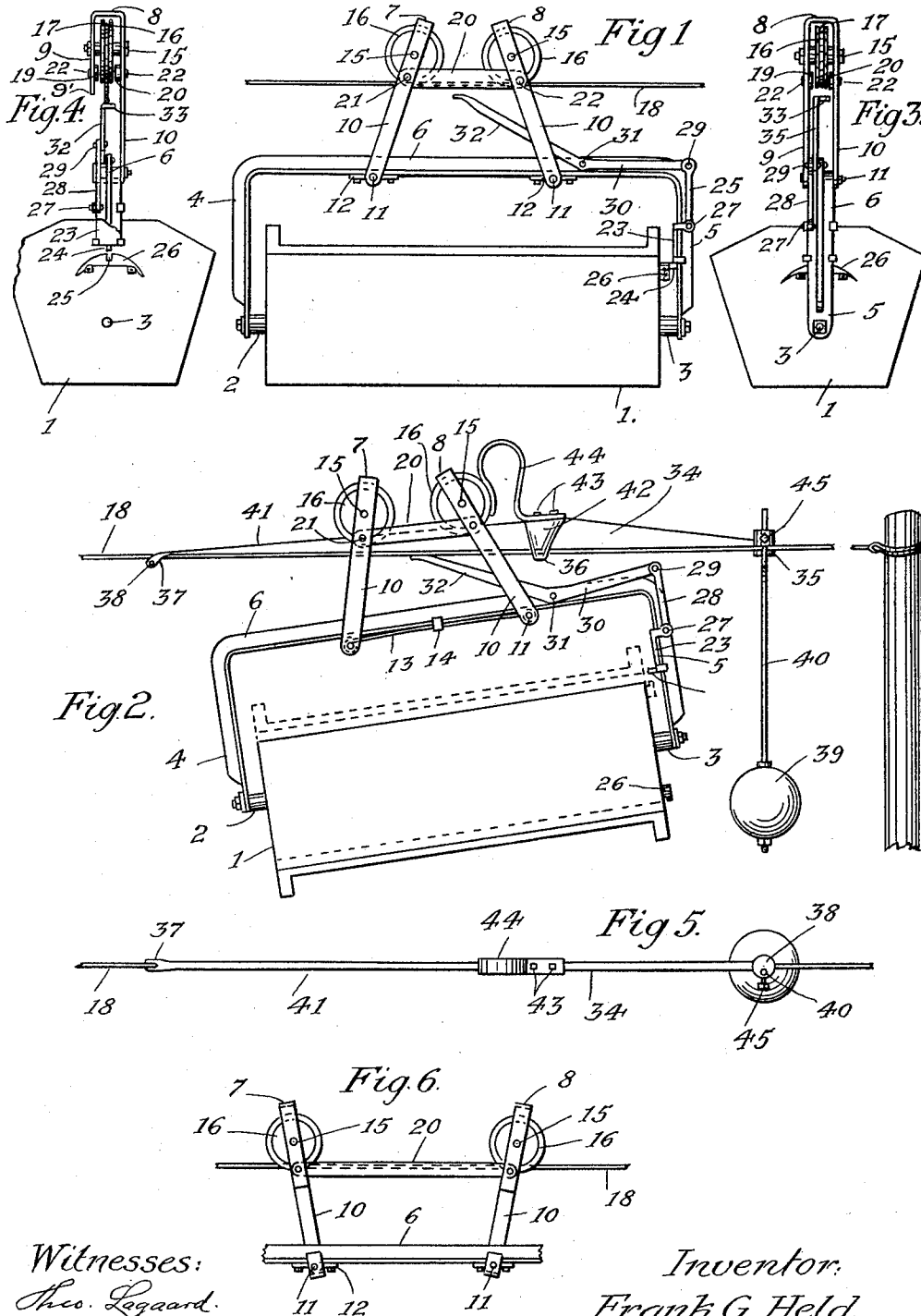


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LITTER CARRIER.  
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Patented Nov. 7, 1911.



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# UNITED STATES PATENT OFFICE.

FRANK G. HELD, OF KENYON, MINNESOTA.

LITTER-CARRIER.

1,007,781.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, FRANK G. HELD, a citizen of the United States, residing at Kenyon, in the county of Goodhue and State of Minnesota, have invented certain new and useful Improvements in Litter-Carriers, of which the following is a specification.

My invention relates to buckets or carriers to be loaded with manure or other litter within a barn or similar building, said carriers being suspended from a cable track-way along which they are propelled to remove the material from the barn.

