J. HARRIGAN.

LIFTING DEVICE.

APPLICATION FILED AUG. 8, 1913.

1,167,064.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

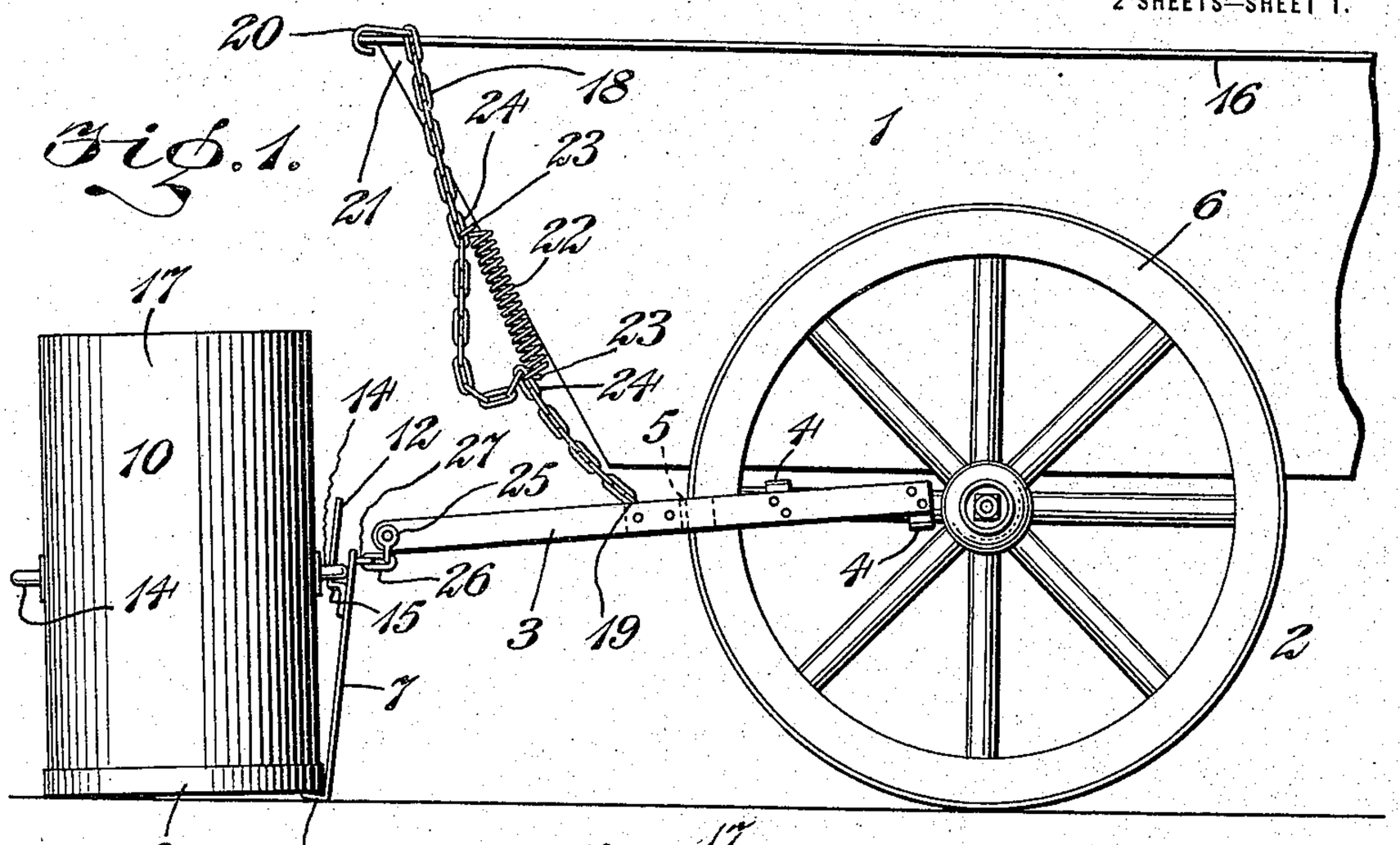
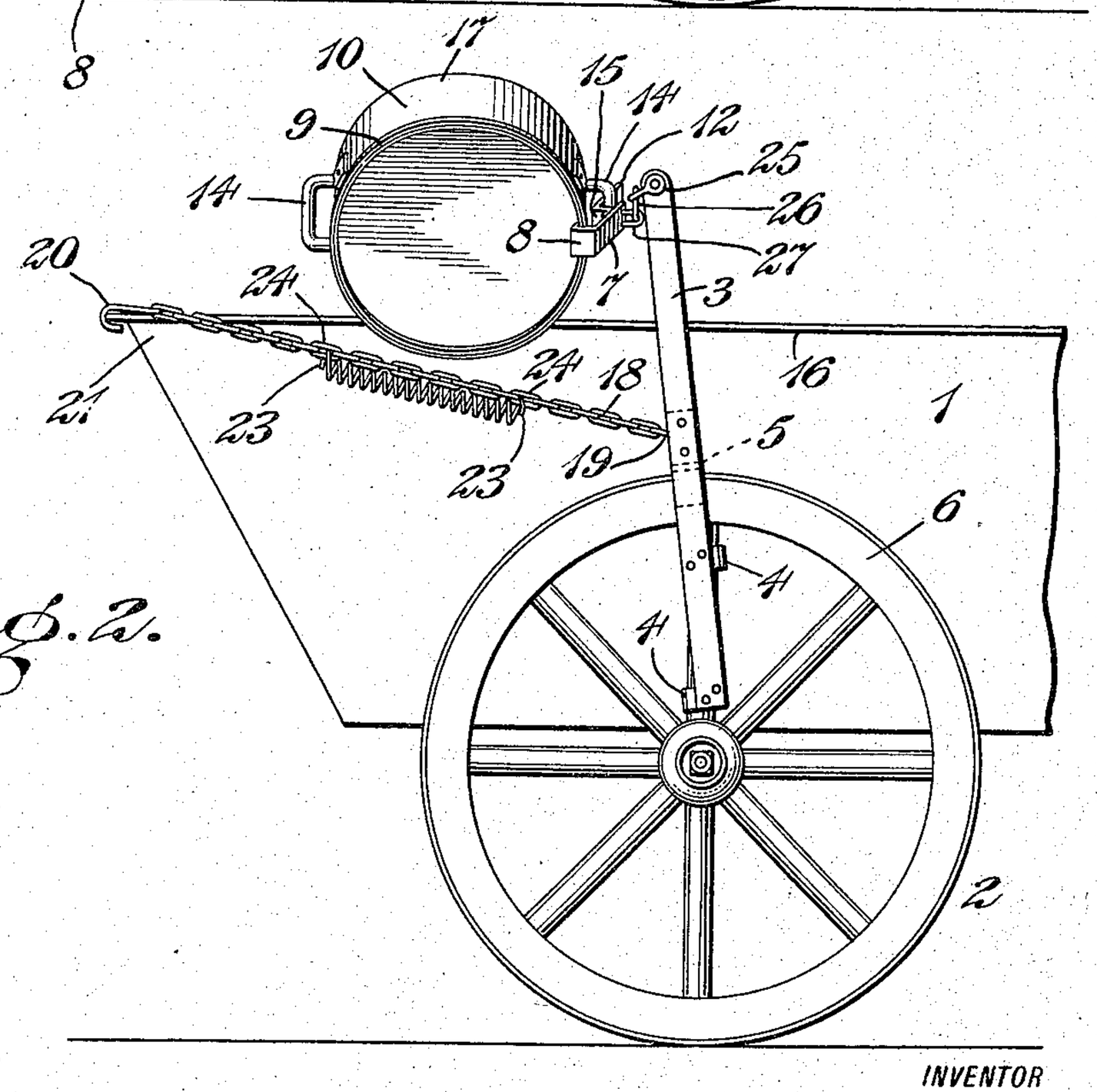


