative or out-of-the-way position to enable a mail bag to be attached to it at any time, and to prevent it from being a menace to passing trains, and also to prevent the latter from accidentally knocking the mail bag from the crane, and capable of being swung into operative position by a mail car equipped with proper operating devices to carry the mail bag into position to be engaged by the mail bag catcher of such car.

25 A further object of the invention is to provide a mail crane of this character, adapted, when released, after the passage of a train, of automatically swinging to its inoperative position.

30 With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

40 In the drawings:—Figure 1 is a plan view of a mail crane and operating mechanism, constructed in accordance with this invention. Fig. 2 is a vertical sectional view, taken substantially on the line 2—2 of Fig. 1. Fig. 3 is a detail view of one of the foot operated latch levers. Fig. 4 is a detail view, illustrating the manner of mounting the ends of the laterally shiftable member. Fig. 5 is a detail sectional view, showing one of the catches and illustrating the manner of guiding the laterally shiftable member. Fig. 6 is a detail view of the lower portion of the crane, illustrating the manner of mounting the rotary mast.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

The mail crane proper embodies a vertical rotary mast 1, which is equipped with mail bag holding means, consisting of upper and lower arms 2 and 3, adapted to automatically swing upwardly and downwardly, respectively, when a mail sack 4 is disengaged from the said arms 2 and 3 by a mail bag catcher of a mail car. The upper arm 2 consists of an intermediately pivoted bar provided at one end with a weight 5, adapted, when the arm 3 is free to move, to swing the same from the horizontal position illustrated in full lines in Fig. 1 of the drawings to the inclined position shown in dotted lines. The lower arm 3 is pivoted at its inner end to the mast and automatically swings downward from a horizontal position to the inclined position shown in dotted lines in Fig. 1, when the mail bag is carried from the mail crane by the mail bag catcher of a car.

The rotary mast is mounted in a suitable stand 6, and is provided with a reduced lower portion 7, having a terminal crank 8 and extending through a sectional sleeve 9. The sleeve 9 which is composed of two semi-cylindrical sections, is stationary, the sections being provided with registering ears 10, which are secured together by suitable fastening devices. The upper end of the sleeve is arranged in a sectional collar 11, and is provided with an annular bearing flange 12, arranged upon the collar and provided in its upper face with an annular groove 13. The sectional collar 11 is provided with outwardly projecting upper and lower flanges, which form an intervening annular recess to fit the top of the stand. The groove 13 of the flange 12 receives an annular series of anti-friction balls 14, which support the rotary mast, and the latter is provided in the shoulder, formed by the reduction of its lower portions with an annular groove 15, which corresponds with the groove 13 and coöperates with the same to form a ball race.

The sleeve or casing 9 is provided at its lower end with an annular flange 16, which is secured upon a sectional bearing plate 17, mounted upon the base of the stand 6. The bearing plate has a central opening through which the reduced portion of the mast passes, and the lower end of the sleeve and the inner

edge of the bearing plate 17 are provided with annular grooves, forming a ball race 18 for the reception of anti-friction balls 19, which bear against the reduced portion of the mast at the sides thereof, as clearly shown in Fig. 6 of the drawings. By means of the upper and lower bearings the rotary mast is adapted to be turned easily and frictionlessly in the stand 6, and comparatively little force is required to quickly throw the crane from its inoperative position, with its arms extending longitudinally of the track, to its operative position with its arms extending in the direction of the track, so that there will be no liability of the mail bag not being brought around in time to be engaged by the mail bag catcher of a mail car.

The crank 8 is connected by a link 20 with the outer end of a slidable rod 21, disposed transversely of the track and extending through an opening 22 of the adjacent rail. The intermediate portion of the rod 21 is guided in the opening 22, and the outer portion of the rod is bent downwardly at an angle to arrange its outer portion in a plane below its intermediate portion. The inner portion of the rod is bent upwardly to arrange it in a plane above the intermediate portion. The inner portion of the slidable rod extends through a fixed guiding member 23, and the inner end of the rod is secured by nuts 24, or other suitable fastening devices, to a laterally shiftable member 25. The fixed guiding member 23 preferably consists of a short rail curved, as shown, and the laterally shiftable member also preferably consists of a curved rail, the web of which is pierced by the inner end of the rod 21. The inner end of the rod 21 is threaded for the reception of the nuts 24.

The fixed guiding member and the laterally shiftable member have their ends arranged within casings 26, which are provided with inclined top walls or portions, as clearly illustrated in Fig. 4 of the drawings, and the ends 27 and 28 of the rails or members 23 and 25 are correspondingly beveled. The ends of the laterally shiftable member are also cut away at their inner sides to enable the laterally shiftable member to move sufficiently in the casings 26 to rotate the mail crane one quarter of a revolution. These rails 23 and 25 have their upper faces located about two and a half or three inches above the treads of the rails of the track, so that an operating wheel 29 may be located at a sufficient elevation to prevent it from striking the lead rails of switches, cross-overs and the like. The beveling of the ends of the rails 23 and 25 and the inclined portions of the end casings 26 prevent any of the gear or draft rigging of a car from catching on the device.

