

No. 745,498.

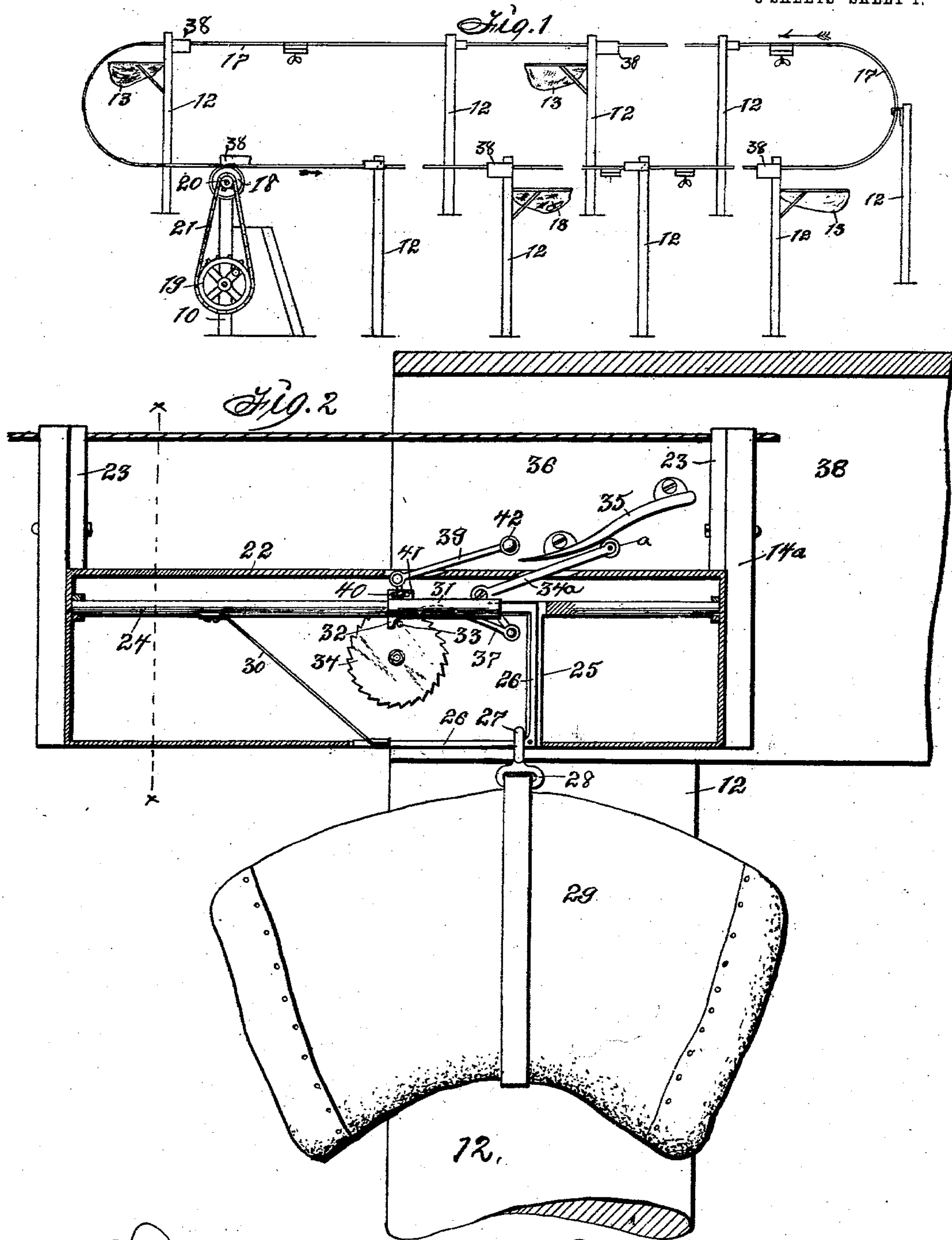
PATENTED DEC. 1, 1903.

