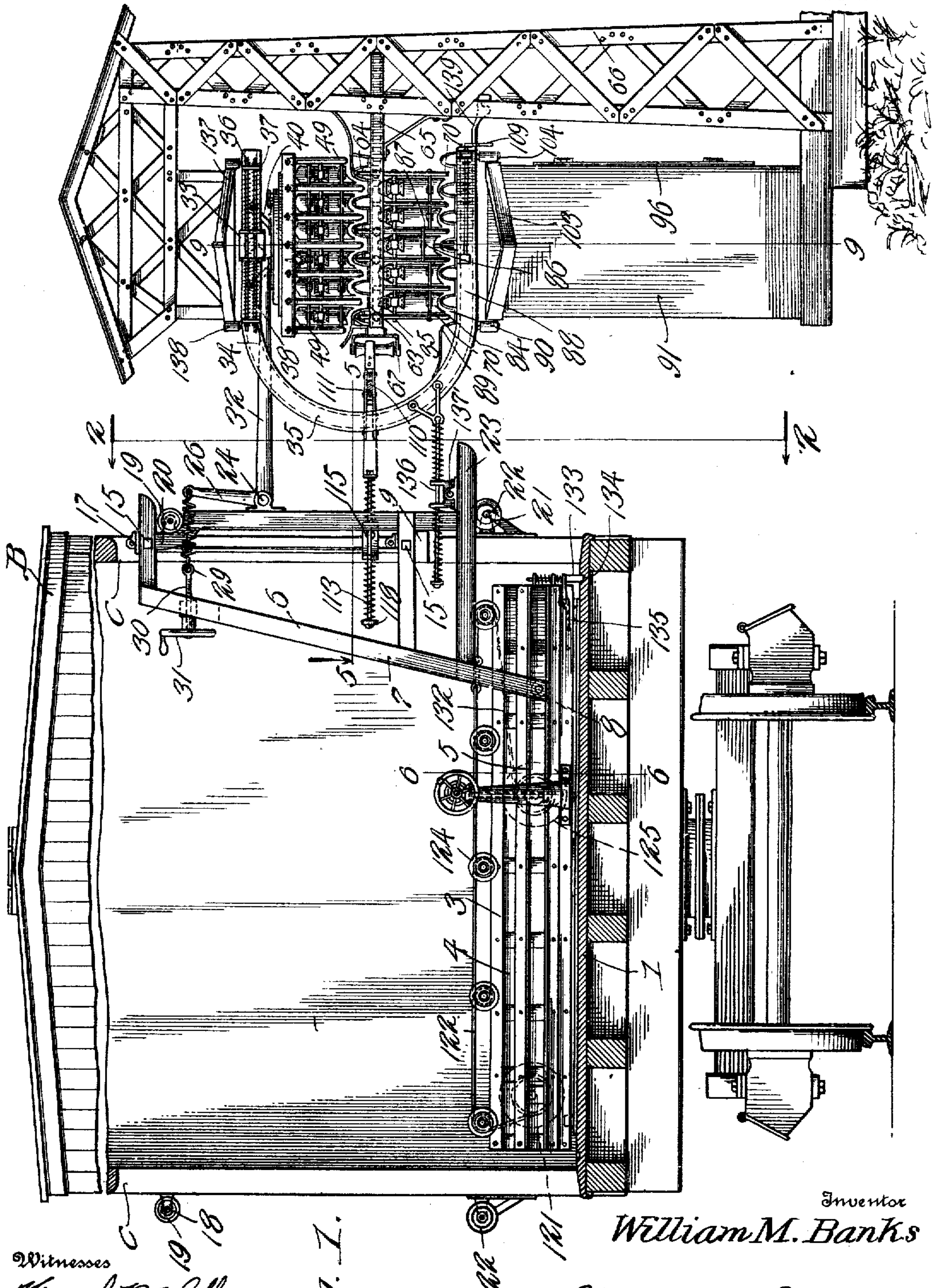


W. M. BANKS.
MAIL BAG COLLECTING AND DELIVERING APPARATUS.
APPLICATION FILED NOV. 23, 1909.

953,578.

Patented Mar. 29, 1910.

5 SHEETS—SHEET 1.



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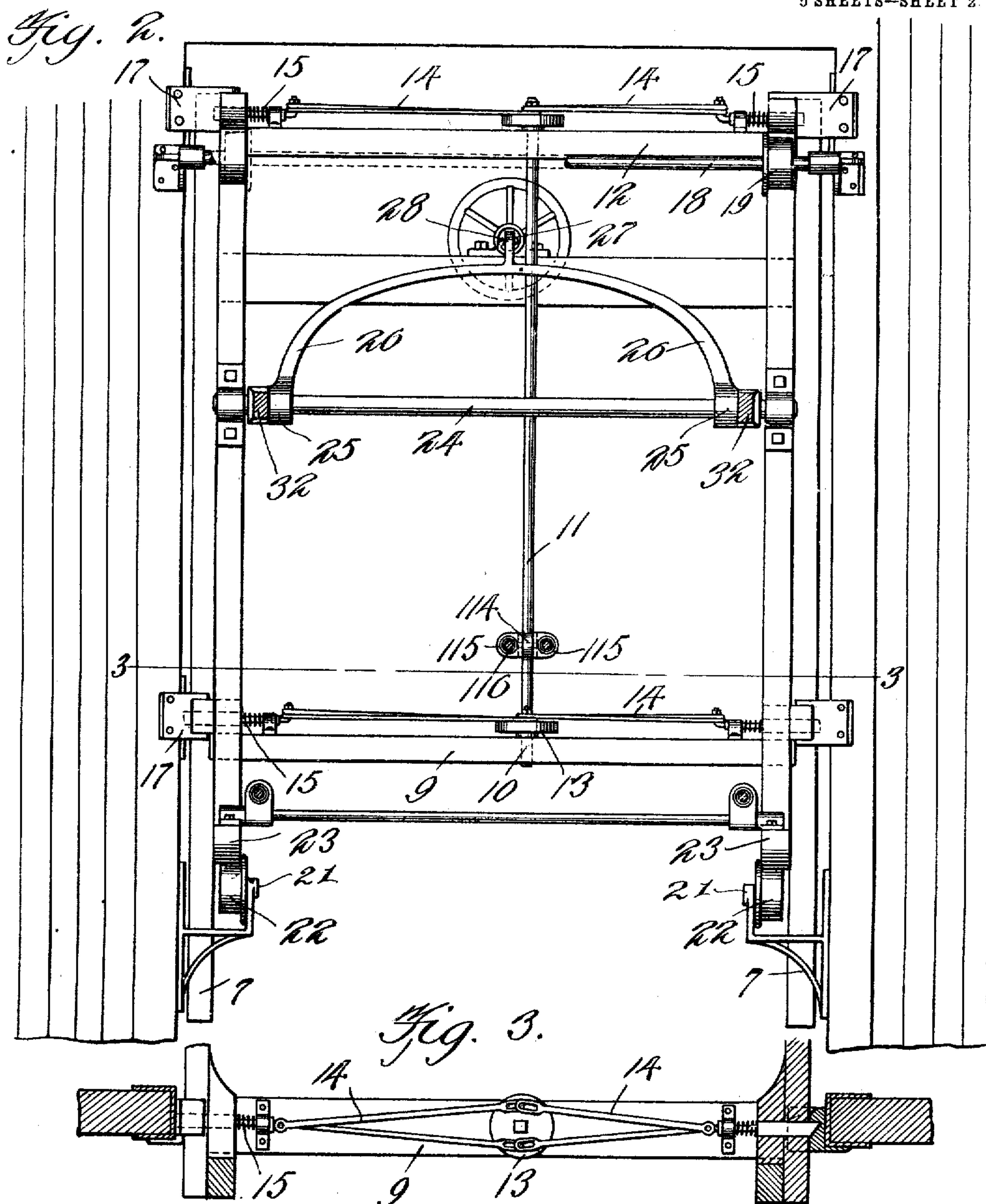
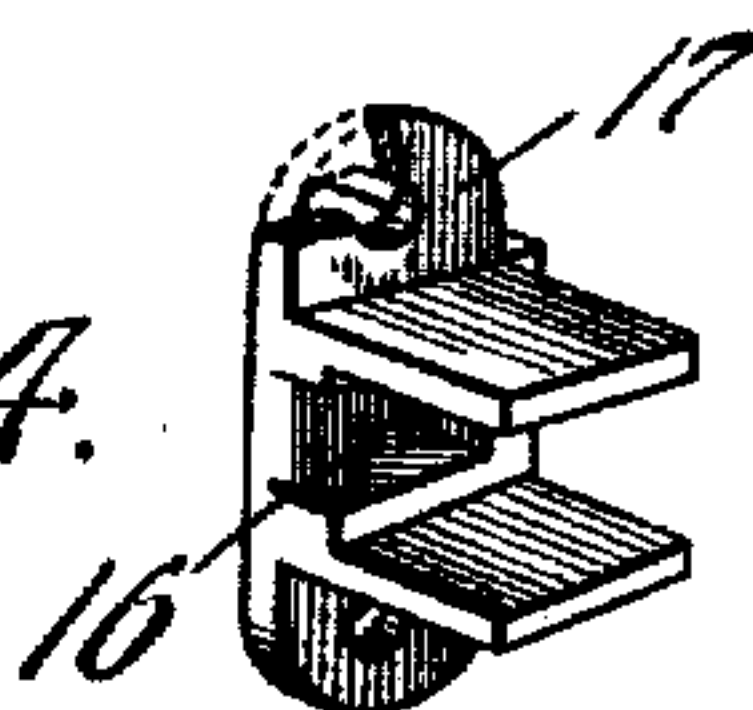


