

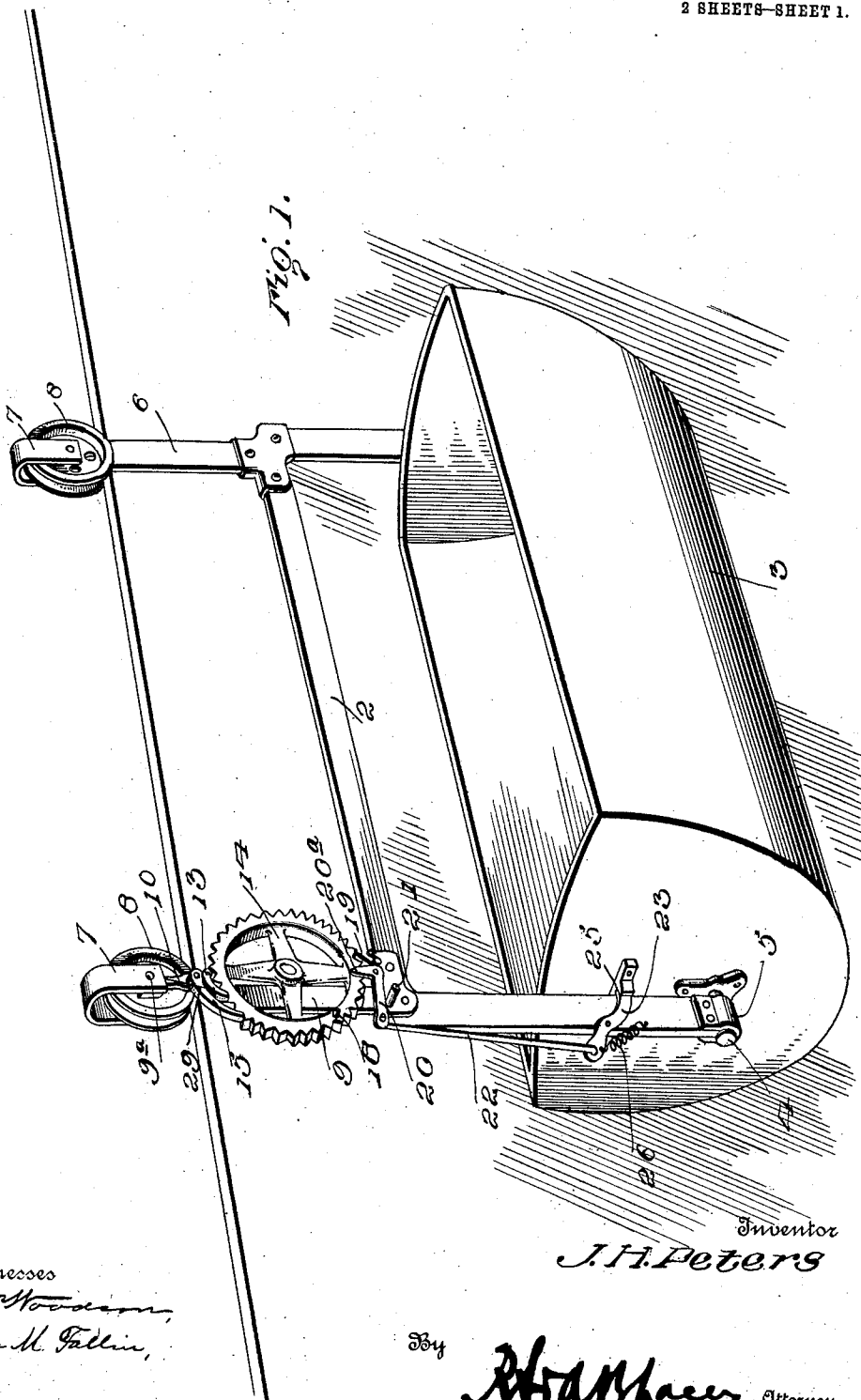
TRIPPING DEVICE FOR OVERHEAD CARRIERS.