I provide novel means whereby wheels or rollers, from which the carrier is suspended, will at all times be caused to cling to and closely follow said cable whatever curve or undulation may be present therein.

I also provide novel means related to said cable guide-way for conveniently operating the trip, whereby the carrier is permitted to reverse itself and so dump its load, said means also being adapted to check the movement of the carrier along the cable guide-way and cause the same to be reversed to return the carrier to the building or other location where it may receive another load.

Another object of my invention is to provide a suspending means which will readily permit the carrier to be switched from one cable guide-way over to another.

Other objects and advantages of my improvements will appear in connection with the detailed description thereof.

In the drawings, which illustrate one form of my invention,—Figure 1 shows a side elevation of the carrier in position to receive a load or move the same along the guide-way. Fig. 2 is a similar view of said carrier in connection with my improved tripping device after the same is operated to release the carrier, which is shown in full lines in its inverted position. Fig. 3 is an end elevation of the carrier and suspending means therefor. Fig. 4 is a similar view showing a modification of the suspending means, with the front bail removed to show the latch for holding the carrier in its upright position. Fig. 5 is a top plan view of the tripping device. Fig. 6 is a fragmentary view of the suspending means in which the link connecting the depending arms is shown as longer than the distance between the point of pivotal attachment of said arms to the bail.

The carrier body 1 is suspended by pivot-pins 2—3. At the ends of said carrier body and below the center of gravity thereof, said pivot-pins extend through depending arms 4—5 of a sustaining and suspending bail 6. Pivotaly attached to said bail 6, in spaced relation from the ends thereof, are hangers 7—8. Said hangers are substantially U-shaped, as shown in Fig. 3, the depending arms thereof passing on either side of the bail 6 and being pivotaly secured thereto by means of a bolt 11 extending beneath said bail 6. Said bolts 11 may be secured to the bail 6 by ordinary bearing pieces 12 bolted thereto, as shown in Fig. 1, or they may be positioned beneath the bail 6 by means of a leaf-spring member 13, secured to the bail at 14, as shown in Fig. 2, the pivots 11 being held in eye members at either end of said spring 13, so that the pivot-bolts 11 may have a movement away from the bail 6, although normally held in contact therewith both by the spring 13 and by the weight of the carrier. In the form of hangers shown in Fig. 4, the depending arm at one side is broken, as shown at 9, to permit the carrier to be switched from one suspension cable to another. This is a feature of importance, since it frequently happens that a farmer will have a barn with two or more passage-ways to be cleaned, said passage-ways being separated to a greater or less degree, and it will be necessary for him to have a cable guide-way extending along each of said passage-ways. If no means were provided for switching from one of said cables to another, it would be necessary to have a separate carrier for each of said cables. The modification shown in Fig. 4 enables the farmer to use a single carrier to do service on all of the required suspension cables.

Near the top of each of the hangers 7—8, is pivoted at 15 a pulley 16 having a peripheral groove 17 for engagement with the cable guide-way 18. Each pair of hangers 7—8 is connected together by links 19—20, each link being pivoted to the hangers 7—8 at 21 and 22, respectively. In the form shown, the pivot points 21 and 22 of the links 20 are situated below the axles 15 of the rollers 16 and adjacent the lower periphery thereof, the two pivot points 21 and 22 being normally in a horizontal line. This arrangement has been found, in practice, to

give excellent results, but I do not wish to be limited to this particular arrangement as under certain circumstances the links 19 and 20 may be pivoted above the axles 15, or at any point along the depending arms 10 of the hangers 7—8 below said axle, and I contemplate, under certain conditions, arranging said links 20 so that the pivot points 21 and 22 may not be in the same horizontal line. Also, where the pivot points are sufficiently removed from the rollers 16, either above or below the axles 15, I may use a single link between the depending arms 9 and 10 instead of a double link, as shown. The links 19, 20 may be equal to, longer, or shorter than the distance between the pivots 11.

The arrangement of hangers described and shown is such that both of the rollers 16 will always engage the suspending cable 18 and hold the carrier in a practically horizontal position, even though the cable may run at an angle, or, as is frequently the case, contain many undulations and uneven portions. When the carrier is started to be propelled along the cable, it is necessary to give the same a somewhat violent push which tends to throw the rear end of the carrier down and the front end up, so that with the ordinary arrangement of rollers the front roller may be thrown up off the cable, coming down outside of the same with the result that the carrier is jammed and perhaps part of its load spilled. Such a result cannot take place with my device. However violently the carrier may be shoved or pushed, the front roller 16 will always remain in contact with the cable and the forward end of the carrier will not be materially raised, but the whole carrier will remain substantially horizontal. This feature of my arrangement of hangers and rollers for suspending the carrier is made to cooperate with my improved device for tripping the carrier body to permit reversal thereof and the dumping of the load.