N. S. HOWELL.
SUBURBAN MAIL DELIVERY APPARATUS.

APPLICATION FILED MAY 25, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



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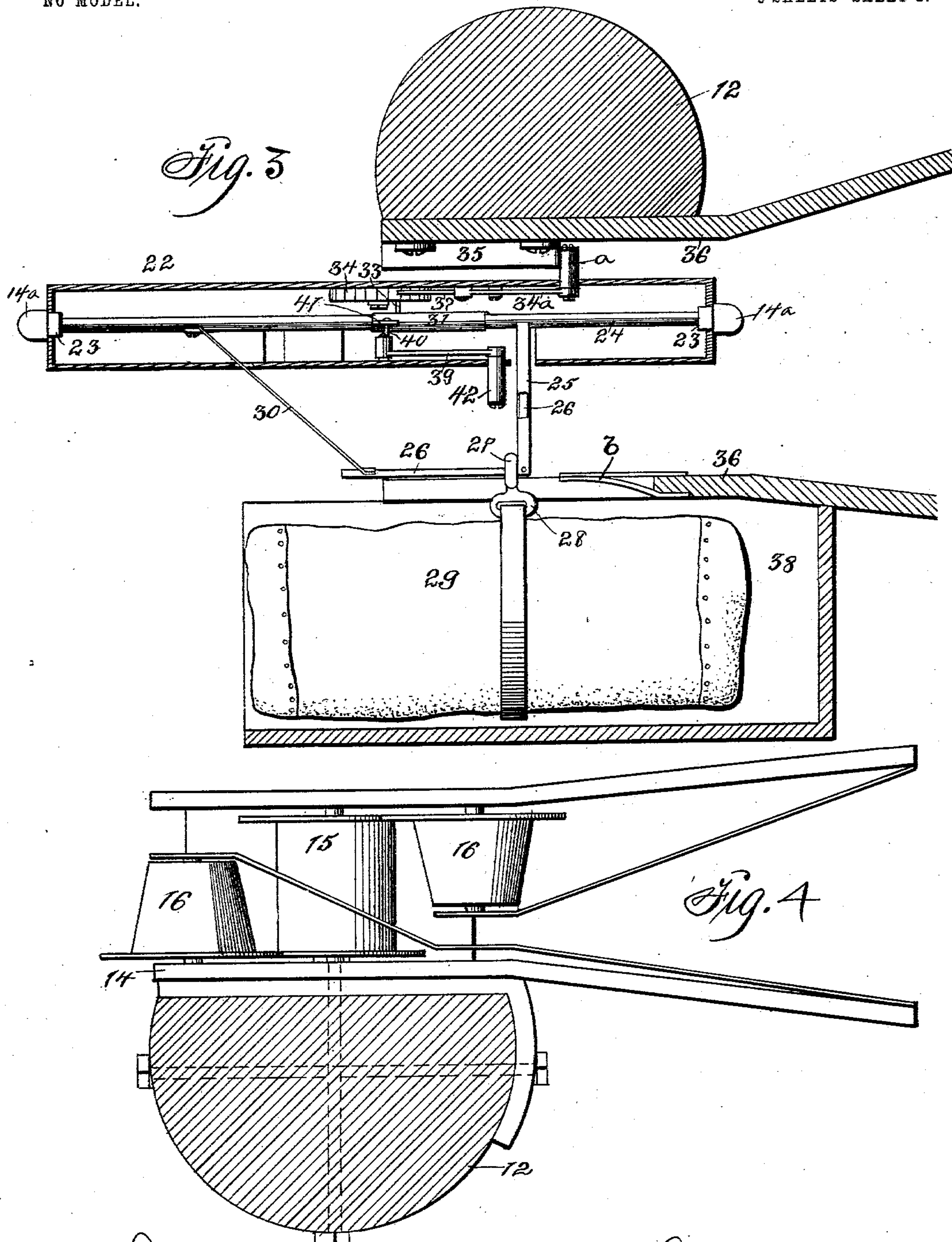
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3 SHEETS—SHEET 2.