APPLICATION FILED OCT. 21, 1909.

985,056.

Patented Feb. 21, 1911.

2 SHEETS—SHEET 1.



Witnesses
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By

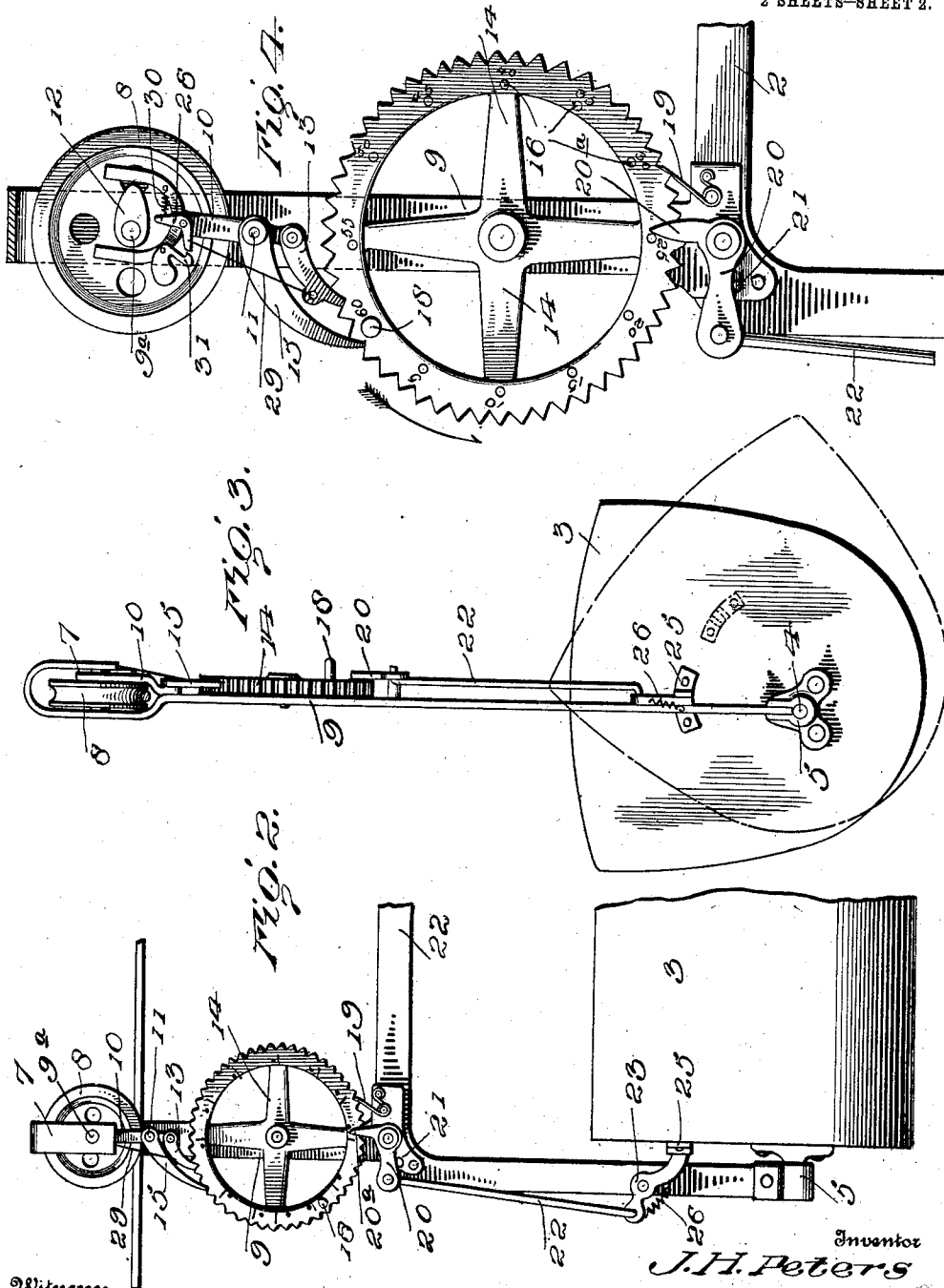
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TRIPPING DEVICE FOR OVERHEAD CARRIERS.
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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TRIPPING DEVICE FOR OVERHEAD CARRIERS.