Fig. 4.



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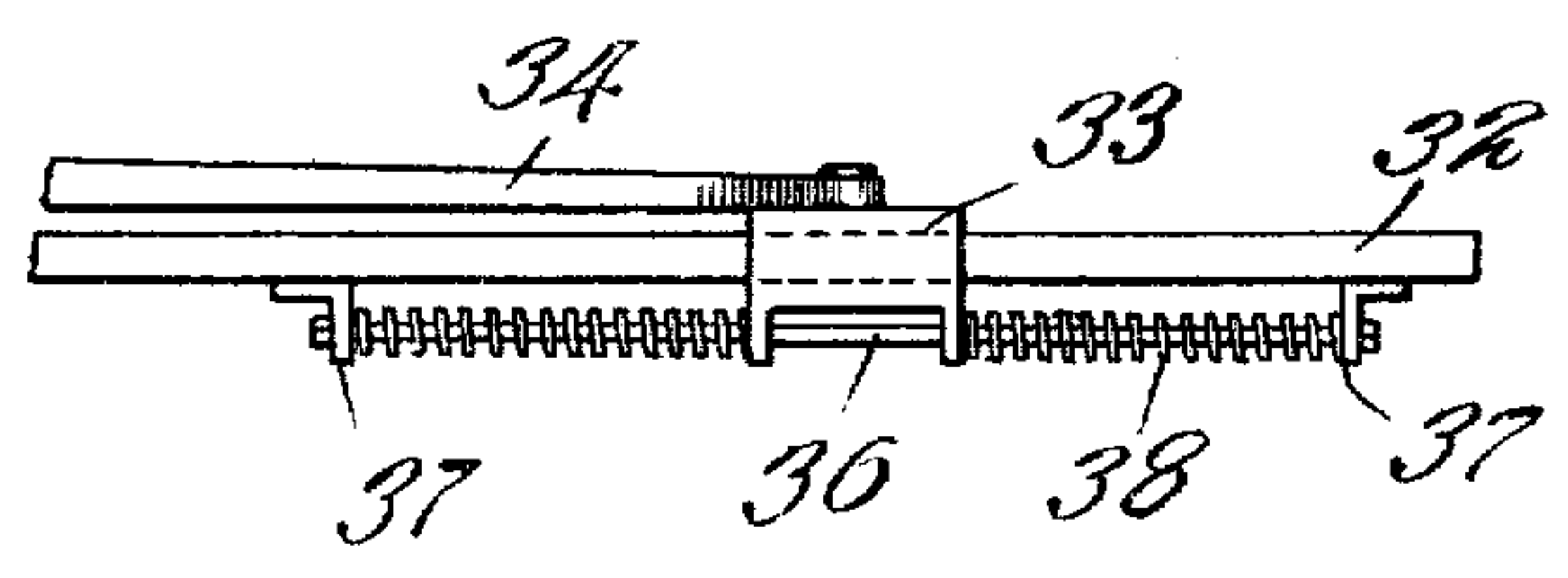
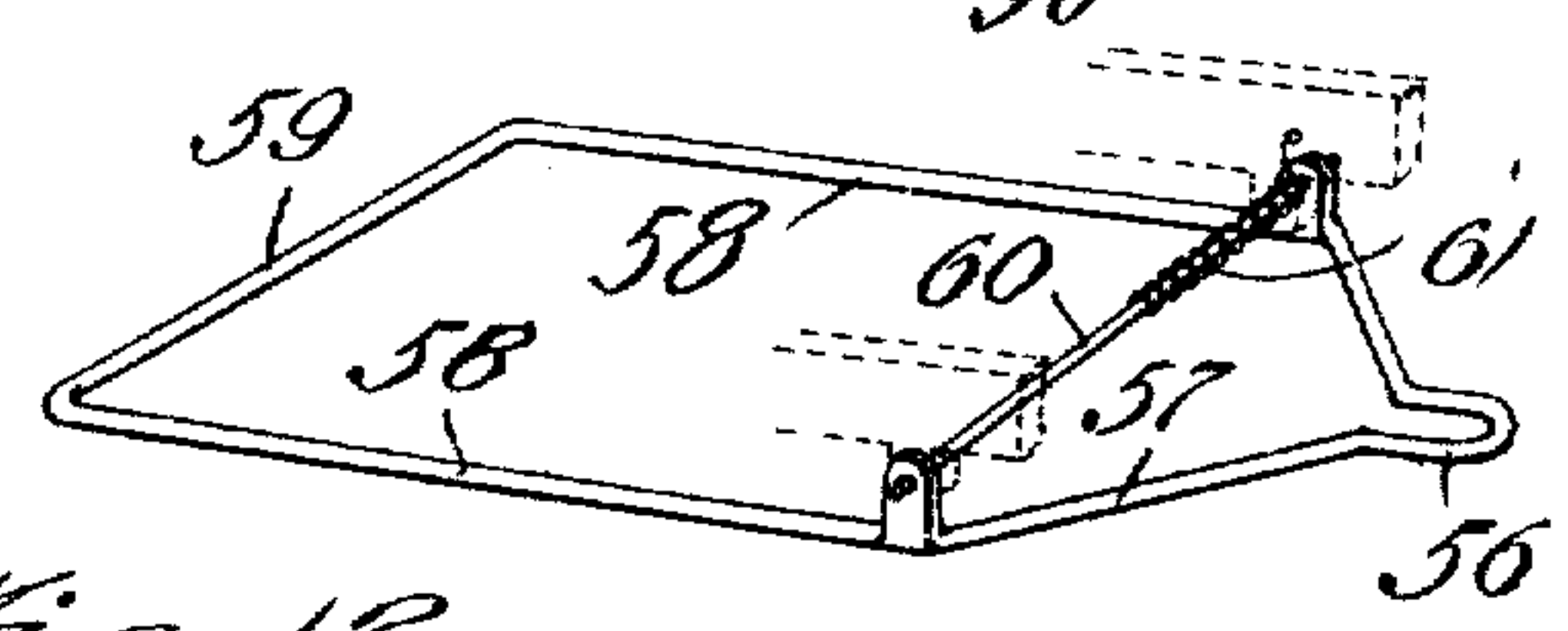
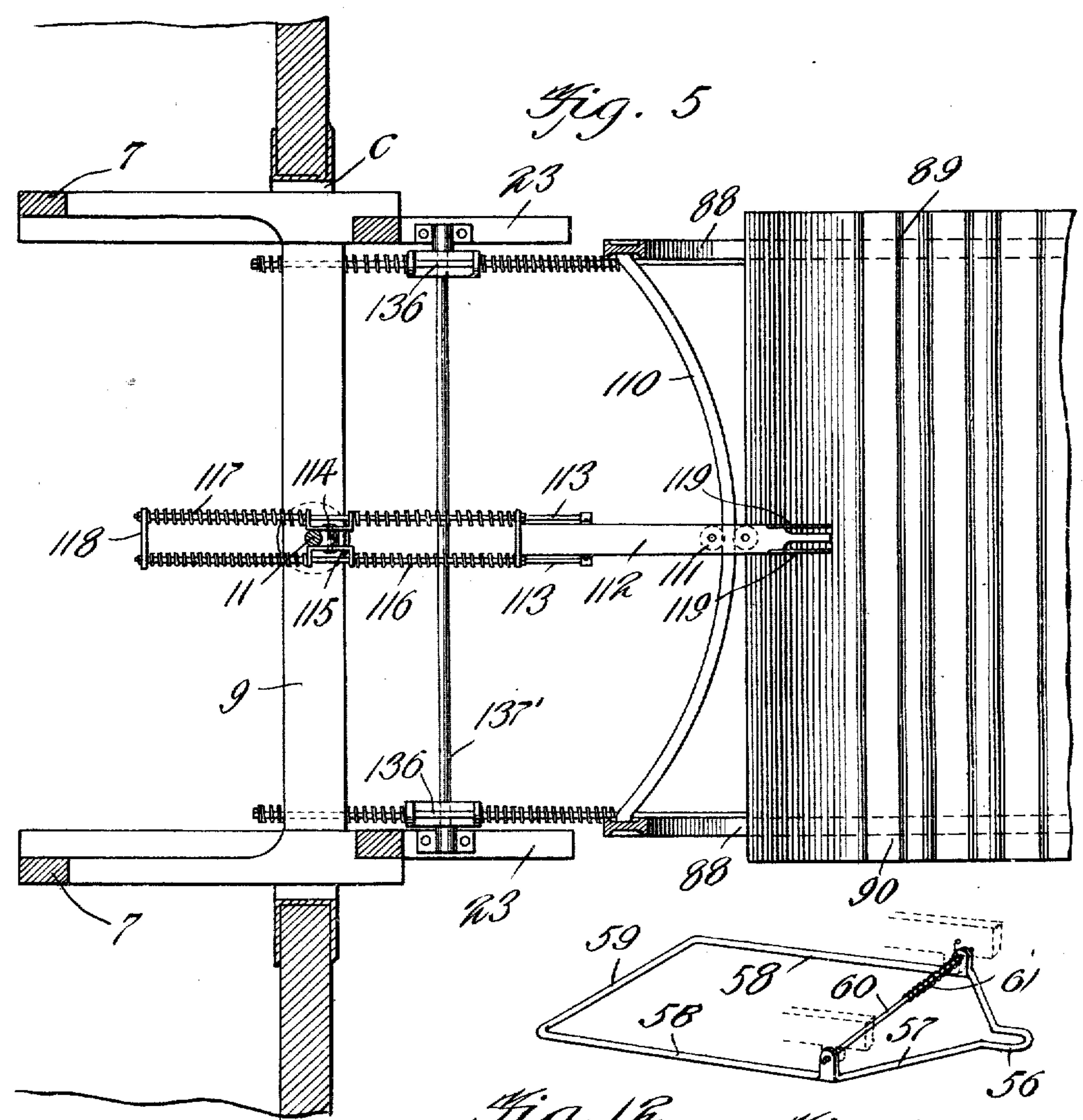


Fig. 12. Fig. 11.