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

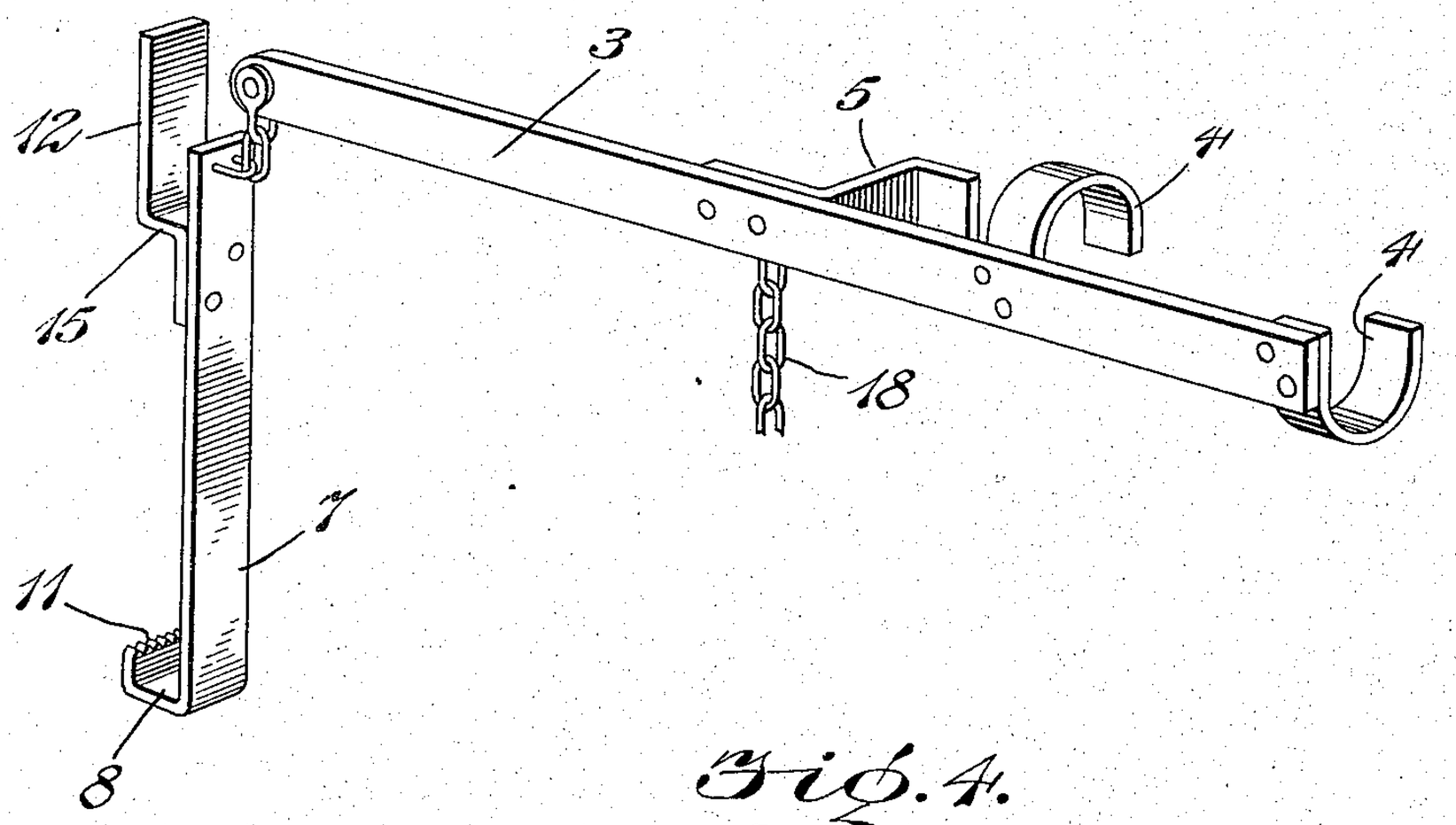
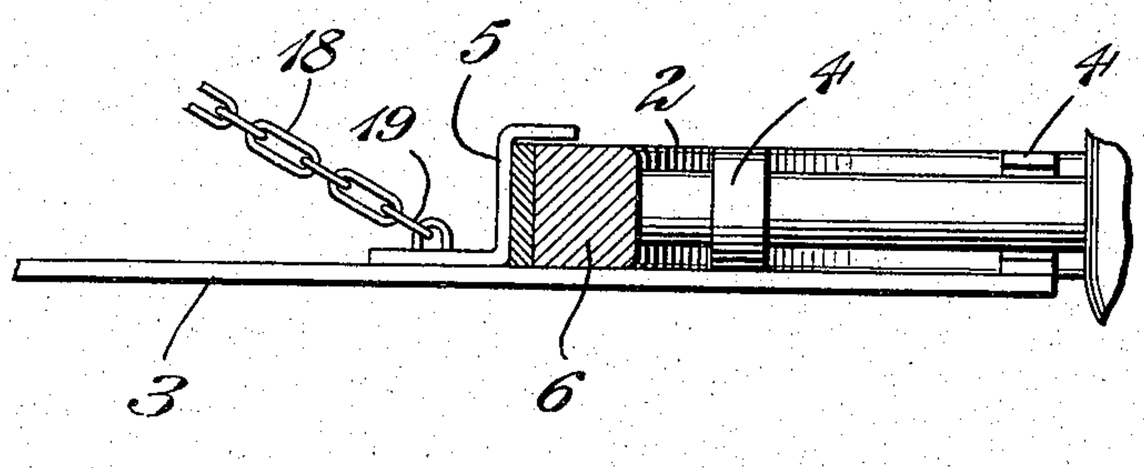


