Aug. 31, 1948. J. L. GOKEY 2,448,216

SELF-DUMPING WHEELBARROW

Filed June 4, 1947 2 Sheets-Sheet 1

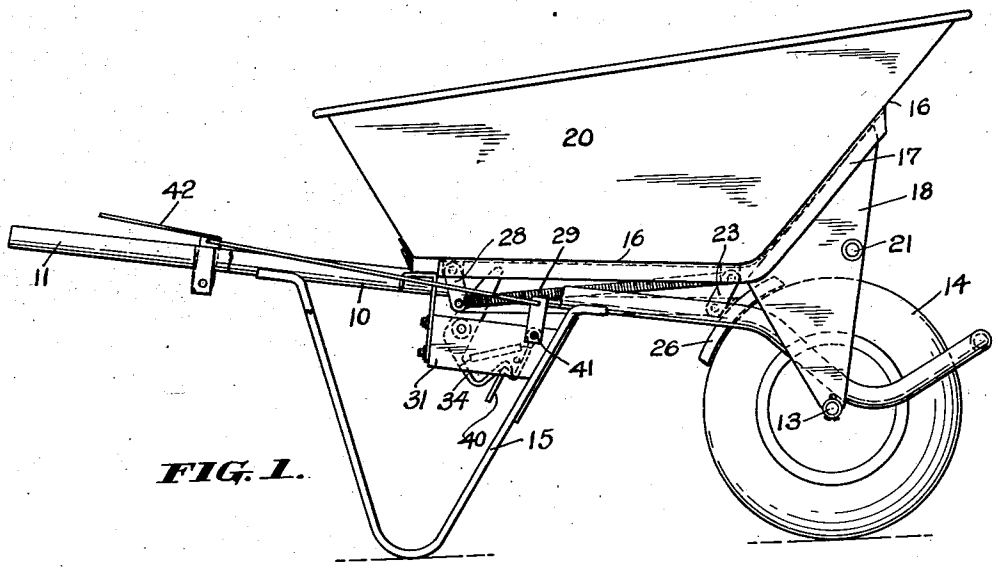

FIG. 1.

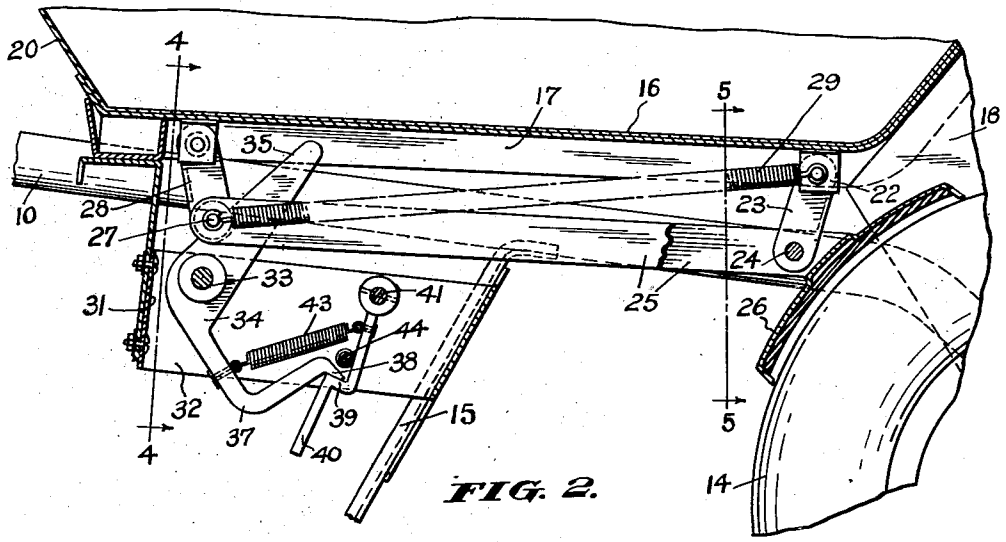

FIG. 2.