985,056.

Specification of Letters Patent.

Patented Feb. 21, 1911.

Application filed October 21, 1909. Serial No. 523,521.

To all whom it may concern:

Be it known that I, JOHN H. PETERS, a citizen of the United States, residing at Rice Lake, in the county of Barron and State of Wisconsin, have invented certain new and useful Improvements in Tripping Devices for Overhead Carriers, of which the following is a specification.

This invention relates to overhead carriers such as are used in telpher systems, and particularly to that type of carrier which is supported on pulleys or sheaves from an overhead track or cable, the carrier being normally held in a position of unstable equilibrium, but adapted to be released to permit it to overturn and dump.

The object of the invention is to provide means for automatically dumping a carrier of this type at any predetermined point in its travel.

For a full understanding of the invention and the merits thereof, and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of my improved carrier; Fig. 2 is a side elevation of the tripping devices and one end of the bucket; Fig. 3 is an end elevation of the bucket and the tripping devices; and, Fig. 4 is an enlarged face view of the tripping devices.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to these figures, 2 designates a supporting frame such as ordinarily used on carriers of this type, and 3 the carrier bucket having trunnions 4 at each end which are rotatably supported in the bearings 5 on the downwardly extending arms of the frame 2, said bearings being located below the center of gravity of the bucket, so that the bucket shall be normally held in a position of unstable equilibrium, and so that when the bucket is released, it will overturn.

To opposite ends of the supporting frame 2 are attached the upwardly extending hangers 6 and 9 which at their upper ends are bent over upon the main body of the hanger, as at 7, for the purpose of providing opposed bearings for the supporting wheels 8. Pivottally mounted at its middle upon one of the hangers, as the hanger 9, is the lever

10 which is forked at its upper end and which is pivoted at 11. The forked end of the lever is engaged by a cam 12 mounted upon the shaft 9^a of the supporting wheel 8, so that as the supporting wheel rotates, the lever will be reciprocated. The lower end of the lever carries upon it the pawl 13 which engages with the teeth of a ratchet wheel 14.

Mounted upon the pivotal center of the lever 10 is the pawl 15 which also engages with the ratchet teeth and prevents any backward movement of the wheel 14. It will be seen that a reciprocating motion of the lever 10 will cause a step-by-step rotation of the ratchet wheel 14 in the direction of the arrow. The ratchet wheel 14 is provided upon its face with a series of perforations 16 and also provided with a scale. In the drawing, the scale is shown as being provided with indicia indicating the number of feet which the carrier will travel for one complete revolution of the ratchet wheel 14, but I do not wish to be limited to this feature, as some other unit of measure might be used, without departing from the spirit of the invention.

18 designates a button which has a shank adapted to be placed in any one of the holes 16 so that the button may be set at any point upon the circumference of the wheel 14, this button, however may be cast solidly upon the wheel.

Attached to the frame 2, or at any other convenient location, is a spring 19 whose free end resiliently engages the teeth of the wheel 14 to prevent the wheel from over-running more than one notch or step for each actuation of the pawl 13. Also pivoted upon the lower end of the hanger, or upon the frame in any convenient position, is the tripping lever 20 which has the form of a bell crank lever, one arm of which projects up into the path of the button 18 so as to be actuated thereby, said arm forming a pointer, while the other arm projects outward and is connected by a link 22 to a latch 23. A stop 21 prevents the lever from dropping out of proper position. The latch 23 is pivoted at its middle to the downwardly projecting arm of the frame 2 and at its inner end engages with a lug 25 on the end of the bucket, this lug projecting from a plate which is riveted upon the said end of the bucket. A spring 26 draws downward upon the outer end of the latch 23 so

as to force its inner extremity into engagement with the lug.