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN HARRIGAN, OF NEW YORK, N. Y.

LIFTING DEVICE.

1,167,064. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed August 8, 1913. Serial No. 783,671.

To all whom it may concern:

Be it known that I, JOHN HARRIGAN, a citizen of the United States, and a resident of the city and State of New York, have invented certain Improvements in Lifting Devices, of which the following is a specification.

This invention relates to certain improvements in lifting devices, and more particularly in that class or type of such devices which are especially designed and adapted for use in connection with wheeled vehicles for lifting heavy loads, and the object of the invention is to provide a device of this general character of a simple and comparatively inexpensive nature, and of a strong and compact construction, capable of quick and convenient application in position for use without requiring any particular or especial skill on the part of the operator, and of such a nature as to permit of being operated from the movement of the vehicle to which it is applied for use, in order to dispense in great part with the manual labor and exertion ordinarily required for lifting heavy loads.

The invention consists in certain novel features of the construction, and combinations and arrangements of the several parts of the improved lifting device, whereby certain important advantages are attained, and the device is rendered simpler, less expensive, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein—

Figure 1 is a view in side elevation of a portion of a vehicle showing a lifting device embodying my invention applied thereto; Fig. 2 is a view similar to Fig. 1 showing the parts operated to lift a loaded receptacle and in such position as to permit the receptacle to be emptied within the vehicle; Fig. 3 is a view in perspective with certain parts of the improved lifting device as herein disclosed omitted; and Fig. 4 is a detail fragmentary view showing the device in applied position, the wheel to which it is attached being shown in section.

As shown in the drawings, 1 denotes the body of a cart supported by the wheel 2, said cart being herein shown as of a type generally employed in various municipalities for the collection of refuse, although I do not wish to be understood as limiting myself to the particular style of vehicle with which the lifting device embodying my invention may be employed.

As herein shown, the improved lifting device is provided with an elongated lever member 3, which may be formed from metal or other material possessing the requisite strength and durability, and adjacent to one of its ends I have shown said lever member provided with reversely directed curved or angular wheel engaging jaws or members 4, 4, spaced apart one from the other in the direction of the length of said lever member, and adapted, when the latter is turned or adjusted at a slight angle to one of the spokes of the wheel to which the improved lifting device is to be applied for use, to be readily engaged with or disengaged from such spoke, the angular or overhanging formation of said jaws 4, 4 being, however, such that when the lever member is moved into line with the spoke to which it is applied, said oppositely arranged jaws 4, 4, are clampingly engaged over the opposite sides of the spoke in such a manner as to lock the lever member securely thereto, so that said lever member will be carried upward say, from the lowered or horizontal position shown in Fig. 1 to the raised or vertical position shown in Fig. 2 during the turning movement of the vehicle wheel.

The length of the lever member, as herein shown, is such that when applied to the wheel as indicated in Figs. 1 and 2, its outer end portion, opposite to that whereat the jaws or wheel engaging members 4, 4 are located, extends outwardly beyond the wheel rim in such a manner as to afford substantially a continuation or extension of the spoke, and in the embodiment of my invention herein shown, I provide this extended end portion of said lever member with a load receiving or supporting means, as will be hereinafter explained, whereby when the lever member is clampingly secured to a spoke of the wheel by engagement of its jaws 4, 4, therewith, a load may be quickly and conveniently raised into position to be dumped into the vehicle by simple turning movement of the vehicle wheel, ensuant upon forward movement of the vehicle

itself, without any material physical exertion upon the part of the operator.

