

May 12, 1931.

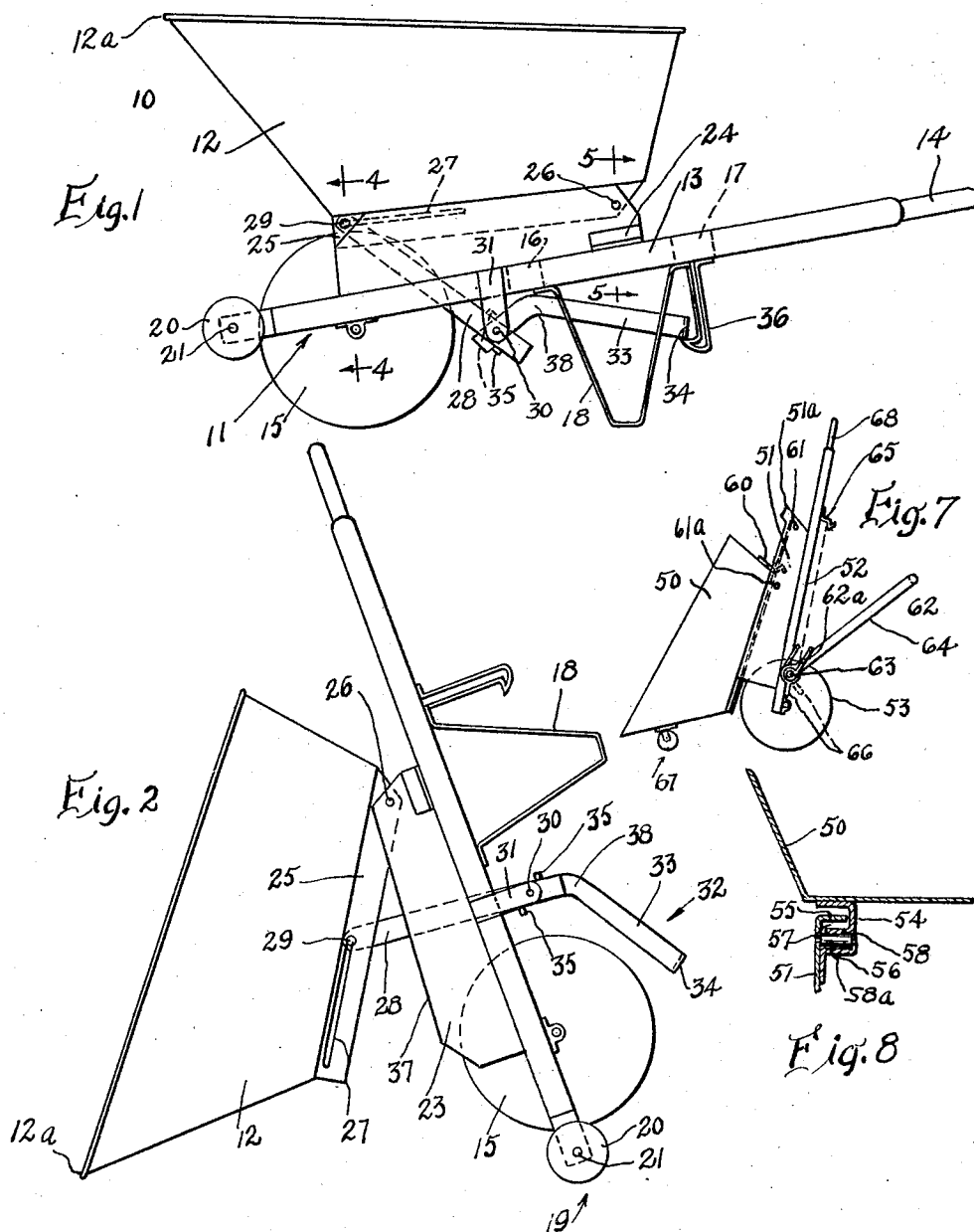
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LOADING WHEEL BARROW