The operation of my invention will be evident from what has gone before. The button 18 is to be placed at zero, for instance, and then the ratchet wheel may be turned to bring the upwardly projecting pointed end of the tripping lever 20 in registry with any one of the numbers on the scale. Each tooth upon the scale is equal to one foot traveled by the sheave 9 and as a consequence, with the button set at zero and the tripping lever pointing to, say, the numeral 50, the carrier will travel 50 feet before the button will come in contact with the trip lever, causing the bucket to dump at this point. As soon as the latch is operated by means of the trip lever, the weight of the bucket will cause the bucket to overturn in a manner usual to carriers of this type. It will be obvious that a plurality of buttons 18 may be used and that they may be set at various points around the wheel 14, thus tripping the carrier at a plurality of positions, or the trip button may be made solid with the wheel 14 and located at the point zero thereon. In order to provide means for lifting the pawl 13, in case the carrier is pushed to within a few feet of the point where it is set to dump, I may provide the means shown in Fig. 4 consisting of a bell crank lever 28 which is pivoted at the junction of the bifurcated lever 10. The upwardly extending end of this lever is normally held in the path of movement of the cam 12, while the outwardly extending end of the lever is attached by a flexible connection 29 to the pawl 13. A spring 30 holds the upwardly projecting end of the lever normally in a middle position between the two arms of the bifurcated lever 10. Pivoted to a lug projecting from one arm of the bifurcated lever 10 is a catch 31 having the form of a bell crank, the downwardly extending arm of which engages with the lever 28, the outwardly extending arm being sufficiently weighted so that the notched end of the catch will be forced into engagement with the lever. This lever 28 will lift the pawl 13 out of engagement with the ratchet wheel on the first backward revolution of the carrier wheel and hold it in this position until it is again set to dump by the operator. Thus, there will be no engagement between the wheel 14 and the ball crank 20 until the unlatching device is reset.

Having thus described the invention, what I claim is:—

1. In a carrier of the class described, a trip which is adapted to prevent the deposition of a load, a tripping member moving in a closed path and actuated by the travel of the carrier, and a trip-engaging element independently adjustable upon and with re-

lation to the tripping member and adapted to engage the said trip to release it and permit the deposition of the load.

2. In a carrier of the character described, a bucket, a trip holding the bucket in unstable equilibrium, a trip member moving in a closed path and actuated by the movement of the carrier in its travel, and a trip-engaging member independently adjustable upon and with relation to the tripping member and adapted to engage the said trip to release it and permit the deposition of the load.

3. In a carrier, a supporting wheel, a cam rotatable on the supporting wheel, a toothed tripping wheel, a pawl engaging the teeth of the tripping wheel and reciprocated by said cam to give the tripping wheel a step-by-step rotation, and a trip normally holding the bucket in a position of unstable equilibrium but actuated by the arrival of the tripping wheel at a predetermined point in its rotation to unlatch said bucket and permit it to overturn.

4. In a carrier of the class described, a supporting wheel, a bucket, a cam rotatable therewith, a tripping wheel, a pawl reciprocated by said cam to give the tripping wheel a step-by-step rotation, a stud projecting from the tripping wheel, a latch holding the bucket in a position of unstable equilibrium, and a trip engaging said latch and adapted to be engaged by the stud on the tripping wheel at a predetermined point in its rotation to unlatch the bucket.

5. In a carrier of the class described, a bucket, a trip holding the bucket in unstable equilibrium, a tripping member mounted on the carrier and actuated by the movement of the carrier on its travel, and a trip-engaging element adjustably mounted upon the tripping mechanism and shiftable upon the same and in relation thereto and adapted in its movement to engage the said trip to release the bucket.

