

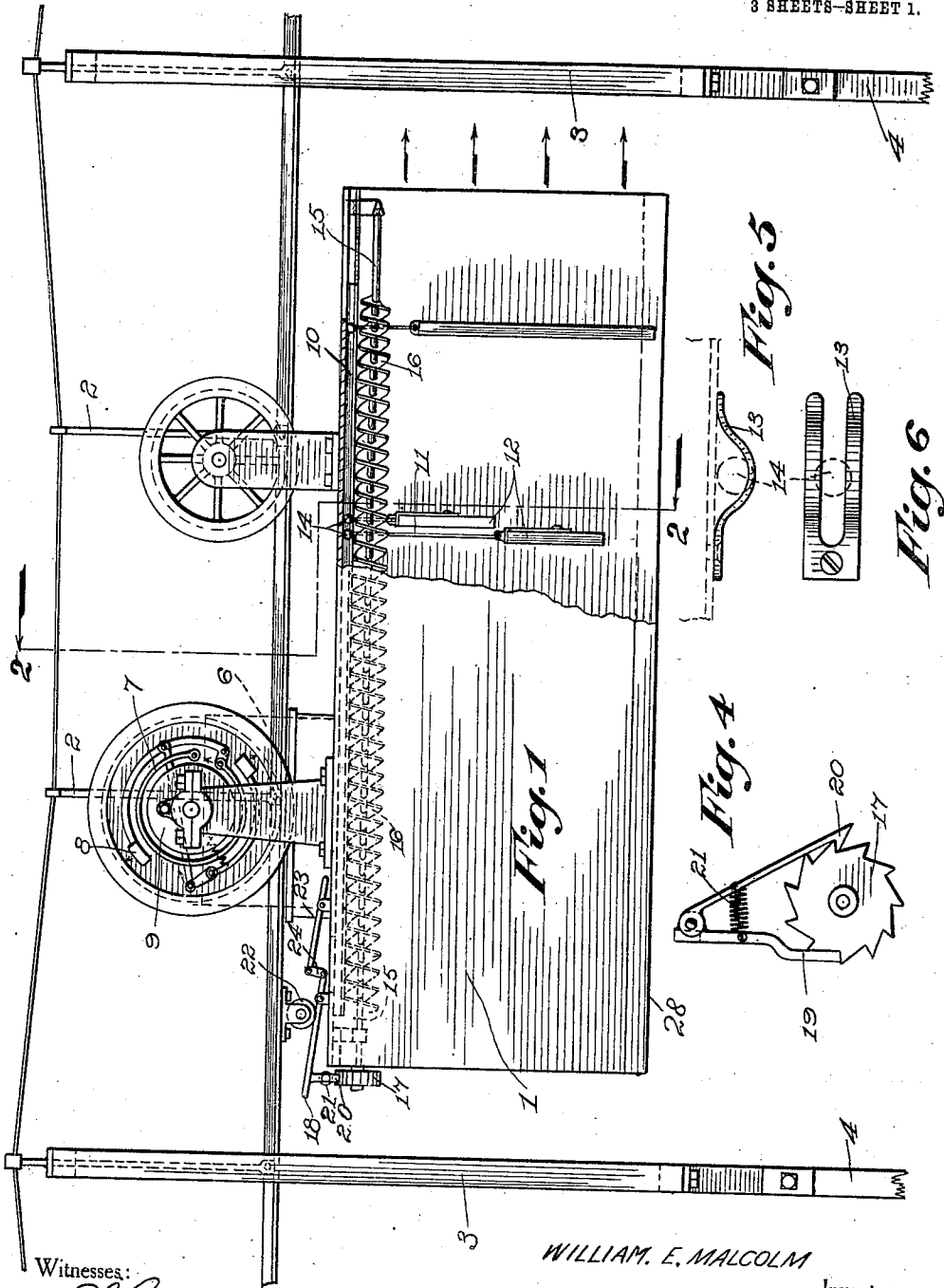
W. E. MALCOLM.
MAIL CARRIER.

APPLICATION FILED OCT. 26, 1910.

995,696.

Patented June 20, 1911.