The fixed guiding member is curved slightly and presents an inner concave face to the laterally shiftable member, which is

curved in the opposite direction, its central portion normally abutting against a fixed guide member 30, consisting of a rail having beveled ends. The fixed guard or guide 30 is curved slightly, and its end portions diverge from the end portions of the laterally shiftable member, forming flaring entrances to the operating mechanism to enable the same to be readily engaged by the operating wheel 29.

The operating wheel 29, which is provided with an oppositely beveled periphery, is designed to be mounted on the end axle at each end of a mail car, and it is composed of sections detachably secured to the axle at the center thereof by means of bolts 32, or other suitable fastening devices. The sections of the operating wheel are provided with laterally extending hub portions 33, having registering perforations through which the bolts 32 pass. The sectional construction of the operating wheel enables the same to be readily detached from a mail car should the same become injured and sent as a dead car to the shops, or any other point. The removal of the operating wheels at such time will prevent the mail car from affecting the position of the mail cranes along the track over which such car travels.

When the laterally shiftable member is moved outwardly from the fixed guard member 30, the shaft of the mail crane is rotated one fourth of a revolution, and the arms 2 and 3 are swung from a position in parallelism with the track, as shown in Fig. 1 of the drawings to a position transversely of the track, as illustrated in Fig. 2. The mail crane is locked in this latter position by means of a pair of catches 34, mounted on the outer ends of the transverse rods 35 and provided with beveled end faces 36 and having recesses 37 in their inner faces. The rods 35 pass through perforations 38 of the fixed guiding member 23, and they extend through the web of the laterally shiftable member and are secured to the same by means of nuts 39, located at opposite sides of the laterally shiftable member, as clearly shown in Fig. 5 of the drawings. The inner end portions of the rods 35 extend through perforations 40 of the web of the guard rail or member 30, and are provided with suitable heads 41, which are engaged by coiled springs 42. By passing the rods 35 through the bars or members 23, 25 and 30, they assist in guiding the laterally shiftable guard or member in its outward and inward movements. The springs 42 are interposed between the guard member 30 and the heads 41, and the rods 35 also receive coiled springs 43, which are interposed between the fixed guiding member 23 and the laterally shiftable member. When the laterally shiftable member is moved outwardly, the coiled springs are compressed, and they operate to

return the laterally shiftable member to its initial position, when the same is free to move.

The outward movement of the laterally shiftable member carries the catches of the member 34 beneath a pair of foot operated latch levers 44, fulcrumed at an intermediate point in suitable brackets 45, and adapted to engage the shoulders, formed by the recesses 37 of the catches. The latch levers are thrown into the recesses by coiled springs 46, located beneath foot plates 47. The foot plates 47 are arranged at the inner adjacent ends of the latch levers, which extend longitudinally of the track, and the outer ends of the latch levers engage the catches. After a train has passed, the arms of the latch levers are depressed by the feet of a person, and the switch stand and the laterally shiftable member are automatically returned to their initial position by the said coiled springs.

As the arms of the mail crane are normally arranged out of the way of passing trains, a mail bag may be placed on the mail crane at any time without danger of its being accidentally knocked off and cut to pieces by a passing train. Also by this normal arrangement of the mail bag, there is no danger of the passengers or the train crew being injured by coming in contact with the mail bag supporting arms. As each end of a mail car is equipped with an operating wheel, the car may be turned end for end without affecting the operation of the mail crane.

The slidable rod or bar 21 preferably passes through a guide 48, located at a point between the fixed guide member 23 and the adjacent rail, and consisting of a horizontal plate and an upwardly projecting flange or lug, provided with a guide opening to receive the rod.

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

1. The combination of a rotary mail crane provided with means for holding a mail bag, a laterally shiftable member, means for communicating motion from the laterally shiftable member to the mail crane, and means carried by a train for actuating the laterally shiftable member to positively rotate the mail crane to turn the same to its operative position.

2. The combination of a rotary mail crane provided with means for holding a mail bag, a laterally shiftable member, means for communicating motion from the laterally shiftable member to the mail crane, means carried by a train for actuating the laterally shiftable member to positively rotate the mail crane to turn the same to its operative position, and means for automatically locking the mail crane in its operative position.

3. The combination of a rotary mail crane provided with means for holding a mail bag, a laterally shiftable member, means for communicating motion from the laterally shiftable member to the mail crane, means carried by a train for actuating the laterally shiftable member to positively rotate the mail crane to turn the same to its operative position, means for automatically locking the mail crane in its operative position, and manually operable means for releasing the mail crane.