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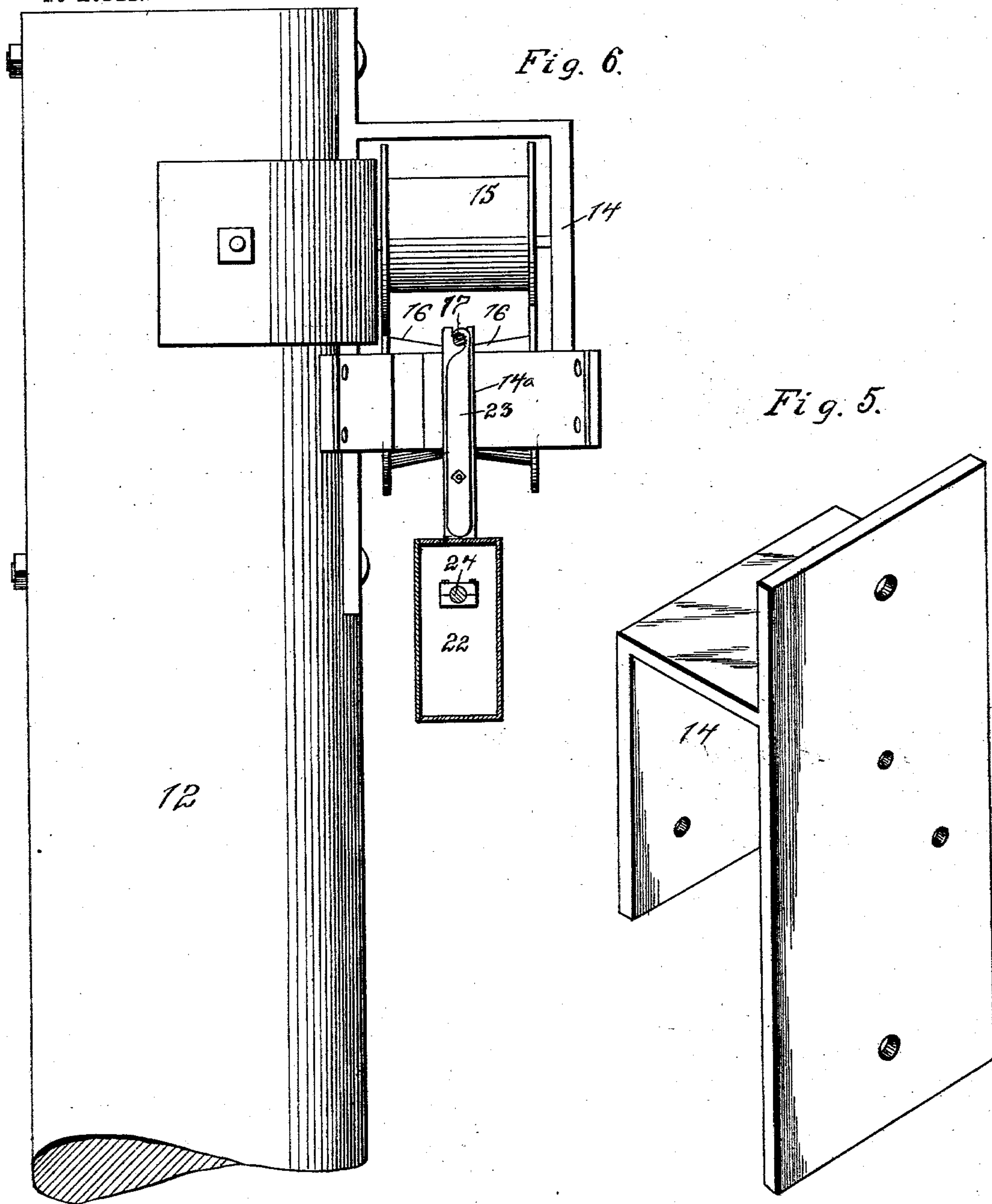
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3 SHEETS—SHEET 3.