3 SHEETS-SHEET 1.



Witnesses:

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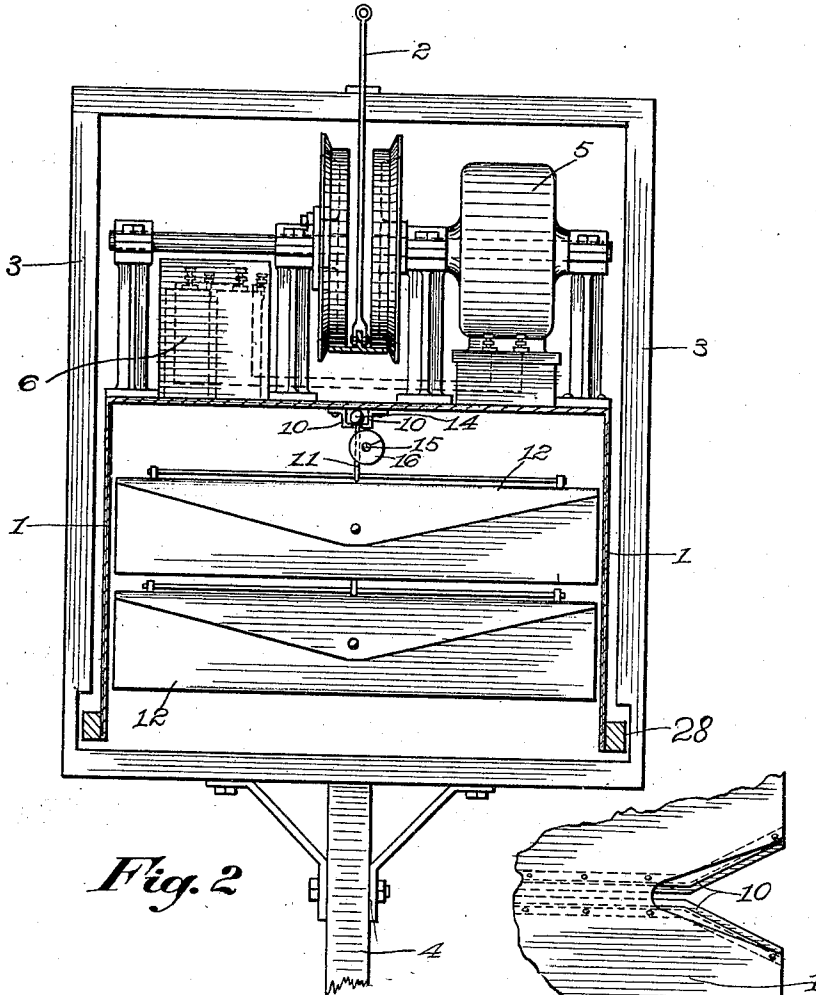