A latching device of ordinary construction is used, which comprises a member 23 mounted to slide on the depending arm 5 of the bail, said member being provided with a latch-tongue 24 adapted to cooperate with a notch 25 centrally disposed in an arc-shaped piece 26 fastened to the end of the carrier body 1. To an ear 27 of member 23 is pivoted a link 28, the other end of which is pivoted at 29 to a trip lever 30, which is pivoted near its center at 31 to the bail 6. Said lever 30 has an upward extension 32 provided with a horizontal member 33 which extends beneath the cable 18 and when the carrier body is locked in its upright position said member 33 is normally out of contact with said cable. To bring the member 33 in contact with the cable 18 and operate the trip lever 30 to release the carrier, I have

devised the novel member 34, which is a forged or cast piece of metal relatively long and thin, as shown, having a straight bottom edge for engagement with the cable, to which member 34 is held by means of bifurcated members straddling and gripping the wire. Three sets of such members 35, 36 and 37 are used, the forward set 37 being clearly shown in Figs. 2 and 5. If desired, a bolt 38 may be carried through the ends of the member 37 below the cable 18 and said members caused to clamp the wire thereby so as to prevent sliding of the plate 34 along the cable 18. At the rear end of the plate 34 adjacent the bifurcated member 35, a heavy weight 39 is suspended by a rod 40, the purpose of said weight being to hold the member 34 upright on the cable 18. The forward portion of the member 34 comprises a long gradually rising portion 41 having an edge extending from practical alinement with the cable 18 upwardly sufficiently far so that when the rollers 16 ride up on said portion 41 the cable will come into engagement with the part 33 of the trip 30 and unlatch the carrier, the edge of the portion 41 being rounded to form a contact surface of the same curvature as the cable, so that the grooves 17 in the peripheries of the rollers 16 will readily pass from the wire and up the inclined portion 41 of the plate 34. The plate or casting 34 has a thickened portion 42 to the top of which is secured, by means of bolts 43, a hook-shaped spring member 44. When the carrier rollers 16 ride up on the incline 41, the forward one of said rollers 16 will come in contact with the member 44 just after the trip 30 has released the carrier so that the same has swung into inverted position and dumped its load. The momentum of the carrier will cause the pulley 16 to compress the spring member 44, which, at the same time will operate to stop the forward movement of the carrier and then, by re-action, to quickly start the same back down the incline, the impetus thus given to the carrier and connecting parts being sufficient to return the same to the building or other place where loading thereof is to be effected. I prefer to construct the piece 34 of metal but a wooden member having attached thereto metal straddling pieces 35, 36 and 37 and a metallic runner on the incline 41 will give almost as good results, and, of course, falls within the scope of my invention. The weight 39 must be suspended by a rod 40 stiff enough to prevent swinging of the member 34 on the wire 18, and hold said member in the same vertical plane with said rod. Said rod may be secured to the member 34 by a set screw 45 so that the distance of the weight below the wire 18 may be adjusted to meet the requirements of any particular weight of carrier or load.

The operation of my device will readily be understood in relation to the description thereof.

I claim:

5 1. In a litter carrier, a bail, a carrier body pivotally attached thereto, hangers pivoted to said bail in spaced relation to the ends of the carrier, means pivotally connecting said hangers, and a roller mounted in each of  
10 said hangers.

2. In a litter carrier, a bail, a carrier body pivotally mounted on said bail, hangers pivoted to said bail in spaced relation to the ends of the carrier, said hangers comprising  
15 U-shaped members inverted straddling said bail, grooved rollers mounted between the depending arms of said U-shaped members, and near the top thereof, and means pivotally connecting the depending portion  
20 of each U-shaped member with the corresponding depending portion of the other U-shaped member, said means being located beneath the axes of the rollers.

3. In a litter carrier, a carrier body, a cable guide-way, means for suspending said carrier body below said cable guide-way comprising pivoted arms and rollers carried by said pivoted arms, and link members pivotally connecting said pivoted arms, where-  
30 by all of said rollers will be held continuously in contact with said guide-way, however undulated or uneven the same may be, and whatever the manner of propulsion of said carriers along the said guide-way.