To further assure an effective engagement of the lever member 3 with the wheel 2, I provide intermediate the length of such lever a laterally directed jaw or member 5, extending in the same general direction as the jaws or members 4, 4, such member 5 being adapted to bridge or straddle and contact at the outer side of the felly 6 of the wheel, it being understood for convenience of description that in referring to the felly the tire thereon is included.

As herein shown, the lifting device constructed according to my invention is particularly adapted to relieve collectors of refuse and the like from the exertion of the initial or straight lift required when the receptacles containing such refuse, particularly ashes or the like, are first elevated to be emptied within the body of the vehicle or cart, and as herein set forth the load receiving or supporting means at the outer end of the lever member 3 for engagment with such receptacles includes a lifting member or bar 7 pivotally or swingingly coupled with the outer end portion of the lever member 3 by means of a link connection 26, as clearly shown in Fig. 1, the lower end portion of such bar 7 being provided with the hook member 8 adapted to engage the bottom flange 9 of the receptacle 10; but to afford secure engagement of said hook member and the bottom of the receptacle in case the latter may not be provided with a bottom flange, I have herein shown the free end edge of the hook member 8 serrated or notched, as at 11, whereby the bottom of a receptacle may be engaged by such hook member 8 without the possibility of the same becoming detached therefrom during the lifting operation, as is believed to be obvious.

By this construction, the direct strain of the lift will be upon the base of the receptacle 10, which arrangement I have found in practice to be of particular advantage. In order to maintain the receptacle 10 in engagement with the hook member 8 and to assure secure engagement with such receptacles as may be provided with handles, I provide adjacent the upper end of the bar 7 the elongated ear or auxiliary hook member 12 extended in the same general direction as the bar 7, and positioned in a plane parallel therewith, which ear or auxiliary hook member is adapted to be readily and conveniently passed through one of the looped handles or hand grasps 14 usually provided upon the receptacle or can 10, herein shown as of the style or type generally employed in communities where regular collections of refuse are made. In the various styles or types of such receptacles or cans, I have found that the distances between the bottoms of such cans and the looped handles or hand grasps differ; and in order to compensate for such differences I have shown the base 15 of the ear or auxiliary hook member 12 positioned relatively to the hook member 8 a distance slightly less than the least known distance between the base of a receptacle or can and its looped handles or hand grasps, and have shown the ear or auxiliary hook member 12 terminating at a point relative to the hook member 8 a distance in excess of the greatest known distance between the base of a receptacle or can and the looped handles or hand grasps thereof, the ear or auxiliary hook member being thus suitably positioned and made of a length sufficient to enable it to be engaged with the handle of the receptacle at whatever distance the same may be distant from the bottom of said receptacle.

In the employment of my device, it is only necessary that the lever member 3 be engaged in a manner as has been hereinbefore set forth with a spoke 5 most convenient to the receptacle or can to be lifted, to pass the ear 12 through one of the looped handles or hand grasps 14; and to cause the hook member 8 to be engaged with the base of the receptacle or can 10 which may be accomplished by slightly tilting the receptacle, after which the draft animal is caused to advance sufficiently to bring the lever member 3 is a vertical position, the pivotal or swinging engagement of the lever member 3 with said lifting member or bar 7 permitting the latter, together with the can or receptacle engaged with the members 8 and 12, to be readily and conveniently turned in such direction by the operator or collector as will cause the upper portion of the receptacle or can 10 to span or bridge the space between the wheel 2 and the top or coping 16 of the cart or vehicle; and when the can or receptacle is in this position, it is apparent that the operator or collector, instead of being required to exert a direct lift, is permitted the advantage of a short leverage motion to empty the receptacle or can of its contents.

In order to obtain the best results, I find it desirable that the supporting wheel 2 with which my invention is employed should be locked against rotation when the lever member 3 assumes a vertical position, and as herein disclosed I accomplish this result through the medium of a flexible member 18 possessing the necessary strength, and herein shown as a link chain, such connection having one end anchored as at 19 to the lever 3 at a point adjacent the member or jaw 5 and having its opposite end terminating in a hook member 20 adapted for engagement with the tail 21 of the cart, the length of such connection 18 being such as to terminate or lock the rotary movement of the wheel 2, when the lever member 3 has assumed an upright position. In order

to relieve such connection or member 18 from such sudden or abrupt strain as may tend to rupture or break the same, I interpose in the length thereof the tension device 22 herein shown as a retractable spring, whereby it will be readily understood that the termination of the movement of the wheel 2 will be to a certain degree gradual, and thereby will reduce to a minimum the possibility of injury to such connection or member 18. As herein set forth, the device 22 terminates at each end in the hook like members 23, 23 in engagement with certain of the links 24, of the chain in a manner which is particularly set forth in Fig. 4.