4. The combination of a rotary mail crane provided with means for holding a mail bag, a laterally shiftable member, means for communicating motion from the laterally shiftable member to the mail crane, means carried by the train for actuating the laterally shiftable member to positively rotate the mail crane to turn the same to its operative position, means for automatically locking the mail crane in its operative position, manually operable means for releasing the mail crane, and means for automatically turning the mail crane to an inoperative position.

5. The combination of a rotary mail crane having a crank element, a laterally shiftable member, a slidable rod, means for connecting the rod with the crank element, and means carried by a train for positively actuating the laterally shiftable member.

6. The combination of a rotary mail crane having a crank element, a laterally shiftable member, a slidable rod, means for connecting the rod with the crank element, means carried by a train for positively actuating the laterally shiftable member, a catch carried by the laterally shiftable member, a latch lever arranged in the path of the catch and adapted to be manually operated to release the same, and means for automatically returning the crane to its initial position when the same is released.

7. The combination of a rotary mail crane, a laterally shiftable member, means for communicating motion from the laterally shiftable member to the rotary mail crane, means carried by a train for actuating the laterally shiftable member to carry the mail crane from an inoperative to an operative position, springs for moving the laterally shiftable member and the mail crane in the opposite direction, means for locking the mail crane in its operative position, and means for releasing the mail crane to enable the same to return automatically to an inoperative position.

8. The combination of a rotary mail crane, a shiftable member, means for communicating motion from the shiftable member to the mail crane for turning the same from an inoperative to an operative position, and an operating wheel carried by a train and arranged to engage the shiftable member for positively operating the mail crane.

9. The combination of a rotary mail crane, a laterally shiftable member extending longitudinally of a track and located between the rails thereof, a fixed guard member arranged
5 contiguous to the laterally shiftable member, said members having diverging portions, means for communicating motion from the laterally shiftable member to the mail crane, and a wheel carried by a train and arranged
10 to pass between the said members for actuating the mail crane.

10. The combination of a rotary mail crane, a laterally shiftable member, a fixed guard member located at one side of the
15 shiftable member, a fixed guide member located at the opposite side of the laterally shiftable member, guide rods piercing the said members and connected with the laterally shiftable member, catches mounted on
20 the guide rods, means for communicating motion from the laterally shiftable member to the mail crane for turning the same from an inoperative to an operative position, and means arranged in the path of the catches
25 for locking the mail crane in an operative position.

11. The combination of a rotary mail crane, a laterally shiftable member, a fixed guard member located at one side of the
30 shiftable member, a fixed guide member located at the opposite side of the laterally shiftable member, guide rods piercing the said members and connected with the laterally shiftable member, catches mounted on
35 the guide rods, means for communicating motion from the laterally shiftable member to the mail crane for turning the same from an inoperative to an operative position, means arranged in the path of the latches for
40 locking the mail crane in an operative position, and coiled springs disposed on the rods for returning the mail crane to its inoperative position.

12. The combination of a rotary mail
45 crane, a laterally shiftable member, a fixed guard member located at one side of the shiftable member, a fixed guide member located at the opposite side of the laterally shiftable member, guide rods piercing the
50 said members and connected with the laterally shiftable member, catches mounted on the guide rods, means for communicating motion from the laterally shiftable member to the mail crane for turning the same from
55 an inoperative to an operative position, intermediately pivoted spring actuated foot levers arranged in the path of the catches for

locking the mail crane in its operative position, and coiled springs disposed on the rods for returning the mail crane to its inoperative
60 position.

13. The combination of a rotary mail crane, a laterally shiftable member curved longitudinally, a fixed guide member curved
65 in the opposite direction and having its terminals arranged adjacent to the shiftable member, said members being provided with beveled ends, casings receiving the ends of the said members and having inclined portions, means for communicating motion from
70 the shiftable member to the mail crane, and means carried by a train for actuating the shiftable member.

14. The combination of a rotary mail crane, a laterally shiftable member curved
75 longitudinally, a fixed guide member curved longitudinally and having its terminals arranged adjacent to the ends of the laterally shiftable member, a fixed guard member curved longitudinally and having its intermediate portion contiguous to the laterally
80 shiftable member and its terminal portions diverging therefrom, said members having beveled ends, casings receiving the ends of the guide member and the laterally shiftable
85 member, means movable through the guide member for guiding the laterally shiftable member, and means for communicating motion from the laterally shiftable member
90 to the mail crane.

15. The combination of a mast having a reduced lower portion and provided at the upper end of the latter with a shoulder, a stand, a sectional sleeve receiving the reduced lower portion of the mast and provided
95 with upper and lower horizontal flanges, anti-friction devices interposed between the shoulder of the mast and the upper flange of the sleeve, a lower bearing plate receiving the bottom flange of the sleeve and supporting
100 the latter, anti-friction devices located at the lower bearing plate and interposed between the same and the sleeve and forming a bearing for the reduced portion of the mast, bag-holding means carried by the mast, and
10 mechanism for partially rotating the mast.

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

SIMON L. LUCAS.

Witnesses:

VICTOR C. BOOKER,
W. PARKS READ.