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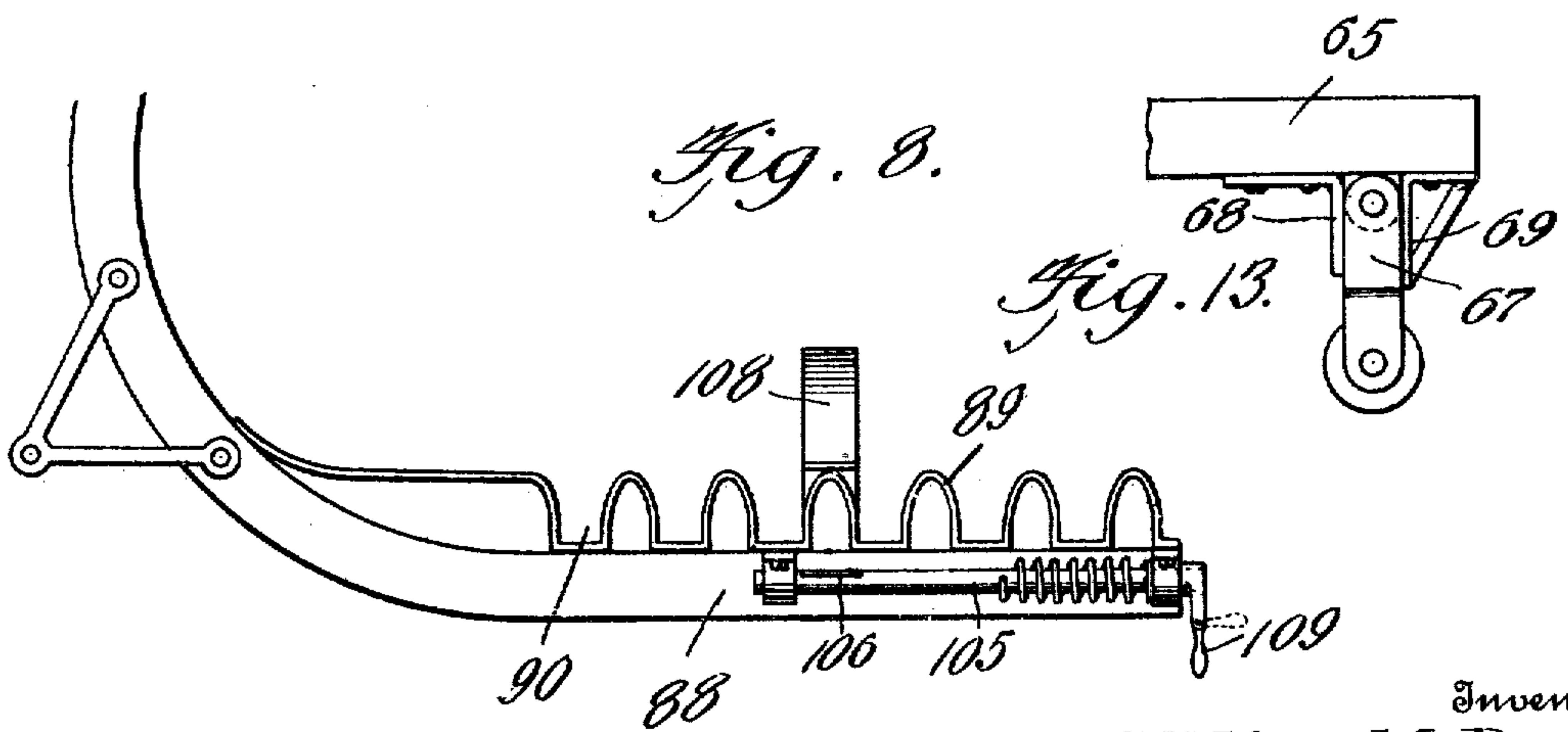
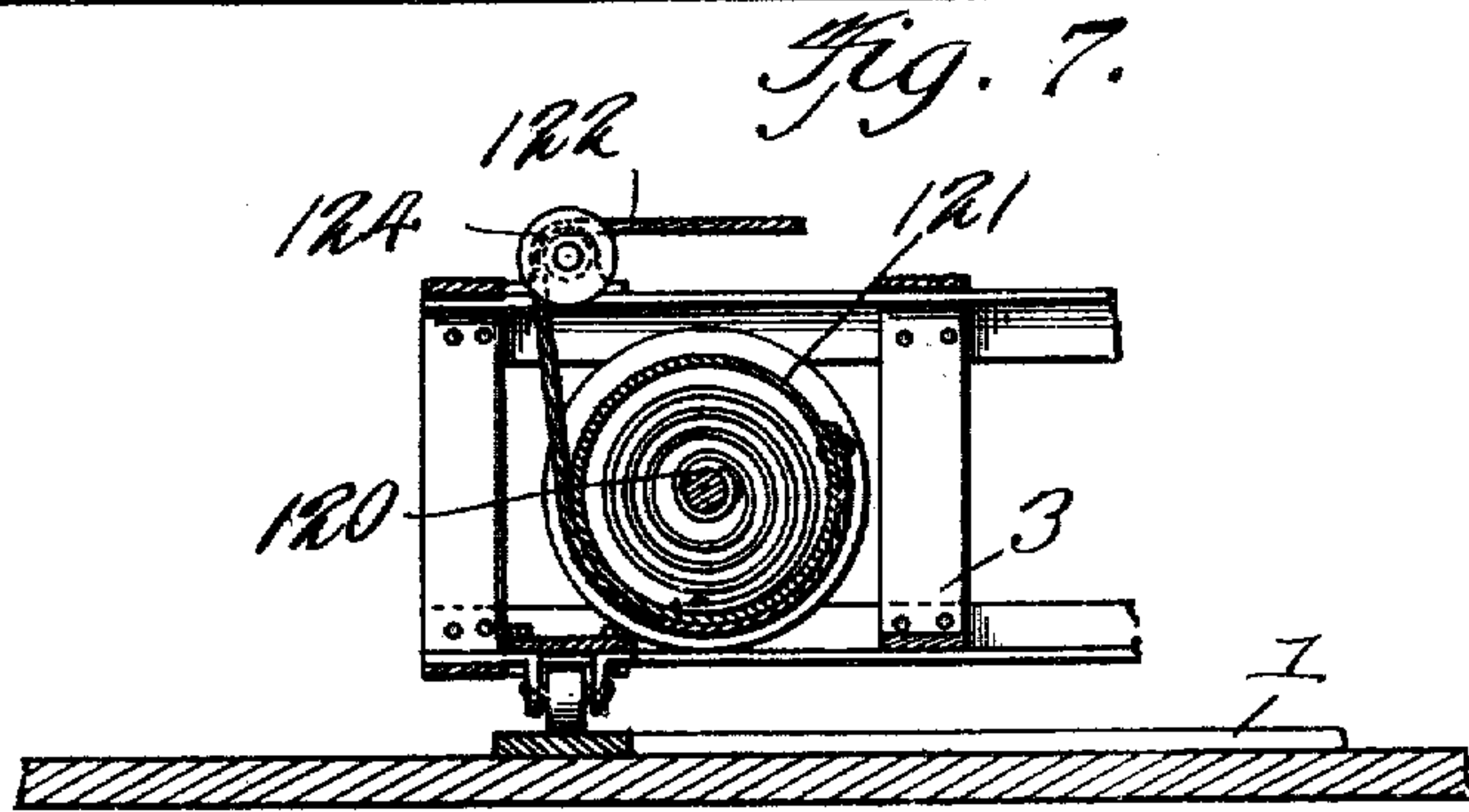