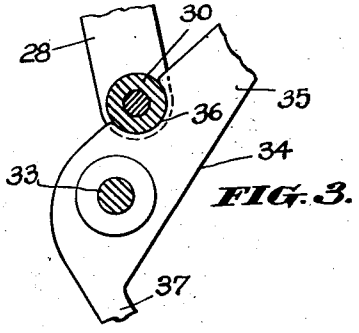

FIG. 3.

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SELF-DUMPING WHEELBARROW

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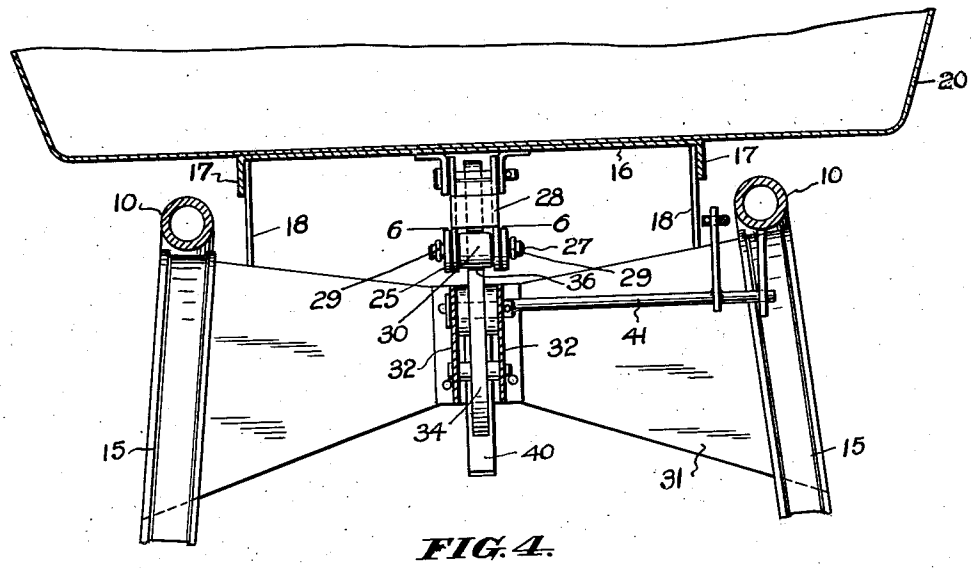

FIG. 4.

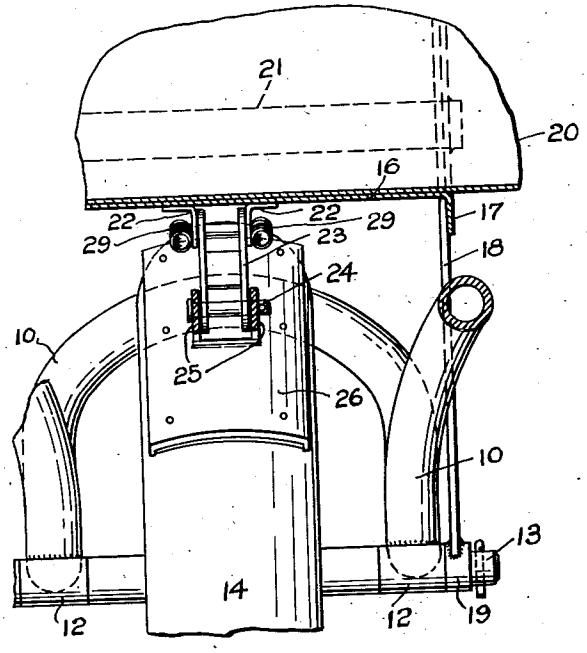

FIG. 5.

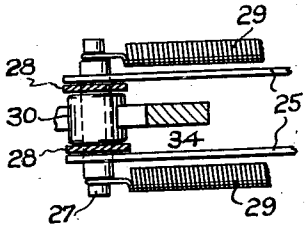

FIG. 6.

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SELF-DUMPING WHEELBARROW

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1 Claim. (Cl. 298—3)

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My invention relates to wheelbarrows, and more specifically to wheelbarrows of the type having a pivotally supported body adapted for upturning movement upon engagement of an associated brake mechanism with the wheel of the barrow to cause the body to dump its contents independently of manual dumping operations.