4. In a litter carrier, a carrier body, a bail to which said body is pivoted, a cable guide-way, integral U-shaped hangers straddling said guideway, and having rollers mounted between the depending portions  
40 and near the closed end thereof, the lower ends of said depending members straddling the bail, a spring member attached to the lower side of said bail at the central part of said spring member, and bearings formed  
45 in the ends of said spring members to which said depending portions of the hangers are pivoted, whereby the hangers are pivotally held beneath the bail, but are free to have a limited movement away from the same.

5. In a litter carrier, a bail, a carrier body pivoted at its ends below the center of gravity of said body to said bail, a cable guide-way, means suspending said bail and carrier below and for movement along the guide-  
55 way, a latch for locking the carrier body upright, a trip for releasing said latch, and means on the guide-way to cause the moving carrier to bring the trip against the guide-way to cause the same to release the latch and permit the carrier body to invert itself.  
60

6. In a litter carrier, a bail, a carrier body pivoted at its ends below the center of gravity of said body to said bail, a cable guide-way, means suspending said bail and carrier below and for movement along the  
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guide-way, a latch for locking the carrier body upright, a trip for releasing said latch, and means on the guide-way to cause the moving carrier to bring the trip against the guide-way to cause the same to release the latch and permit the carrier body to invert  
70 itself, said means comprising a member suspended upon said guide-way, said member having a forwardly extending, upwardly inclined portion forming a continuation of the  
75 guide-way adapted to receive the suspending means for the carrier in its movement along the guide-way.

7. In a litter carrier, a bail, a carrier body pivoted at its ends below the center of gravity of said body to said bail, a cable guide-way, means suspending said bail and carrier below and for movement along the guide-  
80 way, a latch for locking the carrier body upright, a trip for releasing said latch, and means on the guide-way to cause the moving carrier to bring the trip against the guide-way to cause the same to release the latch and permit the carrier body to invert itself,  
85 said means having spring means attached thereto to coact with the suspending means of the carrier as it moves, yieldingly to stop the carrier and quickly reverse the movement thereof along the guideway.  
90

8. In a litter carrier, a bail, a carrier body pivoted at its ends below the center of gravity of said body to said bail, a cable guide-way, means suspending said bail and carrier below and for movement along the guide-  
95 way, a latch for locking the carrier body upright, a trip for releasing said latch, a plate-like member having a straight edge and a relatively inclined edge, bifurcated members attached to the straight edge and straddling the cable guide-way, and a weight rigidly  
100 attached to said plate-like member and lying in the plane of said plate-like portion to hold said member upright on the guide-way, so that it will form an upwardly inclined continuation thereof up which the carrier  
105 suspending means will ride in its movement along the guide-way, thereby bringing the trip in contact with the guide-way to cause the same to release the latch.  
110

9. In combination with a litter carrier, a cable guide-way and means for suspending the carrier from and for motion along the guide-way, an attachment to said guide-way comprising a plate, means connected with  
115 said plate for holding it upright on the cable, means on said plate coacting with the suspending means of the carrier whereby said suspending means is caused to move angularly with respect to the cable, and a  
120 trip on said carrier operated by the cable as a result of said angular movement of the suspending means.  
125

10. In combination with a litter carrier, a cable guide-way and means for suspending the carrier from and for motion along the  
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guide-way, an attachment to said guide-way comprising a plate, means connected with said plate for holding it upright on the cable, means on said plate coacting with the  
5 suspending means of the carrier whereby said suspending means is caused to move angularly with respect to the cable, a trip on said carrier operated by the cable as a  
10 result of said angular movement of the suspending means, and other means on said plate for stopping the carrier at the end of the angular movement of the suspending  
means and reversing the direction of movement thereof after the trip has been oper-  
15 ated.

11. In a litter carrier, a carrier body, a cable trackway, means suspending said carrier from said trackway comprising a bail  
20 pivoted to the ends of the carrier body and below the center of gravity thereof, hangers pivoted to said bail in spaced relation to the ends of the carrier, means pivotally con-

necting the hangers, and a roller mounted in each of said hangers, a latch for locking  
said carrier body in upright position, a trip 25 for coöperation with the trackway to release the latch, and a member attached to the trackway and forming an upwardly inclined extension thereof, the pivotally connected  
30 hangers providing mountings for the rollers adapting said rollers to ride up said upward incline to cause the trip to be brought in contact with the trackway to release the  
latch and permit the carrier body to reverse  
35 itself and dump its load.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this 12th day of December, 1910.

FRANK G. HELD.

Witnesses:

E. O. BAKKE,  
G. H. EDSTROM.

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