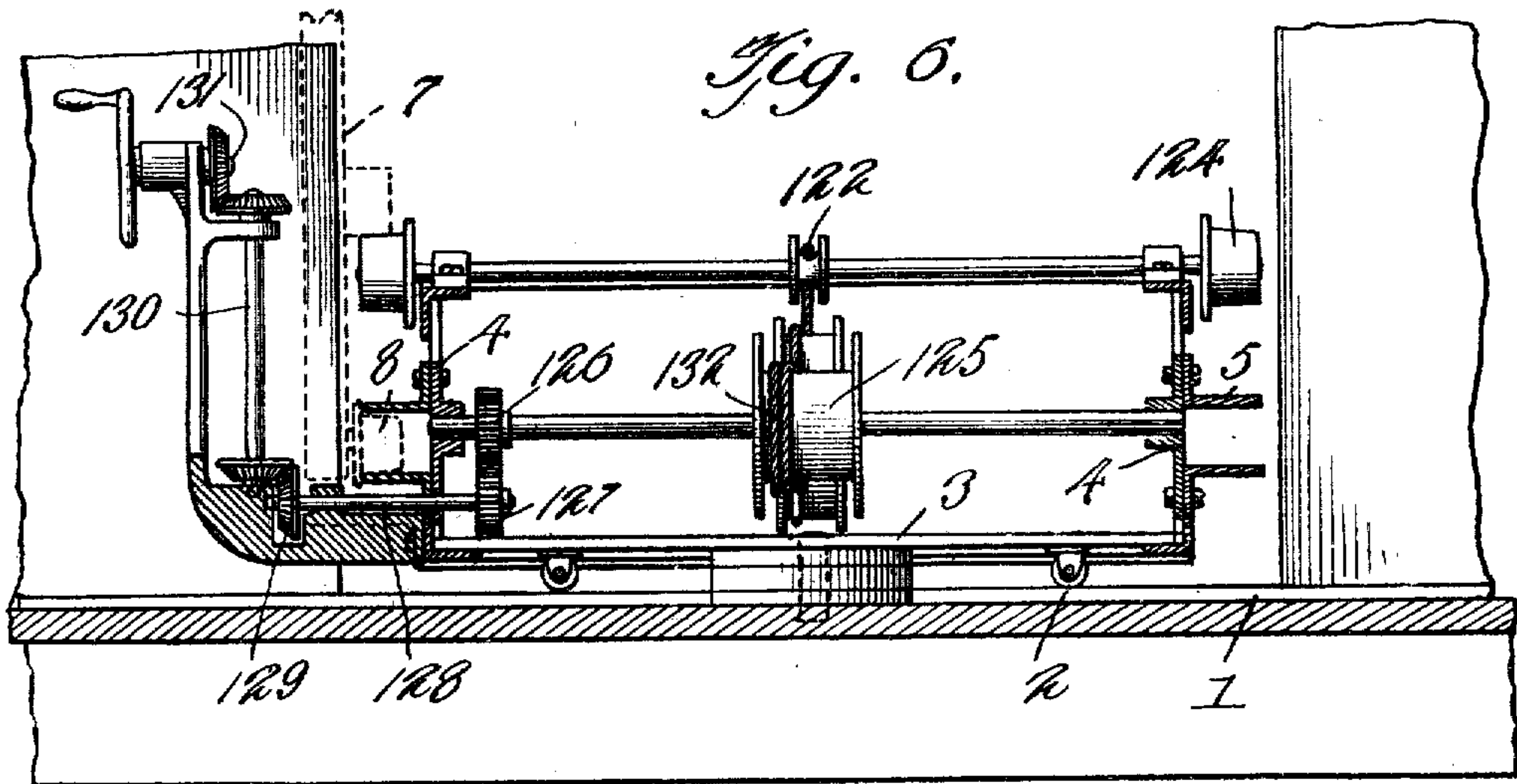
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5 SHEETS—SHEET 4.