Filed March 5, 1928

2 Sheets-Sheet 1



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By his Attorney
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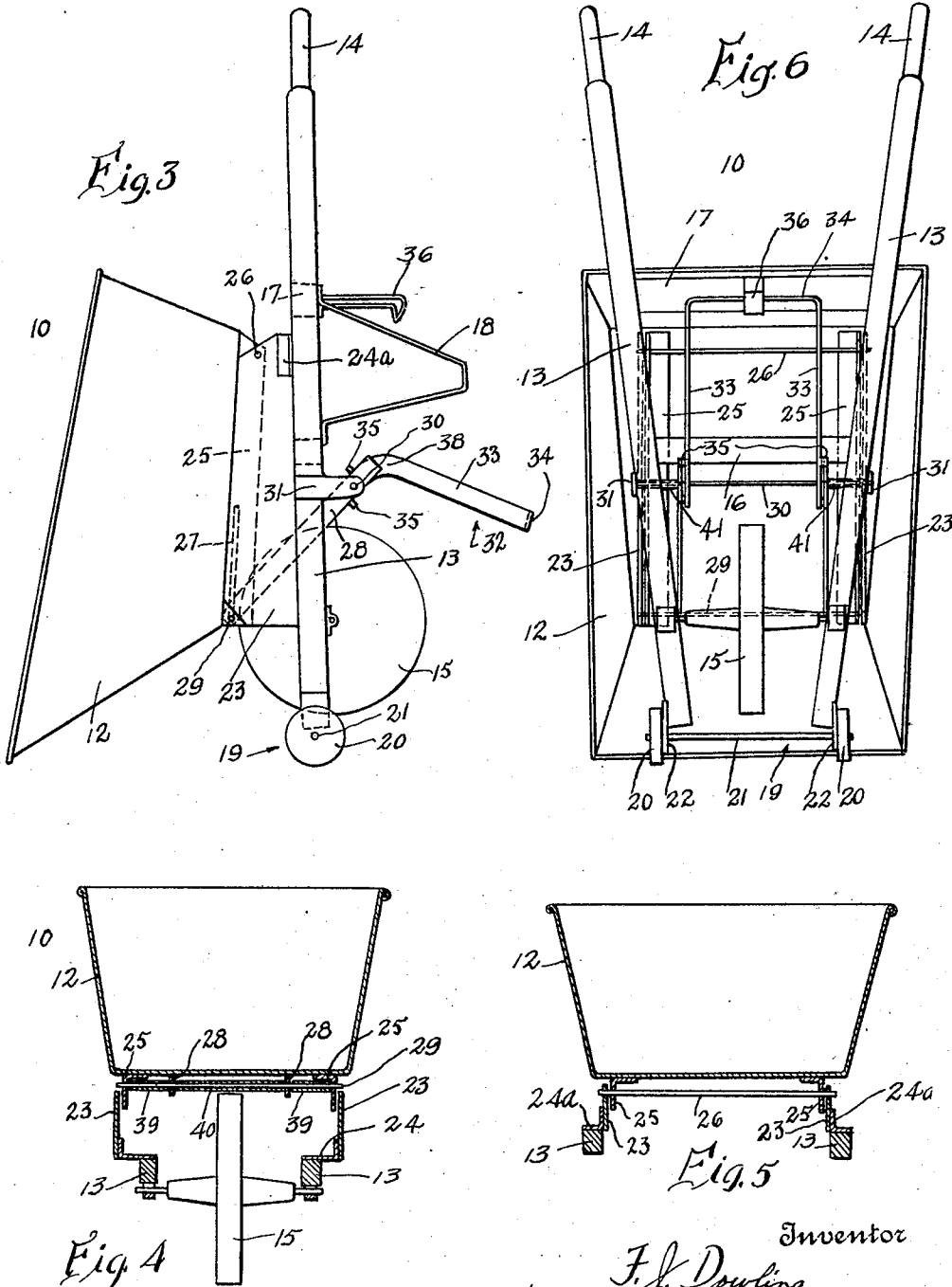
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UNITED STATES PATENT OFFICE

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LOADING WHEELBARROW

Application filed March 5, 1928. Serial No. 259,178.

This invention relates to loading wheelbarrows.

The main object of this invention is to provide a wheelbarrow having improved means for digging and loading actuation thereof.

A supplemental object of the invention is to provide a device of the character described, including improved means permitting the wheelbarrow to be used in an initial run along the ground for piling up the material to be loaded.

Another object of the invention is the provision of a device of the nature set forth having improved means facilitating the run aforesaid and operating as a rest for the wheelbarrow in dumping the load.