Fig. 2

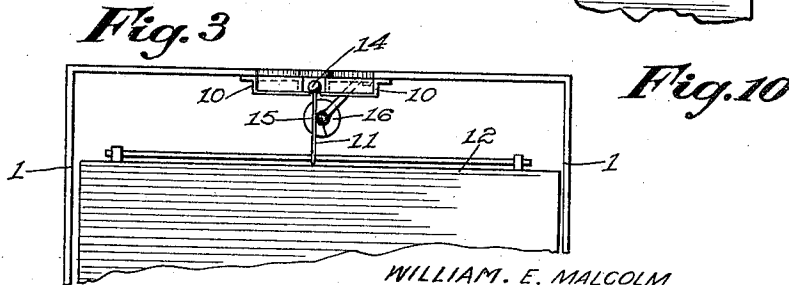


Fig. 3

Fig. 10

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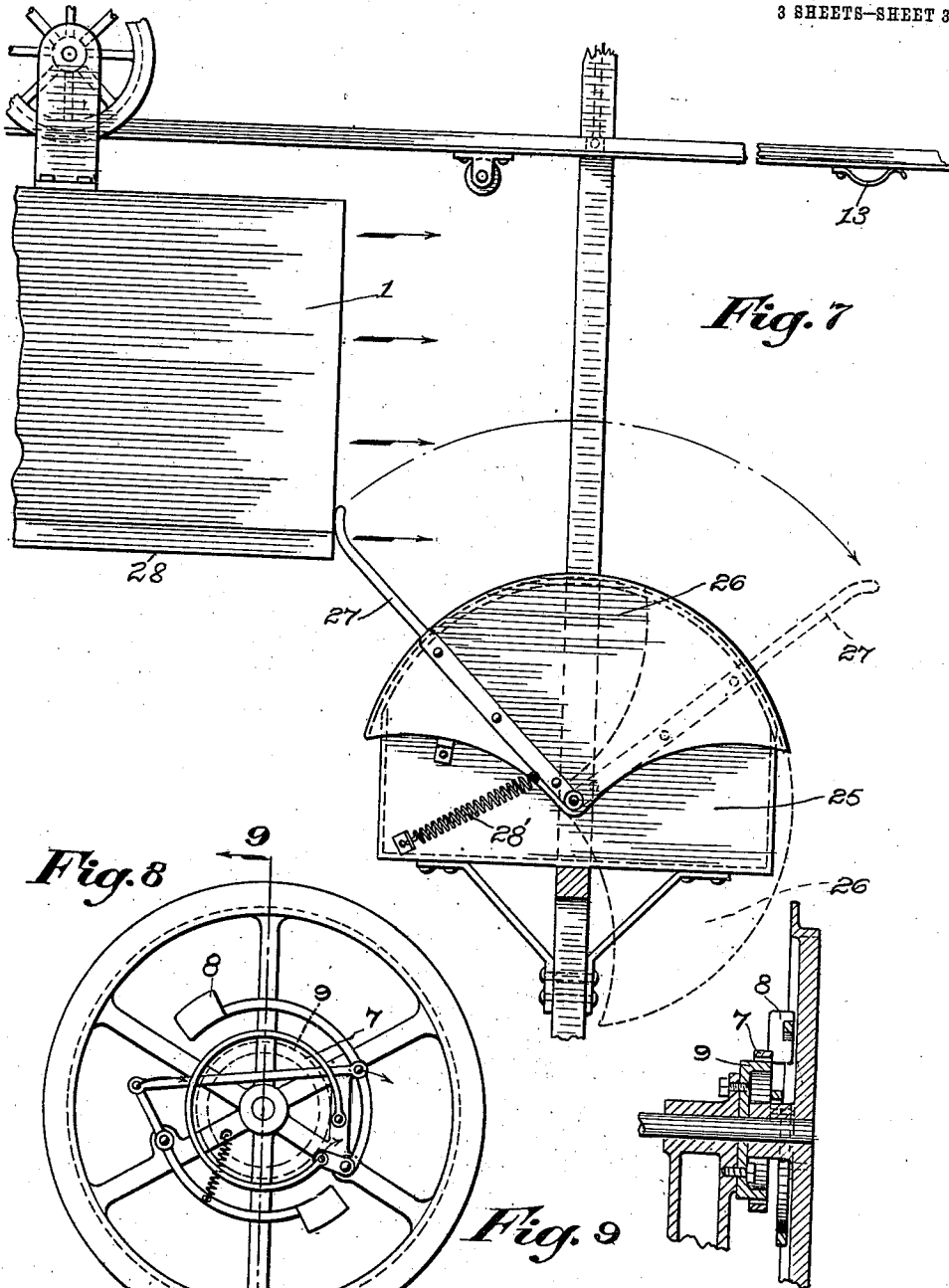
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UNITED STATES PATENT OFFICE.

WILLIAM EDGAR MALCOLM, OF ALMENA, KANSAS.

MAIL-CARRIER.

995,696.

Specification of Letters Patent. Patented June 20, 1911.

Application filed October 26, 1910. Serial No. 589,109.

To all whom it may concern:

Be it known that I, WILLIAM EDGAR MALCOLM, a citizen of the United States of America, residing at Almena, in the State of Kansas, United States of America, have invented certain new and useful Improvements in Mail-Carriers; and I do hereby declare that the following is 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.

The invention to be hereinafter described relates to automatic mail collecting and delivering apparatus and systems.