While I do not wish to limit myself to any particular arrangement for effecting the connection between the bar 7 and the lever 3, I prefer to employ the construction shown in the drawings, wherein a clevis 25 is pivotally engaged with the outer end portion of such lever 3, said clevis being connected with the upper end of the bar 7 by a link 26 passing therethrough and through an eye projecting from said arm 7.

From the foregoing description of my improvements, it is thought to be obvious that a lifting device constructed in accordance with my invention is of a simple and comparatively inexpensive nature, and is particularly well adapted for use by reason of the material lessening of labor required and by the facility with which it may be operated; and it will also be obvious from the foregoing description that my improved lifting device is susceptible of some modification without material departure from the principles and spirit of my invention, and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In combination with a receptacle having a handle, of a member capable of detachable engagement with the spokes of a vehicle wheel, and means carried by the member to engage the base of the receptacle and the handle thereof.

2. A device of the character described comprising a lever, reversely arranged members adapted to engage the spoke of a wheel of a vehicle, and engaging means carried by the lever.

3. A device of the character described having a member provided with spaced oppositely arranged jaws adapted, when said member is adjusted in one position, to be freely engaged at opposite sides of a part of a vehicle wheel, one of said jaws having an overhanging angular portion adapted, when said member is turned, for clamping engagement over such part of the wheel to lock the member in place thereon, and load supporting means carried by said member.

4. A device of the character described having a member provided with means for detachable engagement with the spokes of a vehicle wheel, and a load supporting member pivotally mounted upon said first-named member.

5. A device of the character described having a member provided at one end with means for detachable engagement with the spokes of a vehicle wheel, and having its opposite end extended and adapted to project beyond the wheel rim, and a load supporting member pivotally mounted upon said first-named member.

6. A device of the charcter described having a member provided with means for detachable engagement with the spokes of a vehicle wheel and having a part adapted for engagement with the wheel rim to hold said member against movement endwise along said spokes, and a load supporting member pivotally mounted upon said first-named member.

7. A device of the character described having a member capable of engagement with a vehicle wheel and provided with load supporting means adapted to raise a load when the wheel is turned, and means for limiting the turning movement of the vehicle wheel.

8. A device of the character described having a member capable of engagement with a vehicle wheel and provided with load supporting means adapted to raise a load when the wheel is turned, and resilient means for limiting the turning movement of the vehicle wheel.

9. A device of the character described having a member adapted for engagement with a vehicle wheel and provided with load supporting means adapted to raise a load when the wheel is turned, and a flexible connection extended from said member and adapted to be secured to the vehicle and operable to limit turning movement of the wheel.

10. A device of the character described having a member adapted for detachable engagement with a vehicle wheel and provided with load supporting means adapted to raise a load when the wheel is turned, and a flexible resilient connection extended from said member and adapted to be secured to the vehicle to limit turning movement of the wheel.

11. A device of the character described having a member provided with spaced laterally directed jaws for detachable engagement with a vehicle wheel and disengageable therefrom upon lateral movement of said member, and having a part adapted for engagement with the felly thereof, and a load supporting member movably supported upon said member and having means

for engagement with a receptacle or the like to be lifted.

12. A device of the character described having a member provided with means for detachable interlocking engagement with the spokes of a vehicle wheel and having an outer part extended radially outward beyond the felly of said wheel when the device is engaged therewith, and a load supporting device carried by the radially extended outer part of said member, engageable with a load to lift the same when the wheel is turned.

13. A device of the character described having a member provided with means for detachable engagement with the spokes of a vehicle wheel, and a load supporting member movably suspended upon said member and having at different points in its length means for engagement with a receptacle to be lifted.

14. A device of the character described having a suspended load supporting member provided with means for engagement with a receptacle to be lifted, and means detachably engageable with the spokes of a vehicle wheel having connection with said supporting member and adapted to elevate the same when the wheel is turned.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN HARRIGAN.

Witnesses:
W. C. ABBOTT,
W. E. LAWSON.