A further object of the invention is to produce a construction of the type specified in which the body of the wheelbarrow is movable with its digging wall into comparatively close proximity to the ground or base of the pile for the purpose set forth.

Other objects will in part be evident and in part pointed out hereinafter.

Generally described, the invention includes a loading wheelbarrow comprising a frame and a body thereon movable like a scoop. The wheelbarrow is moved into upright position, and the body swung about a rear pivot away from the frame. The said frame rests on auxiliary wheels, permitting the wheelbarrow in this open or spread position to be run along the ground at the base of the pile for gathering all the material into the pile. Thereafter, the frame is brought up against the body, and the latter locked thereto, and the operator pivots the body forward and upward into the pile for digging action, about the auxiliary and main wheels of the device, bringing the wheelbarrow into normal horizontal position. On upturning the same into the vertical, its contents can be conveniently dumped.

The wheelbarrow can also be constructed to permit the body to move forward over the wheel, to increase the movement of the digging edge of the body into the pile. Auxiliary drive means may be embodied to facili-

tate the initial run. The body may execute part of its downward movement over the wheel, while the frame of the wheelbarrow is being swung rearward back toward normal substantially horizontal position. Suitable stop means limits this movement of the body. The body is then brought back to substantially horizontal position, and returned to normal position on the frame where it is retained by other stop means.

The invention herein described constitutes an improvement over that described in my application for patent Serial No. 238,582, filed Dec. 8, 1927.

In the drawings:

Figure 1 is a side elevation of an embodiment of the invention.

Fig. 2 is a similar view showing the device in position for the initial run.

Fig. 3 is a side elevation of the same after said run, and with the frame brought back to the body.

Figs. 4 and 5 are sectional views taken on lines 4—4 and 5—5 of Fig. 1, respectively.

Fig. 6 is a rear elevation of the device in dumping position.

Fig. 7 is a side elevation of a modification of the invention in position for the initial run.

Fig. 8 is an enlarged sectional view of details of invention.

Referring in detail to the drawings, 10 denotes a device embodying the invention. The same is shown as including a wheelbarrow comprising a frame 11 and a body 12. The frame consists of the usual side bars 13 terminating at one end in the handles, 14, and at the other end, having the wheel 15 mounted thereon. The side bars may be reinforcingly connected together in any suitable manner, for example, by means of cross braces 16 and 17. A usual rear support 18 may be employed. The rest for dumping consists of a movable carrier 19, which may include the wheels 20 mounted on the shaft 21, the latter being journaled in brackets 22 fixed to the frame 11.

The position of the body 12 with respect to the wheel 15 may be made to suit operating conditions, but preferably the digging edge

12a of the said body is as far forward over the wheel as is consistent with convenience in the manipulation of the wheelbarrow, bearing in mind the general construction of the same and the length of the said handles. As shown in Fig. 3, the handles are thus substantially vertical in the upturned position of the wheelbarrow.

The frame includes a pair of side plates 23 rigidly secured to the side bars by means of angle brackets 24 and 24a or in any other feasible manner. The said plates extend in any suitable relation to one another, but are here shown parallel.

Fixed to the under side of the body 12 are the spaced supporting and reenforcing members 25. A pivot bar 26 passes through these members 25 and through the plates 23, so that the body 12 is swingable away from the frame 11. The members 25 have flanges, slidably engaging the said plates, as clearly shown in Fig. 5, thus affording lateral support to the body 12 in course of such movement.

The members 25 constitute guides in another sense also, being provided with the aligned slots 27 toward the front ends of these members. Spanner bars 28 engage the guide members by means of follower pivot 29 movable in said slots. The other ends of the bars 28 are fixedly pivoted by rod 30 to brackets 31 rigidly secured to the frame 11.

A combined locking and drive member 32 of U-form is likewise pivotally mounted on 30. The member 32 comprises side arms 33, and a cross bar 34. The arms 33 have at their ends lugs 35 at opposite edges and spaced for engagement with their respective spanner bars 28. According to the position shown in Fig. 1, the member 32 being retained against unintended movement by a spring latch 36, so as to lie in out of the way position beneath the frame 11, the lugs 35 are then effective to lock the spanner bars against pivotal movement, and prevent the body 12 from moving off its seat on the edges 37 of the plates 23. This is very important particularly when the wheelbarrow is upturned for dumping.