Broadly speaking, it comprises an over head track, a car suspended from the track to travel thereon, a run-way mounted in the car and adapted to support suitable frames for holding mail or parcels, means for supporting the frames to be collected by the car, means for moving the frames longitudinally of the car from one end toward the other, automatically operated devices for actuating this means, and boxes adapted to receive the mail frames from the car.

In order to more clearly disclose the construction, operation, and use of the invention, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several figures of the drawings like reference characters designate the same parts.

In the drawings: Figure 1 is a side elevation of the invention, partly broken away; Fig. 2 is a vertical cross section on line 2—2 of Fig. 1, looking in the direction of the arrow; Fig. 3 is an enlarged end view of the run-way for the mail frames and the means for moving the frames; Fig. 4 is an enlarged detail of the device for operating the frame moving means; Fig. 5 is a side elevation of the device for supporting the frame in position for collection; Fig. 6 is a bottom plan view of Fig. 5; Fig. 7 is a side elevation of the mail box, showing its automatic operation; Fig. 8 is a side elevation of the governor brake; Fig. 9 is a vertical cross section on line 9—9 of Fig. 8, looking in the direction of the arrows; and Fig. 10 is an enlarged fragmentary view of the receiving entrance at the forward end of the car.

Referring to the drawings in detail, 1 indicates the body of the car which is formed with an inverted U cross section,

with open ends and bottom. This car is suspended by pairs of trolley wheels traveling on an over head rail formed as an inverted T and supported in any desired manner. The preferred support is by means of rods 2 passed downwardly through the top of rectangular frames 3 mounted on supporting posts 4. By this arrangement, the cars pass through the frames 3 and have free and uninterrupted travel from end to end of the track. The car may be driven by a motor 5 supplied with power from a storage battery 6, mounted on the top of the car. In order to prevent excessive speed, especially on down grades, a brake 7 controlled by a governor 8, may be used. This brake, though connected to and carried by one of the supporting wheels of the car, surrounds a drum 9 solidly secured to one of the stationary bearings of the wheel axle. The action is clear, and needs no further description. Arranged centrally and longitudinally within the upper part of the car, and, preferably, connected to the top of the car, are two coöperating L shaped angle irons 10. These two irons are so arranged as to leave a narrow space between their adjacent edges. The forward ends of the irons are spread to form a V at the top of the car, above this V is cut away to form a V of slightly greater size, and extending inwardly beyond the end of the first V—see Fig. 10. These V's are adapted to receive the shank of a wire rod 11 of a mail carrying frame 12 and guided in between the walls of the angle irons. These rods 11 are each provided with a ball or round knob 14 adapted to be seated in the curve of a fork or prong 13 secured to the under face of the track.

As the car is driven forward, in the direction of the arrows of Fig. 1, the rear edge of the V in the top of the car body will engage the shank of the wire rod 11 and force its knob from the supporting fork 13. As the free rod drops, its knob or ball 14 will rest upon the horizontal arms of the angle irons 10 and be supported thereby, within the car body. Directly beneath one of the angle irons 10, and extending from end to end of the car body, is journaled a rotary shaft 15. This shaft is provided with a screw conveyer 16 which extends across beneath the space between the adjacent edges of the angle irons 10. As the shaft 15 rotates, the conveyer 16 will engage the shanks of the rods 11 and force them rearwardly

through the car body, the balls 14 sliding freely on the angle irons 10. In order to effect rotation of the shaft 15 and its conveyer, a ratchet wheel 17 has been secured to the rear end of the shaft. On the top of the car body, near its rear end, is pivotally mounted a lever 18 from the long end of which projects a finger 19 adapted to engage the teeth of the ratchet wheel 17 and rotate it one step each time that the long arm of the lever is depressed. To the long arm of the lever is also connected a dog 20 adapted to engage the teeth of the ratchet wheel 17 and rotate it one step each time that the long arm of the lever is raised. Thus, the ratchet wheel will be rotated one step at each movement of the lever. The dog 20 is pivoted to the lever arm and is provided with a beveled end to allow it to slide freely downward over the ratchet teeth as the long arm of the lever is depressed. A spring 21 acts to draw the dog 20 to operative position, while at the same time permitting the dog to move outwardly far enough to allow it to slide down over the teeth of the ratchet wheel each time that the long arm of the lever is depressed. Blocks, rollers, or similar lever depressing devices 22 are secured to the under face of the track in such position as to operate the lever just before the forward end of the car passes beneath each of the forks 13. In order to cause upward movement of the long arm of lever 18, a second or forward lever 23 is provided. This lever is connected by a link 24 to the free end of lever 18 and is adapted to be engaged and depressed by the device 22. Thus, depression of lever 23 effects raising of the long arm of lever 18. Consequently, as the car approaches each receiving station, or fork 14, the conveyer will be automatically operated to move the last collected mail holding frame rearwardly and out of the way of the frame just about to be collected.