In the past, many wheel barrows, answering to this general description, have been made or proposed, but in many instances such prior devices were found to be impractical, primarily from the standpoint of mechanical inefficiency, and necessary high cost of manufacture and maintenance, due to the relative complexity of the various structural components making possible the self-dumping feature. It follows therefore, that the primary aim or objective of my invention is to generally improve upon known functions of this type of wheelbarrow by providing a simplified and rugged system of levers for imparting dumping movement to the load-receiving body of the wheel barrow as the same is being pushed forwardly by the operator, without necessitating the lifting or throwing over of the wheel barrow when dumping or emptying is desired.

It is another object of my invention to provide a self-dumping wheelbarrow of the character described, which utilizes the forward momentum of the wheelbarrow, as the same is being pushed forwardly by the operator, to effect the dumping or emptying of the load-receiving body thereof, thereby greatly reducing the manual effort ambient to the ordinary type of wheel barrow.

It is a further object of this invention to provide a wheelbarrow of the type described, wherein the weight of the load-receiving body and the contents thereof is centered about the associated ground wheel of the wheelbarrow, whereby the manual effort of lifting and pushing the vehicle is greatly decreased, and may be accomplished in a facile manner.

These and various other objects and advantages of the present invention will become more readily apparent with a better understanding of the invention, the same being had by reference to the following description and the accompanying drawings wherein:

Fig. 1 is a side elevational view of a wheelbarrow formed in accordance with the present invention;

Fig. 2 is an enlarged detail longitudinal vertical sectional view disclosing the brake releasing mechanism associated with the wheelbarrow disclosed in Fig. 1.

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Fig. 3 is a fragmentary detailed vertical sectional view disclosing the latch mechanism in locking engagement with the rearward portion of the load-receiving body of the wheelbarrow;

Fig. 4 is a transverse vertical sectional view taken along the plane indicated by the line 4—4 of Fig. 2;

Fig. 5 is a similar view taken along the line 5—5 of Fig. 2;

Fig. 6 is a horizontal sectional view taken along the line 6—6 of Fig. 4.

Referring now more particularly to the drawings, it will be seen that the present invention makes use of substantially V-shaped frame 10 which, as shown in the drawings, is preferably formed from a single length of tubular stock which is bent to a desired shape, and which terminates at its rearward end in a pair of transversely spaced handle members 11. As shown particularly in Figs. 1 and 5 of the drawings, the forward portion of the frame 10 is bent downwardly below the body portion thereof, and to this portion of the frame is welded a pair of transversely registering axle receiving collars 12. An axle 13 is rotatably mounted within each of the collars 12, and extends transversely between the downwardly bent portions of the frame to rotatably support a rubber-tired ground wheel 14. The intermediate portions of the sides of the frame are supported by a pair of dependent V-shaped stands 15, the latter being welded at their upper ends to the under side of the tubular frame members, and serve, in conjunction with the ground wheel 14, to provide a tripod support for the frame.

Disposed in longitudinal disposition above the frame 10 is a cradle bed plate 16 formed at its side edges with downwardly turned flanges 17. Welded to the forward portion of the bed plate 16 are a pair of dependent brackets 18, which, in turn are welded at their lower ends to a pair of circular collars 19 rotatably carried upon the axle 13 at the outer side of each of the bearing collars 12. The respective ends of the axle 13 are provided with cotter key fasteners which prevent or limit transverse displacement of the axle with respect to the collars 12 and 19. Welded, or otherwise suitably joined to the upper surface of the bed plate 16, is a load-receiving body 20, formed in the usual configuration of a hopper body, having a bottom and side walls. In this manner, it will be seen that the body secured to the bed plate 16 is free to swing in a limited vertical plane longitudinally of the frame about the pivotal connection between the de-

pendent brackets 18 and the transverse axis of the axle 13. A stop bar 21 is disposed between the two dependent brackets 18, and upon swinging movement of the body, engages the forward most portion of the frame 10 to limit the forward dumping or swinging movement of the body. At this point the forward portion of the hopper body extends substantially downwardly to allow the discharge of its contents through the forward end thereof by gravity.