Fig. 6.

Fig. 5.



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UNITED STATES PATENT OFFICE.

NELSON S. HOWELL, OF CUMMING, IOWA.

SUBURBAN MAIL-DELIVERY APPARATUS.

SPECIFICATION forming part of Letters Patent No. 745,498, dated December 1, 1903.

Application filed May 25, 1903. Serial No. 158,645. (No model.)

To all whom it may concern:

Be it known that I, NELSON S. HOWELL, a citizen of the United States, residing at Cumming, in the county of Warren and State of Iowa, have invented a new and useful Suburban Mail-Delivery Apparatus, of which the following is a specification.

My object is to save the labor and expense incident to the employment of persons, horses, and vehicles in the rural mail-delivery service and to facilitate the transmission of mail-matter by means of machinery without employing individuals as carriers and subjecting them to the exposure of rain, heat, and cold in making daily tours over their delivery-routes.

My invention consists in the construction and arrangement of elements and subcombinations, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view representing a circuit of stations or farm-residences connected with a post-office station by means of an endless cable that is supported upon fixed posts on which operative devices are combined as required for automatically delivering mail-sacks while the endless cable is in motion. Fig. 2 is an enlarged side view, partly in section, of a frame detachably fastened to an endless cable and trip mechanism connected therewith adapted for holding and carrying and automatically dropping a mail-bag when the cable is in motion. Fig. 3 is a horizontal sectional view of the frame-and-trip mechanism, partly in section, and a box for supporting a mail-bag that is to be automatically connected with the moving cable and carried from a station along the line to the main distributing and receiving station. Fig. 4 is a transverse sectional view of a post and metal frame fixed to the post to support rollers and guides for directing the movement of the cable. Fig. 5 is a perspective view of a cast-iron frame adapted to be fixed to a post for supporting rollers. Fig. 6 is a transverse elevation on the line $x x$ of Fig. 2 and shows the relative positions of the rollers mounted in the frame fixed to a post, guides for directing the frame detachably fastened to the cable, and the box carried by the frame suspended from the cable.

The numeral 10 (shown in Fig. 1) designates a fixed post at a main station for sending out mail-sacks to way-stations and receiving sacks returned from way-stations by means of an endless cable.

A plurality of posts 12 are fixed along the route of delivery, and at each way-station where mail is to be delivered a receptacle 13 is fixed to the post and adapted in form and position for dropping a mail-sack into it from a carrier suspended from an endless cable that is supported upon rollers mounted on the fixed posts along the line and route.

A frame 14, preferably cast-iron, complete in one piece, as shown in Fig. 5, is fixed against the tops of posts by means of bolts, and a straight roller 15 mounted in its top portion, as shown in Fig. 6, and two cone-shaped rollers 16 in a lower plane and at the sides of the roller 15, as shown in Fig. 4, for supporting an endless cable 17, that is extended over the said rollers and coiled around a drum 18, mounted at the top of the post 10, as shown in Fig. 1.

A driver-wheel 19 is mounted on the post 10 below the drum 18 and connected with the drum by means of a gear-wheel 20 and chain 21 or in any suitable way as required to impart motion to the drum and cable.

Bars 14^a are connected with the ends of a box 22, that constitutes a part of the frame, and the tops of the ends are adapted in shape to engage the cable 17, and for detachably fastening them to the cable clamping devices 23 are pivoted to the ends of the frame, as shown in Fig. 5, or in any suitable way so the frames can be readily and securely fastened to the cable as required to be carried by the cable.

A box or suspended frame adapted for carrying a mail-sack must be connected with the cable for each way-station on the route and each box provided with means for connecting a mail-bag therewith and also provided with trip mechanism for automatically releasing the mail-sack and dropping it into the receiving-receptacle 13 at the station where it is to be delivered.