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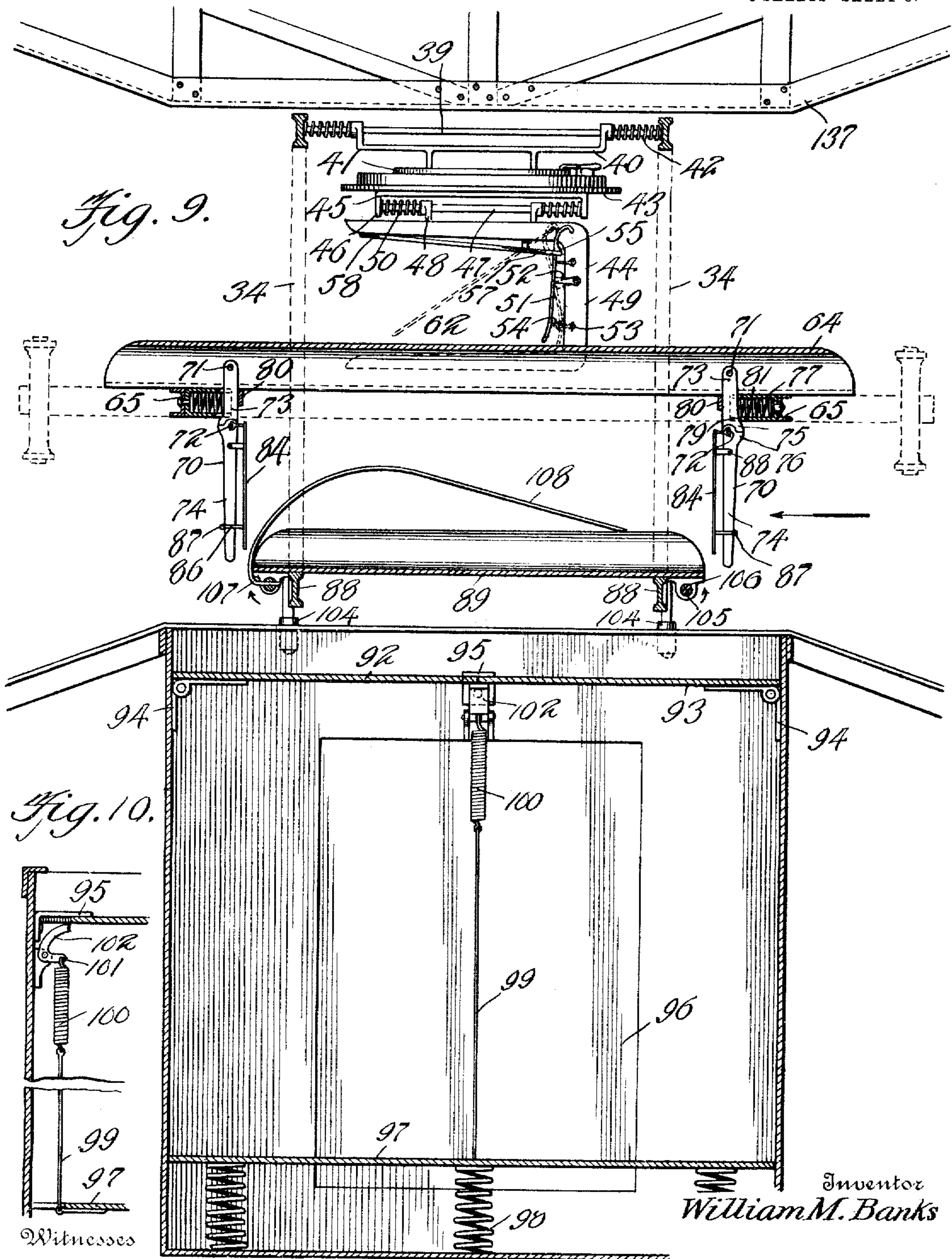
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6 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

WILLIAM M. BANKS, OF COAL CREEK, TENNESSEE.

MAIL-BAG COLLECTING AND DELIVERING APPARATUS.

953,578.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Application filed November 23, 1909. Serial No. 529,609.

To all whom it may concern:

Be it known that I, WILLIAM M. BANKS, a citizen of the United States, residing at Coal Creek, in the county of Anderson and State of Tennessee, have invented new and useful Improvements in Mail-Bag Collecting and Delivering Apparatus, of which the following is a specification.

This invention relates to mail bag receiving and delivering apparatus, and has for an object to provide simple and novel means whereby mail bags may be delivered from fast moving trains without mutilating or otherwise injuring the contents of the bag.