6. In a carrier of the class described, a bucket, a trip holding the bucket in unstable equilibrium, a tripping member mounted on the carrier and actuated by the movement of the carrier in its travel, and a trip-engaging element adjustably mounted upon the tripping member and shiftable upon the same and in relation thereto, the said tripping member being provided with a series of indicia indicating the proper adjustment of the tripping element in order to trip the carrier after the carrier has moved a predetermined number of feet.

7. In a carrier of the class described, a supporting wheel, a bucket, a tripping wheel, means for giving a rotation to the tripping wheel by the rotation of the supporting wheel, a trip normally engaging the bucket to hold it in an upright position, and a projecting trip-engaging element adjustably

mounted upon the tripping wheel but independently movable thereof around the same and adapted to engage the trip to release the bucket.

5 8. In a carrier of the class described, a supporting wheel, a bucket, a cam rotatable with the wheel, a lever to be reciprocated thereby, a toothed tripping wheel, a pawl on the lever engaging with the tripping wheel,
10 a stud projecting from the tripping wheel, a latch engaging with the bucket to hold it in a position of unstable equilibrium, and a tripping device projecting into the path of movement of the stud.

15 9. In a carrier, a supporting wheel, a bucket, a cam mounted on the shaft of the supporting wheel and rotatable therewith, a lever engaging with the cam to be reciprocated thereby, a tripping wheel having circumferential teeth, a pawl on the lever engaging with the teeth to rotate the tripping wheel one step for each revolution of the supporting wheel, a stud projecting from the tripping wheel, a latch engaged with the
20 bucket to hold it in a position of unstable equilibrium, a lever connected to the latch and having one end thereof projecting into the path of movement of the stud, and means for preventing backward movement
25 of the tripping wheel.

30 10. In a carrier, a supporting wheel, a bucket, a cam rotatable with the supporting wheel, a lever having a forked end engaging with the cam to be reciprocated upon each
35 revolution of the supporting wheel, a tripping wheel having circumferential teeth, a pawl on the lever engaging with the teeth, a stud projecting from the tripping wheel, a bell crank lever having one arm thereof projecting into the path of movement of the
40 stud, a latch engaging with the bucket to hold it in a position of unstable equilibrium, a spring holding the latch in engagement, and a connection from the latch to said tripping wheel.
45

11. In a carrier of the character described, a bucket, a tripping wheel, means for rotating the tripping wheel in correspondence with the movement of the carrier, a projecting member mounted on but adjustable
50 around the tripping wheel independently thereof, and a trip normally holding the bucket in an upright position but projecting into the path of movement of the projecting
55 element on the tripping wheel.

12. In a carrier, supporting wheels, a bucket, hangers extending from the supporting wheels to the bucket, a cam mounted upon the shaft of one of the supporting
60 wheels and rotatable therewith, a tripping wheel mounted upon said hanger, a lever pivoted to the hanger and having a forked end engaging with said cam, a pawl carried upon the other end of the lever and
65 engaging with the teeth of said tripping

wheel, a pawl carried upon the pivot of the lever and engaged with the teeth of the tripping wheel to prevent a backward rotation thereof, a tripping lever pivoted to the hanger and having the shape of a
70 bell crank, one end of said lever projecting over the tripping wheel, a stud on the tripping wheel engageable with the lever to operate the same, a pivoted latch engaging with the bucket to hold it in a position of
75 unstable equilibrium, and a connection between said latch and said tripping lever.