Pivotally secured to the underside of the bed plate 16, substantially at the upwardly bent portion thereof, and by means of a pair of angle brackets 22, is a dependent and bifurcated link 23, which receives at its lower end a transversely disposed pivot pin 24. The pivot pin 24 in turn pivotally receives a bifurcated and rearwardly extending arm 25 which carries at its forward end an arcuate brake shoe 26 in spaced relation to the periphery of the rubber tire of the ground wheel 14. This brake shoe 26 may be advantageously faced with a resilient yieldable material, and when the same is swung forwardly into engagement with the periphery of the tire of the ground wheel, frictional engagement will obtain, and upon rotation of the ground wheel, the brake shoe will be carried in an arcuate path, and at the same time will force the pivotally mounted body forwardly in an upturning dumping movement. The brake shoe arm 25 extends rearwardly beneath the body 20, and is pivotally connected at its rearward end to a second pivot pin 27, which in turn is carried by a second similarly secured dependent link 28. Connected at either side of the pin 27, are the rearward ends of a pair of contractile springs 29, which extend diagonally beneath the bed plate 16, and are secured at their forward ends to the pivot pin extending between the angle brackets 22 rigidly carried at the bottom of the bed plate. By this system of leverage, it will be seen that the brake shoe arm 25 and its associated brake shoe will be urged forwardly into engagement with the periphery of the ground wheel 14, the same being free to pivot at its respective connections with the links 23 and 28, and at the same time the link 28 will be urged in a forward direction by the two contractile springs. Disposed between the dependent links 28 and rotatably carried upon the pin 27, is an anti-friction roller 30.

Disposed below the rearward portion of the lever system, and rigidly carried by the forward arm of the stands 15, is a substantially rectangular latch frame 31, and bolted to the intermediate portion of the latch frame are a pair of longitudinally extending and transversely spaced supporting brackets 32. These latter brackets are disposed in substantially vertical alignment with the rearwardly depending link 28 of the brake shoe system, and serve to support a latch system to be hereinafter more fully described. Pivotally mounted between the two brackets 32 upon a supporting shaft 33 is a bell crank latch lever 34 formed with an upwardly and diagonally extending lever arm 35 disposed in vertical alignment and engageable with the roller 30 carried by the dependent link 28. The upper arm of the latch lever 34 is provided with an arcuate recess 36 disposed substantially intermediate its length at its rearward edge, and adapted for the reception of the roller 30. The latch lever 34 is provided with an opposite arm 37 disposed at substantially a right-angle to the arm 35, and terminating at its outer end in a second right-angular bend and an outwardly projecting locking lip 38. This outwardly

projecting lip 38 is, in turn, engageable with a cooperatively formed shoulder disposed intermediate the end of a release lever 40, which is carried at its upper end by a shaft extending through and rotatably mounted in the brackets 32. This shaft 41 serves upon rotation to impart a swinging movement to the release lever 40 to effect disengagement between the lip 38 and the shoulder 39, in order that the latch lever 34 may be free to swing about its pivot 33. The rotation of the shaft 41 is accomplished by means of a linkage extending rearwardly of the frame 10, and terminating in a manually operable release handle 42, disposed above the right-hand handle member 11 of the frame. A second contractile spring 43 is interposed between and connected with the shorter arm 37 of the latch member 34 and the upper portion of the release lever 40, and normally serves to urge the lip 38 into engagement with the cooperative shoulder 39 in order to maintain holding engagement between the two, and upon operation of the release handle 42, the lever 40 is rocked against the action of this contractile spring 43. Swinging movement of the lever 40 is limited by means of a stop 44 positioned in abutting relation to the lever and carried between the two brackets 32. It will be seen, in view of the relation between the latch lever 34 and the release lever 40, that any tendency for rocking of the latch lever 34 in a clockwise direction, is prevented by nature of the abutting and interlocking engagement with the shoulder 39. In this manner, the latch lever 34 is held substantially rigid, and due to its inclined upper arm 35 serves to hold the roller 30, and consequently the brake shoe 26, in a backward position against the action of the contractile spring 29. Further, by nature of the arcuate recess 36, the link 28 and its roller 30 are securely held by the latch lever to secure the rearward portion of the body to the frame and prevent pivotal movement of the former, until released from the latch. It will be seen, that as the release lever 40 is swung to a position out of engagement with the abutting lip 38 of the latch lever, the latter is free to pivot under action of the contractile springs 29, which overcome the relatively smaller resilient force imparted by the second contractile spring 43, thereby allowing the brake shoe 26 to engage the periphery of the ground wheel 14 to impart an upswinging movement to the associated body, and a consequent freeing of the dependent link 28 and its associated roller 30 from within the arcuate recess formed at the backside of the latch lever 34.