Another object is to provide means for delivering a bag to a station simultaneously upon the operation of receiving one from the station.

Another object is to provide mail bag receiving and delivering apparatus which is situated at a point upon a car and movable so that it can be used from either side, novel means being employed whereby the apparatus will be moved into the car automatically after the delivering and receiving operation.

Another object is to provide a receiving receptacle wherein means are employed for holding the bag against removal, the said receptacle being designed for use in connection with the apparatus at the receiving station.

Another object is to provide apparatus which is movable in the car and designed to be held normally therein and to be extended therefrom at the will of the operator, means being provided for holding the apparatus in its extended position prior to the receiving and delivering of mail bags and for moving the apparatus automatically back to its normal position.

Another object is to provide adjustable receiving and delivering apparatus upon the car which may be accurately adjusted to operatively cooperate with the receiving and delivering apparatus at the station.

The above mentioned and other objects are attained by the construction, combination and arrangement of parts, as disclosed on the drawings, set forth in this specification, and particularly pointed out in the appended claims.

In the drawings, forming a portion of this specification and in which like characters of reference indicate similar parts in the several views:—Figure 1 is a sectional eleva-

tion of a portion of a car showing the car carried receiving and delivering apparatus operatively positioned with respect to the receiving and delivering apparatus at the station. Fig. 2 is a detail vertical section taken on the line 2--2 of Fig. 1. Fig. 3 is a transverse section taken on the line 3--3 of Fig. 2. Fig. 4 is a detail perspective view of the keeper. Fig. 5 is a horizontal section taken on the line 5--5 of Fig. 1. Fig. 6 is a detail section taken on the line 6--6 of Fig. 1. Fig. 7 is a detail section taken through a portion of the turn-table showing the spring tension carriage return drum. Fig. 8 is a detail elevation of a portion of the car carried bag delivering apparatus. Fig. 9 is a sectional elevation taken on the line 9--9 of Fig. 1. Fig. 10 is a detail section taken through a portion of the receiving receptacle. Fig. 11 is a detail perspective view of the bag retainer. Fig. 12 is a detail elevation of a portion of the car carried bag delivering apparatus. Fig. 13 is a detail view of one of the pivoted roller supporting brackets of the bag collecting and delivering mechanism.

The apparatus is designed for use in connection with a car of the type shown at B in Fig. 1 of the drawings, the said car being of the type usually employed in the railway mail service, it being provided at its sides with the usual doorways C. Upon the bottom of the car is mounted a track 1 upon which the rollers 2 of a turn-table 3 travel. This turn-table is preferably of rectangular form and is pivoted for horizontal rotation upon the bottom of the car. The turn-table has its side portions 4 suitably spaced from each other and provided upon their outer faces with longitudinally extending guideways or rails 5, each consisting preferably of a pair of suitably spaced angle-iron members as shown in Fig. 6 of the drawings. The turn-table supports a carriage 6 which consists preferably of a pair of spaced upwardly and outwardly extending supporting standards 7 which are spaced from each other and braced in any suitable well known manner. The lower ends of the standards are provided with rollers 8 which are slidable in the guideways 5 at the sides of the turn-table. The carriage 6 is provided with horizontally disposed arms 9 and with a horizontally disposed support or bearing 10, the lower end of the said support revolubly

receiving the lower end of a rod 11, the upper end of the said rod being mounted in the bearing of a support 12 at the upper end of the carriage. This rod is provided at its upper and lower ends with fixed disks 13 to which are eccentrically pivoted the actuating members 14 of horizontally movable spring bolts 15. These bolts are adapted to be engaged in the sockets 16 of keepers 17, the said keepers being secured to the car upon the vertical side portions of the doorways. A shaft 18 is mounted at the upper end of each doorway and it is provided with suitably spaced rollers 19 which are adapted to be engaged with stops 20 upon the carriage 6 to limit the outward sliding movement of the latter. Stub shafts 21 are located adjacent to the lower ends of the doorways, and as shown, the rollers 22 of the shafts 20 slidably support the arm 23 of the carriage. A horizontal shaft 24 is revolubly supported at its ends in bearings at the sides of the carriage, and as shown, this shaft receives the bearing portion 25 of the arms 26 of a yoke, the said yoke being provided with an arm 27 to which is secured the outer end of a helical spring 28, the inner end of the spring being connected in the eye 29 of a bolt 30. This bolt is suitably mounted in the carriage 6 and has operatively engaged therewith an adjusting wheel 31, the said wheel being arranged for operation whereby the yoke may be adjusted for a purpose to be hereinafter described. The shaft 24 has secured thereto the inner ends of arms 32 which are provided at their outer ends with slide members 33, the said slide members being mounted upon the upper arms 34 of vertically disposed spaced yokes 35. The arms 34 are each provided with a pair of rods 36 whose end portions are secured to ears 37. These rods have mounted thereon coil springs 38 whose inner ends bear against the slide members 33 to hold them centrally of the arms 34. The upper arms 34 of the yokes 35 have secured thereto horizontal rods 39 upon which the brackets 40 of a horizontal head 41 are supported. Coil springs 42 are mounted upon the rods 39 to bear against the end portions of the brackets 40 to hold the head 41 positioned immediately between the arms of the yokes 35 as will be understood.

The head 41 is revolubly connected with the member 43 of a mail bag collecting apparatus 44. This apparatus consists of a frame 45 which is formed with depending spaced flanges 46 in which the ends of rods 47 are secured. These rods have slidably mounted therein the brackets 48 of the substantially U-shaped members 49. Cushioning elements 50 are interposed between the bearing brackets 48 and the depending flanges 46 of the frame 45 whereby the collecting apparatus is mounted yieldingly for

sliding movement as is obvious. The members 49 are disposed horizontally and they are spaced from each other as shown particularly in Fig. 1 of the drawings and they have interposed therebetween plates 51. These plates have arms 52 which are pivoted to the vertical portions of the members 49. The vertical portions of the members 49 are provided with stop pins 53 which are adapted to be engaged by shoulders 54 upon the plates 51. One plate is formed with a dog 55 beneath which the connection portion 56 of a bail 57 is engaged. This bail is formed with side arms 58 and with an outer connecting arm 59. The bail is pivoted upon a horizontally disposed rod 60 around which is coiled a spring 61 which exerts its tension against the bail. The lower fingers 62 are adapted to be moved through the channels 63 which are formed upon a corrugated sheet metal platform 64. This platform is mounted upon outwardly extending arms 65 which are carried by the stationary frame 66 of the bag receiving apparatus which may be located at a mail receiving and delivering station. The outer ends of the arms 65 are provided with horizontally disposed pivoted brackets 67 which support vertical rollers at their outer ends. These arms are engaged by springs 68 which exert their tension to hold the brackets 67 against stops 69 as shown in Fig. 13 of the drawings.