It should be noted, that the devices for rotating the shaft 15 and conveyer 16 will always be operated at every receiving station, regardless of whether mail is actually collected or not. Thus, there are a fixed number of rotations of the shaft and conveyer for every trip that the car makes. This fact is brought to bear in using the car to deliver mail in the same route and on the same trip as that on which it collects mail. The mail carriers to be delivered are simply distributed within the rear part of the car body in such position as to be automatically delivered at their proper stations. At each receiving station, and below the track, is mounted a letter box or receiver 25. The top of this box is covered by a pivotally mounted curved top 26 provided with an arm 27 adapted to be engaged and swung by a flange 28 extending longitudinally of

the car. As the arm swings to the dotted line position of Fig. 7, the receiver will be opened. The dotted line position will be maintained until the rear end of the car passes and releases the arm 27; then a spring 28' will immediately return the arm 27 and cover 26 to original position. The receivers 25 are so placed, relatively to the lever operating devices 22, as to be opened at the instant that a mail frame might be delivered from the rear of the car body. In this way, the same car acts both to collect and deliver. The entire apparatus is automatic and positive in action. It is only necessary to arrange the mail frames in their proper positions for delivery at the desired points and then start the car on its trip. When it returns, all mail will have been delivered and all mail for collection will be hanging inside the car from whence it may be easily unloaded and sorted.

It is thought that the operation and use of the invention will be clear from the preceding detailed description.

Changes may be made in the construction, arrangement, and disposition of the several parts of the invention without in any way departing from the field and scope of the same and it is meant to include all such within this application wherein only a preferred form has been disclosed.

I claim—

1. In combination, a track, an open ended car mounted to travel thereon and provided with a collecting notch in the top edge of its forward end, guide ways adapted to slidably support mail holding frames within said car and formed with diverging receiving ends, mail holding frames, means for supporting said frames in the path of travel of said car, a screw conveyer mounted in said car body between said guides and adapted to engage said frames and move the same rearwardly, pawl and ratchet mechanism for operating said conveyer and means for actuating said conveyer immediately prior to the collection of each mail holding frame.

2. In combination, a track, an open ended car mounted to travel thereon and provided with a collecting notch in the top edge of its forward end, guide ways adapted to slidably support mail holding frames within said car and formed with diverging receiving ends, mail holding frames, means for supporting said frames in the path of travel of said car, a screw conveyer mounted in said car body between said guides and adapted to engage said frames and move the same rearwardly, and means for actuating said conveyer immediately prior to the collection of each mail holding frame.

3. In combination, a track, an open ended car mounted to travel thereon and provided with a collecting notch in the top edge of its forward end, guide ways adapted to slid-

ably support mail holding frames within
said car and formed with diverging receiv- 15
ing ends, mail holding frames, means for
supporting said frames in the path of travel
of said car, a screw conveyer mounted in
5 of said car, a screw conveyer mounted in
said car body between said guides and adapt-
ed to engage said frames and move the same
rearwardly, and means for actuating said
conveyer.

10 4. In combination, a track, an open ended
car mounted to travel thereon and provided
with a collecting notch in the top edge of
its forward end, guide ways adapted to slid-
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said car and formed with diverging receiv- 15
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of said car, a conveyer mounted in said car
body between said guides and adapted to
engage said frames and move the same rear- 20
wardly, and means for actuating said con-
veyer.

In witness whereof I have hereunto set
my hand in the presence of two witnesses.

WILLIAM EDGAR MALCOLM.

Witnesses:

ANNIE MALCOLM,

T. E. DYATT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