A rock-shaft 24 in each mail-sack carrier has an arm 25 projecting downward into an open space in the bottom of the box 22 and a detachable elbow-shaped coupling device 26

pivoted to its lower end to project horizontally and to enter the eye 27 of a metal coupling 28, that is connected with a mail-sack 29 in such a manner that the sack can be suspended thereon, as shown in Fig. 2. A spring 30, fixed to the rock-shaft 24, engages the coupling device 26 as required to normally retain the sack in position as started at the main station. To automatically release a sack thus connected with the box suspended from the cable, a slide 31 is fitted to the rock-shaft 24 and provided with a stud 32 to engage a pin 33 on a ratchet-wheel 34, journaled to the inside of the box 22. To actuate the wheel 34 as required to release the coupling device 26, an elbow-shaped lever 34^a is pivoted to the box 22 and actuated by a cam 35, fixed to a box at the top of the post 12 in such a manner that an antifriction-roller *a* on the end of the lever will engage said cam and depress the long arm of the lever as the box 22 is advanced, and a pawl 37 on the short arm of the lever will impart an intermittent motion to the wheel 34, so that the pin 33 in contact with the stud 32 of the slide 31 will push the slide forward on the rock-shaft 24 to release the coupling device 26 to vibrate by the force of gravity in the mail-sack 29 and its contents as required to let the sack drop into the receptacle 13.

To attach a mail-sack 29 at a way-station to be returned to the main station, a box 38 is fixed to the top of each post 12, as shown in Fig. 1, and has an open end and partially-open top, as shown in Fig. 3, to admit a mail-sack 29 and to retain the eye 27 of the coupling 28 in proper position to admit the free lower end of the double-elbow-shaped device 26 while in a horizontal position to enter the eye 27 as required to connect the sack therewith and suspended thereby as the carrier-box 22 moves over the box 38 and draws the sack out of the box in which it was placed, to be then carried suspended from the box 22 until it reaches the main station or post 10, where it will be automatically released and dropped. To retain the eye 27 in proper position to allow the end of the device 26 to enter the eye, a holding device *b* is fixed to box 38, as shown in Fig. 3, or in any suitable way.

To release the sack 29 when it reaches the post 10 at the main station, an elbow-shaped lever 39 is pivoted to the box 22 and its short arm provided with a pin 40 to extend through a bridle 41 on the slide 31 and its long arm projected upward and rearward and provided with an elongated roller 42 on its end to be engaged by the fixed cam 35 as required to operate the slide 31 to release the coupling device 26, so as to allow it to vibrate and drop the sack 29 at the main station.

Having thus described the purpose of my invention and the construction and function of each element and subcombination, the practical operation and utility of the appa-

ratus will be readily understood by persons familiar with the art to which it pertains, and What I claim as new, and desire to secure by Letters Patent, is—

1. In a suburban mail-delivery apparatus, an endless cable supported upon rollers mounted on a line of fixed posts, means for operating the endless cable, a frame fastened to the cable to depend therefrom and a box adapted for carrying a mail-sack fixed to the frame and means for detachably fastening the mail-sack to the box at a main or distributing station, arranged and combined to operate in the manner set forth, for the purposes stated.

2. In a suburban mail-delivery apparatus, an endless cable supported upon rollers mounted on a line of fixed posts, means for operating the endless cable, a frame fastened to the cable to depend therefrom and a box adapted for carrying a mail-sack fixed to the frame, means for detachably fastening the mail-sack to the box at a main distributing station and trip mechanism connected with the box for automatically releasing a mail-sack at a station, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a suburban mail-delivery apparatus, an endless cable supported upon rollers mounted on a line of fixed posts, means for operating the endless cable, a frame fastened to the cable to depend therefrom and a box adapted for carrying a mail-sack fixed to the frame, means for detachably fastening the mail-sack to the box at a main or distributing station, trip mechanism connected with the box for automatically releasing a mail-sack at a station and automatic mechanism for detachably fastening a mail-bag to the cable at a way-station, arranged and combined to operate in the manner set forth for the purposes stated.