The frame 66 is provided with a plurality of spaced members 70, a plurality of which being pivoted upon the shaft 71 of the platform 64. The remaining members are pivoted upon a shaft 72. The members 70 which are pivoted upon the shaft 71 are each formed from upper and lower pivotally connected sections 73 and 74, the upper section of each member being provided with a shoulder 75 which engages a similar shoulder 76 upon the section 74 to hold this section against movement in one direction. Casings 77 are mounted upon arms 65 upon the platform 64, and as shown, these casings are provided with slots 79 in which the upper sections 73 of the members 70 are adapted for limited swinging movement, each casing being provided with a stop 80 to hold the upper section 73 against swinging movement in one direction. The casings are provided with springs 81 which are engaged with the upper sections 73 to hold them normally against the stops 80. Plates 84 are mounted upon a pivoted rod 85 which latter is secured to the members 70. The intermediate member 70 is provided with a bracket 86 which is formed with fingers 87 which are adapted to engage the adjacent member 70 whereby all of the members may be moved in one direction simultaneously. This construction is such that the intermediate plate is mounted for movement in two

directions for a purpose to be hereinafter explained. Upon reference to Fig. 9 of the drawings it will be seen that the members 70 are arranged in spaced parallel series so as to be actuated upon movement of a train in either direction.

The lower arms 88 of the yokes 35 support a platform 89 which is formed from corrugated sheet metal, the said platform being formed with guideways 90 for accommodating the lower extremities of the members 70.

The frame 66 supports a bag receiving receptacle 91 which is located immediately beneath the members 70 of the frame. This receptacle is provided with a cover which is formed of sections 92 and 93 which are hinged at their outer ends to the end walls of the receptacle, suitable springs 94 being employed for holding the sections of the door against a stop 95. The receptacle is provided at one side with a door 96 which is provided for the purpose of gaining access to the receptacle when it is desired to remove the mail bags therefrom. A vertically movable platform 97 is yieldingly mounted upon springs 98 in the receptacle, and as shown, the said platform is connected with the lower end of a rod 99 of a locking mechanism, the upper end of the rod being secured to the lower end of a helical spring 100. This spring is secured to the arm 101 of an angle lever, the arm 102 of the said lever being positioned beneath the stop 95. When weight is applied to the platform 97 to depress it the locking mechanism will be actuated automatically to hold the sections of the door against swinging movement in either direction, thus preventing the removal of the contents of the receptacle by any one not authorized to perform such duty. The receptacle is provided at its upper end portion with oppositely extending substantially V-shaped members 103 against whose surfaces guide rollers 104 may be engaged so that in movement of a train its delivering and receiving apparatus will be correctly positioned immediately above the receptacle.

The platform 89 supports adjacent to its end portions spring tension shafts 105, each of which being slotted at 106 to receive the hooked end 107 of a bag retainer 108 which is adapted to extend longitudinally of the platform and whose free end is adapted to be yieldingly engaged with the bag to hold it against casual displacement as will be understood. A suitable operating lever 109 is provided for each shaft 105 whereby it may be moved against the tension of its spring to move the bag retainer out of engagement with the bag.

The yokes 35 are connected to each other by an arcuate rail 110 against whose side faces are engaged spaced rollers 111. These

rollers are carried by an arm 112 which is slidable upon spaced rods 113. The shaft 11 of the carriage 6 is provided with an outwardly extending ear 114 to which is pivoted for vertical movement guide bracket 115. These brackets receive the intermediate portions of the rods 113, and as shown, coil springs 116 surround the forward portions of the rods 113 and have their outer ends seated against the inner end of the arm 112, the inner ends of the springs bearing directly against the brackets 115. Coil springs 117 are coiled about the rear ends of the said rods and their forward ends bear against the inner ends of the brackets, the rear ends of the springs bearing against a head 118 which latter is employed for the purpose of connecting the rods with each other at their rear ends. It may be stated that the said rods have their inner ends threaded and they receive clamping nuts which may be brought into frictional engagement with the head 118 to compress the springs. The outer end of the arm 112 is formed with spaced leaf springs 119 which are adapted to be engaged with the rollers of the brackets 67 for a purpose to be hereinafter explained.

The turn-table 3 supports a revoluble shaft 120 upon which is mounted a spring tension drum 121. This drum has wound thereon one end of a cable 122, the other end of the said cable being secured to a suitable number of guide rollers 124 which are mounted upon the turn-table for guiding the cable in its movement. A drum 125 is mounted upon the turn-table and its shaft is provided with a pinion 126 which is engaged with a pinion 127 upon one end of a countershaft 128, the other end of the said shaft being provided with a bevel pinion 129 which meshes with a correspondingly formed pinion at the lower end of a vertical shaft 130. The upper end of the shaft is provided with a bevel pinion which meshes with a corresponding pinion or a crank shaft 131. The construction of the spring drum and its connection with the carriage is such that the carriage is normally held within the car and when the car-engaging bolts 15 are moved to their disengaged positions from their keepers the carriage will be automatically drawn into the car as will be understood. When it is desired to move the carriage to its extended position the crank shaft 131 can be actuated to wind the cable 132 onto the drum 125. The turn-table is provided with a sliding bolt 133 which is spring-pressed whereby it will be seated operatively in the socket or keeper 134 in the bottom of the car. A suitable foot lever 135 is carried by the turn-table and it is operatively engaged with the sliding bolt whereby it may be actuated when it is desired to rotate the turn-table. It will of course be understood that the bot-

tom of the car is provided with a socket member or keeper adjacent to each doorway for receiving the locking bolt.

As an auxiliary support for the yokes 35 I connect them with yieldingly supported slidable rods 136 which are supported by the carriage 6 and mounted preferably upon a horizontal shaft 137'.

In operation of the apparatus a mail bag 10 to be delivered from the car is mounted upon the platform 89, after which the carriage is moved to the position shown in Fig. 1 of the drawings. Should it be desired to deliver a bag to the receiving and 15 delivering apparatus of the car it is placed upon the platform 64 of the frame 66. It will be seen that in movement of the car the receiving and delivering apparatus thereof will be moved directly above the 20 platform 89, the engagement of the bag with the members 70 serving to move them inwardly and upwardly. Incident to the fact that these members are mounted with the exception of the intermediate member 25 for swinging movement only in an inward direction the bag when positioned between the members of the two parallel series cannot become misplaced therefrom. By engagement of the bag against the members 30 in movement of the apparatus past its discharged position the bag will be effectively released from the retaining spring 108, and incident to the provision of means whereby the intermediate member 70 of each series 35 is free for movement in either direction the said retaining springs can be effectively withdrawn or moved outwardly. As soon as the delivering and receiving apparatus of the car has moved past its discharge position 40 the bag will fall upon the sections 92 and 93 forming the hinged closure for the receptacle 91 and will be accurately deposited therein. The springs 98 for supporting the platform 97 act as a cushion to retard 45 the downward movement of the platform. Assuming a bag to be placed upon the platform 64 of the frame 66 and the car moving, the members 49 will grasp the bag and collect it, the impact of the bag against the 50 intermediate plate 51 being sufficient to actuate it to release the bag retaining bail from the locking dog 55, whereupon, the bail will under the influence of the spring 61 be brought yieldingly into engagement 55 with the bag to hold it against casual displacement. As hereinbefore stated the roller carrying brackets 67 at the ends of the arms 65 of the frame 66 are free for swinging movement toward each other thus 60 allowing the arm 112 to be engaged with the rollers in delivering a bag from the delivering and receiving apparatus of the car to the receiving and delivering apparatus at the station. The construction is such that 65 when a bag has been delivered from the

car the arm 112 will be engaged with the roller of the bracket 67 toward which it is approaching and when engaged therewith a slight rocking movement of the arm 112 will result. Incident to the fact that the 70 arm is carried by the shaft 11 it will be seen that rocking movement of the shaft as above described will actuate the rods 14 to move their bolts out of engagement with the car. Immediately upon release of the 75 bolts from the car the receiving and delivering apparatus of the car will be moved to its inoperative position. In other words the car receiving and delivering apparatus will be moved directly into the car ready 80 for the next operation.