In operation, the load-receiving body 20 of the wheel-barrow is filled or loaded, with the associated latch system in its locked condition, whereby the brake shoe 26 is disengaged from the periphery of the ground wheel 14, and the rearwardly disposed dependent link 28 is securely held within the latch lever 34. Upon filling of the body, the wheelbarrow is pushed to its destination, and when dumping or emptying of the body is desired, the manually operable release handle 42 is squeezed inwardly upon its associated handle 11 to disengage the release lever 40 from its holding engagement with the associated latch lever 34, whereby the contractile springs 29 force the latch lever 34 in a clockwise direction about its pivot 33, thereby allowing the brake shoe 26 to engage the periphery of the ground wheel 14, at the same time freeing the dependent link 28 disposed at the rearward underside of the load-receiving body. At this

time, due to the frictional engagement between the brake shoe **26** and the periphery of the rubber-tired ground wheel **14**, the body will be swung upwardly about its pivotal connection with the axle of the frame, to dump its contents by gravity from the forward portion of the body. It will be manifest, that rotation within the ground wheel **14** is necessary in order that the brake shoe may be carried in an arcuate path to effect the necessary dumping movement. After the contents of the body has been dumped, the body may be returned to its locked position by pulling backwardly upon the wheelbarrow thus causing the break shoe to swing in the opposite direction to consequently engage the rearward dependent link **28** with the latch lever **34**, as the same is now held in its locked position with respect to the lever **40**, these latter members being returned to their original positions by nature of the contractile spring **43** upon release of the associated handle member **42**.

In view of the foregoing it will be seen that the present invention provides a useful and mechanically efficient wheelbarrow capable, upon operation of an associated release device, of dumping emptying the contents of the associated load-receiving body forwardly of the barrow, and after dumping operations, the body may be returned to its original locked condition and is rigidly held to the associated frame for subsequent load-receiving operations. The invention is further characterized by its rugged construction, its ease of operation, and its economy of manufacture.

While a preferred embodiment of the present invention has been disclosed in detail, it will be manifest that various modifications as to details of construction and design may be accomplished without departing from the scope of the following claim:

I claim:

A self-dumping wheelbarrow comprising a substantially V-shaped frame terminating at its rearward end in a pair of transversely spaced handle members, a transversely disposed axle carried by said frame substantially at its forward end, a ground wheel rotatably carried by said axle, a load-receiving body disposed longitudinally above said frame and pivotally secured thereto substantially at the ends of said axle for limited swinging movement in a longitudinal plane with respect to the frame, a brake shoe pivotally secured to said body at its underside and engageable with the peripheral surface of said wheel, a link pivotally secured to the underside of said body in rearwardly spaced relation to said brake shoe, an arm joining said link with said brake shoe, a spring disposed between said body and said link for normally urging said brake shoe into engagement with the peripheral surface of said wheel, a latch carried by said frame and engageable with said link for holding the body to said frame against pivotal movement and for holding said brake shoe out of engagement with said wheel, and a manually operable lever disposed on one of said handle members for disengaging said latch from said link.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
329,328	Matthews	Oct. 27, 1885
524,917	Taufflieb et al.	Aug. 21, 1894