4. In a suburban mail-delivery apparatus, a fixed post, a box, open at its bottom and ends, fixed to the top of the post, a cable extended through under the top of the box, a box suspended from the cable, a rock-shaft journaled to the ends of the box, an arm projecting downward from the shaft, a double-elbow-shaped coupling device pivoted to the lower end of said arm and means for retaining the said shaft and coupling device stationary in the box, arranged and combined to operate in the manner set forth for the purposes stated.

5. In a suburban mail-delivery apparatus, a fixed post, a box open at its bottom and ends fixed to the top of the post, a cable extended through under the top of the box, a box suspended from the cable, a rock-shaft journaled to the ends of the box, an arm projecting downward from the shaft, a double-elbow-shaped coupling device pivoted to the lower end of said arm, a slide on the rock-shaft having a stud at one end and a ratchet-wheel mounted in the box and provided with a fixed

pin to engage said stud, and means to rotate the wheel, arranged and combined to operate in the manner set forth for the purposes stated.

5 6. In a suburban mail-delivery apparatus, a fixed post, a box, open at its bottom and ends, fixed to the top of the post, a cable extended through under the top of the box, a box
10 suspended from the cable, a rock-shaft journaled to the ends of the box, an arm projecting downward from the shaft, a double-elbow-shaped coupling device pivoted to the lower
15 end of said arm, a slide on the rock-shaft having a stud at one end and a ratchet-wheel mounted in the box and provided with a fixed
pin to engage said stud, an elbow-shaped lever pivoted to the box, a pawl pivoted to its
20 short arm to engage the ratchet-wheel, a roller on the end of the long arm and a cam fixed to the fixed box at the top of the post to actuate
the lever, arranged and combined to operate in the manner set forth for the purposes
stated.

25 7. In a suburban mail-delivery apparatus, a fixed post, a box, open at its bottom and ends, fixed to the top of the post, a cable extended through under the top of the box, a
30 box suspended from the cable, a rock-shaft journaled to the ends of the box, an arm projecting downward from the shaft, a double-elbow-shaped coupling device pivoted to the
lower end of said arm, a slide on the rock-shaft having a stud at one end and a ratchet-wheel mounted in the box and provided with
35 a fixed pin to engage said stud, an elbow-shaped lever pivoted to the box, a pawl pivoted to its short arm to engage the ratchet-wheel, a roller on the end of the long arm and
a cam fixed to the fixed box at the top of the
40 post to actuate the lever, a bridle on the end of said slide on the rock-shaft, an elbow-shaped lever pivoted to the box, the short arm of said lever having a fixed pin to enter
said bridle, and the long arm extended through
45 an opening in the top of the box and provided

with a roller on its end to engage said fixed cam, arranged and combined to operate in the manner set forth for the purposes stated.

8. In a suburban mail-delivery apparatus, a fixed post, a metal frame fixed to the post, 50 a straight roller mounted on the central portion of the frame, cone-shaped rollers mounted on the central portion of the frame in a plane below the straight roller and an endless cable having a box suspended therefrom, arranged and combined to operate in the manner set forth for the purposes stated. 55

9. In a suburban mail-delivery apparatus, a fixed post, a metal frame fixed to the post, a straight roller mounted on the central portion of the frame, cone-shaped rollers mounted in the frame in a plane below the straight roller and an endless cable having a box suspended therefrom and means for directing the cable and box depending therefrom relative to said rollers, arranged and combined to operate in the manner set forth for the purposes stated. 60 65

10. A suburban mail-delivery apparatus comprising an endless cable, a line of fixed posts for supporting the cable, a main station 70 having a drum mounted at the top of the post, and the cable coiled around the drum, means for rotating the drum, a plurality of posts at way-stations having fixed receptacles for mail-sacks, open-ended boxes fixed to the said posts above said receptacles, boxes suspended from the cable, automatic mechanism in said boxes for detachably connecting mail-sacks therewith, mechanism for automatically releasing the mail-sacks and posts having rollers mounted at their tops to support the cable, arranged and combined to operate in the manner set forth for the purposes stated. 75 80

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