It may be stated that the frame 66 is provided at a point immediately above the receptacle and in spaced relation thereto with a guide member 137 which is adapted to co- 85 operate with the guide rollers 138 upon the arms 34 of the yokes 35. The under surfaces of the member at the end portions thereof are flared upwardly and outwardly and away from the downwardly and out- 90 wardly extending surfaces of the members 103 whereby a throat with flared upper and lower walls is provided at each end of the said frame 66. This construction is such that the collecting and delivering appa- 95 ratus of the car can be more accurately positioned with respect to the collecting and delivering apparatus of the frame 66. It will of course be understood that the springs 68 which are employed to exert their tension 100 against the brackets 67 to hold them normally against the stops 69 are very weak so that engagement of the arm 112 therewith in collecting and receiving movement of the apparatus of the car the arm 112 will 105 not be rotated sufficiently to release the locking mechanism from the car.

The collecting and delivering apparatus of the car is provided with a spring latch member 139 which may be automatically en- 110 gaged with either the stub shaft 21 to limit the inward sliding movement of the carriage.

I claim:—

1. In apparatus of the class described, a 115 car having movable bag collecting and delivering mechanism adapted to be extended from either side of the car, locking bolts adapted to be engaged with the car to hold the said bag collecting and delivering mech- 120 anism extended therefrom, a frame located adjacent to the car and provided with bag collecting and delivering mechanism for co-operating with the bag collecting and delivering mechanism of the car, and means upon 125 the frame for operating the said locking bolts whereby the bag collecting and delivering mechanism of the car can be moved to its inoperative position.

2. In apparatus of the class described, a 130

car having movable yieldingly supported bag delivering and collecting mechanism adapted to be extended from either side of the car to assume an operative position, locking means upon the mechanism for engaging the car to hold the mechanism in its operative position, means for moving the mechanism into the car upon release of the said locking mechanism, and stationary delivering and collecting mechanism disposed in the path of movement of the first named mechanism to cooperate therewith, said stationary mechanism having means for engaging the locking means of the first mechanism after delivering and collecting of the bags.

3. In apparatus of the class described, a car having a movable carriage mounted therein and provided with bag delivering and collecting mechanism adapted to be extended from either side of the car, means for limiting the outward movement of the carriage, bag delivering and collecting mechanism located in the path of movement of the first mechanism and adapted to cooperate therewith, locking mechanism upon the carriage for engaging the car to hold the bag delivering and collecting mechanism thereof in its operative position previous to the discharge and collection of the bags, means upon the second mechanism for releasing the locking mechanism after movement of the first mechanism past the said second mechanism, and means for automatically moving the carriage into the car after release of the said locking mechanism.

4. In apparatus of the class described, a car having a turn table mounted therein, a carriage slidable on the turn table and provided with bag delivering and collecting mechanism adapted when the carriage is moved to the outward limit of its movement to be extended from one side of the car, means upon the carriage for limiting the outward sliding movement thereof, and bag delivering and collecting mechanism located in the path of movement of the first mechanism and adapted to cooperate therewith.

5. In apparatus of the class described, a car having a turn table mounted therein and provided with a locking dog for engaging the car to hold the turn table against rotation, a sliding carriage mounted upon the turn table and provided with bag delivering and collecting mechanism adapted to be extended to an operative position at either side of the car, locking means upon the carriage for engaging the car, spring means engaged with the carriage for moving it to its inoperative position upon release of the said locking means, stationary mechanism for cooperating with the first mechanism, and means upon the stationary mechanism for actuating the said locking mechanism whereby by the first mechanism can be automatically

moved into the car after delivery and collection of the bags.

6. In apparatus of the class described, a carriage having bag delivering and collecting mechanism yieldingly supported thereon, a rotary shaft mounted upon the carriage, locking mechanism operatively engaged with the shaft and adapted for locking engagement with the car to hold the carriage in an extended position, an arm yieldingly supported upon the shaft, a track carried by the said delivering and collecting mechanism, rollers carried by the arm to travel on the track, means for moving the mechanism to its inoperative position upon release from the car of the locking means, stationary bag delivering and collecting mechanism located in the path of movement of the first mechanism, and means upon the second mechanism for engaging the said arm after delivery and collection of the bags to actuate said locking means and to move it to released position.

7. In apparatus of the class described, a car having bag collecting and delivering mechanism adapted to be extended to an operative position at either side of the car, a bag supporting platform carried by the mechanism, a stationary delivering and collecting mechanism having means for releasing the bag from the said platform, a receptacle carried by the second mechanism, and inwardly swinging doors at the top of the receptacle.

8. In apparatus of the class described, a car having bag delivering and collecting mechanism, stationary bag collecting and delivering mechanism, the collector of the second mechanism comprising a receptacle, a spring platform mounted in the receptacle, inwardly swinging closures at the outer end of the receptacle, and platform actuated means for locking the closure against swinging movement in either direction after deposit into the receptacle of the bag.

9. In apparatus of the class described, a car having bag collecting and delivering mechanism embodying a plurality of substantially U-shaped members, pivoted plates between the said members, spring tension bag engaging means adapted to be moved to its operative position upon inward swinging movement of one of the plates, a stationary bag delivering and collecting mechanism, said second mechanism having a bag supporting platform adapted to support the bag in a position to be removed from the platform by the collecting members, a series of movable members carried by the said stationary collecting and delivering mechanism, plates pivotally mounted between the said last named members, one of said plates being adapted for swinging movement in either direction, means whereby the remaining plates can only be moved in one direc-

tion, a bag supporting platform upon the first mechanism for cooperating with the said pivoted plates and the said pivoted members of the second mechanism, and a receiving receptacle located beneath the said pivotally mounted plates and the said pivotally mounted members of the second named delivering and collecting mechanism.

10. In apparatus of the class described, a car having a bag collecting and delivering mechanism embodying a plurality of collecting members, movable plates between the members, bag-gripping means adapted to be moved into engagement with the bag upon movement of one of the plates, a stationary bag delivering and collecting mechanism, said second mechanism having a bag-supporting platform for supporting the bag whereby it may be collected by the said collecting members of the first named mech-

anism, a series of movable members carried by the said stationary collecting and delivering mechanism, plates pivoted between the said last named members, one of the said plates being adapted for swinging movement in either direction, the remaining plates being mounted for movement in one direction, a bag-supporting platform upon the first mechanism for cooperation with the said pivoted plates and the said members of the second mechanism, and a receiving receptacle located in position to receive the bag after collection thereof by the second mechanism.

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

WILLIAM M. BANKS.

Witnesses:

S. H. POWELL,
SAM WATTS.