13. In a carrier of the class described, supporting wheels, hangers depending from the supporting wheels, a bucket pivoted in said hangers, a tripping wheel, means for giving a step-by-step rotation to the tripping wheel upon a rotation of the supporting wheel, a stud projecting from the bucket, a latch pivoted to one of the hangers, the
80 inner end of the latch engaging said stud, a spring holding said latch in engagement, a tripping lever mounted adjacent to the tripping wheel and adapted to be actuated by the arrival of the tripping wheel at a
85 predetermined point, a connection between said lever and the latch, means for preventing a backward movement of the tripping lever, and a resilient means engaging the tripping wheel to prevent its overrunning.
90

14. In a carrier, a supporting wheel, a bucket, a tripping wheel, means for giving an intermittent rotation to the tripping wheel upon each complete rotation of the supporting wheel, a trip actuated by the arrival of the tripping wheel at a predetermined point in its rotation, said trip normally holding the bucket in a position of unstable equilibrium, and means for preventing the actuation of the tripping wheel upon
100 a rotation of the supporting wheel.

15. In a carrier of the class described, a supporting wheel, a bucket, a cam rotatable therewith, a tripping wheel, a pawl reciprocated by said cam to give the tripping wheel
110 a step-by-step rotation, a latch holding the bucket in a position of unstable equilibrium, and a trip engaging said latch and adapted to be engaged by a projecting portion of the tripping wheel at a predetermined point in its rotation to unlatch the bucket, means actuated upon a backward rotation of the cam for raising the pawl out of engagement with the tripping wheel, and a catch for holding said pawl in a raised position.
115

16. In a carrier of the class described, supporting wheels, a bucket, hangers extending from the supporting wheels to the bucket, a cam mounted upon the shaft of one of the supporting wheels and rotatable therewith,
120 a tripping wheel mounted upon one of said hangers, a lever pivoted to the hanger and having a forked end engaged by said cam, a pawl carried upon the other end of the lever and engaging with the teeth of the tripping
125

130

wheel, a tripping lever pivoted to the
 hanger, one end thereof projecting over the
 tripping wheel, means on the tripping wheel
 engageable with the lever to operate the
 5 same, a pivoted latch engaging with the
 bucket to hold it in a position of unstable
 equilibrium, said latch being connected to
 the lever, a bell crank lever pivoted to the
 forked lever at the fork thereof, one arm of
 10 said bell crank normally extending upward
 between the arms of the fork, in the path of
 movement of the cam, the other arm extend-
 ing outward, a flexible connection between
 said last named arm and the said pawl, a
 15 spring for holding the bell crank lever in its
 normal position, and a weight-actuated
 latch pivoted to the forked lever and adapt-
 ed to engage the extremity of the bell crank
 lever when the same is raised by a reverse
 20 movement of the cam.

17. In a carrier of the class described, a
 bucket, a supporting wheel, a tripping
 wheel, means for giving an intermittent ro-
 tation to the tripping wheel upon each com-
 25 plete rotation of the supporting wheel, a
 trip holding the bucket in a position of un-
 stable equilibrium, and a circumferentially
 adjustable stud disposed upon the tripping
 wheel and independently adjustable there-
 30 around to various positions and adapted to
 engage the trip to release the bucket, said

tripping wheel being provided with a cir-
 cumferential series of indicia indicating the
 various positions to which the stud should be
 moved in order to trip the bucket at any pre-
 determined point.

18. In a carrier of the character described,
 a supporting wheel, a bucket supported in
 unstable equilibrium, a tripping mechanism
 operating to trip the bucket, and adjustable
 indicating means indicating the distance the
 carrier is to travel before the bucket will be
 tripped.

19. In a carrier of the character described,
 a supporting wheel, a tripping wheel pro-
 vided with indicia on its face, mechanism
 for giving an intermittent rotation to the
 tripping wheel upon each complete rotation
 of the supporting wheel, a bucket supported
 in unstable equilibrium, a latch for the
 bucket adapted to be actuated by the trip-
 ping wheel, and a pointer co-acting with the
 numbers on the tripping wheel and there-
 with indicating the distance the carrier is to
 travel before the tripping wheel will trip
 the bucket latch.

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

JOHN H. PETERS. [L. s.]

Witnesses:

EMAR OPPERUOL,
 FRANK SKINNER.