In the position of member 32 shown in Fig. 2, the said member is disengaged from latch 36 and dropped till lugs 35 engage again with the spanner bars 28. Due to an offset at 38 in the arms 33, the cross bar 34 is now comparatively low with respect to the ground. The cross bar referred to now constitutes a drive actuator, whereby the operator, can force the body 12 into the pile, as hereinafter described.

Since the side bars 13 of the frame extend at an angle toward each other, as in the usual construction of wheelbarrows, the mechanism herein is constructed with a view to maintaining clearances for the moving parallel members. For example as shown in Fig. 4, the spanner bars are in spaced relation to the

guide members 25, sleeves 39 and 40 being provided about the follower 29. Likewise, spacing sleeves 41 are used around pivot rod 30 and extending between brackets 31 and the spanner bars 28. It is contemplated, however, that the frame bars 13 referred to may be in parallelism for compactness and simplification in the operating mechanism while the handles 14 may be angularly related to one another.

In operation, the wheelbarrow is swung from its normal horizontal position, into the vertical, and member 32 released from its latch, thus permitting the body 12 to move outward of the frame 11 as shown in Fig. 2. The operator then takes hold of the frame at the members 18 and in as low a position as may be convenient, and runs the wheelbarrow along the ground. The body picks up the material in its path, lying at the edge of the pile, and this material heaps up into the body. Then the operator places a foot on the wheel 15, and, holding on to the members 18, pushes the frame back into normal position against the body 12, after which the member 32 is latched at 36, locking the body to the frame. Still keeping his foot on the wheel 15, the operator swings the wheelbarrow toward himself. Thus there is a powerful force exerted during the digging tending to drive the body forward and upward into the pile. The wheelbarrow rides along wheels 20 further into the pile, and swings from supporting position on said wheels to the main wheel 15. In order to dump the wheelbarrow, the same is swung upward in the usual manner onto the wheeled rest 19, while the latch 36 is effective. By this invention the largest size of body can be loaded with the heaviest and most reluctant material, if a man is placed at the pile to move material into the body with a shovel during the digging. The manipulation of the wheelbarrow is very rapid. Even where the operator works alone, and in the case of a difficult material such as small coal, the body 12 does not load quite full, a very great saving of time and labor is effected, and a considerable number of wheelbarrows can be kept quickly moving. Where the material is lighter, a body of the largest size can be fully loaded by only one man.

If after the frame has been brought back against the body, and before the member 32 has been locked, it be desirable to take a further dig into the pile, the operator places his foot on the cross bar 34, and bears downward thereon, while holding the handles 14. The spanner bars 28 and the arms 33 act as continuous levers pivoting at 30 and driving the body 12 forward from the said frame. Rearward movement of the latter is effectively prevented by the forward component of the force exerted by the operator's foot. After such forward projection of the body 12, the

frame is against brought up against the body, and the member 32 latched at 36 as hereinbefore stated.

In the modification of Figs. 7 and 8, I show a body 50 mounted on side plates 51 that are secured to the bars 52. The said body is maintained by said plates for forward sliding movement over the wheel 53. To this end, channels 54 are secured to the underside of the body. The plates 51 have flanges 55, and in spaced relation therewith the angles 56 forming grooves 57 to receive flanges 58 of the channels 54. Thus the body 50 is free to slide forward over the wheel, suitable anti-friction means 58a being provided to facilitate the movement of the body in relation to the frame. In normal position, the said body is locked against forward projection by a central spring latch 60 that is adapted to engage a rod 61 fastened to plates 51, while lugs 51a on plates 51 retain the body against rearward movement. When the body is forwardly projected, the said latch engages a rod 61a fastened to plates 51 so as to limit the forward movement of the body. The engagement of latch 60 with rod 61 occurs automatically coincident with rearward movement of the body 50. To drive the body into the pile, an auxiliary actuator 62 is pivotally mounted on pivots 63 of the bars 52. Said actuator may consist of a U-member having side arms 64, and the same is normally retained under the bars 52 as shown in dotted lines by means of a spring latch 65. At their lower ends, the arms 64 having abutment tongues 66 to bear against the under side of bars 52 when in driving position. Expansion springs 62a at the sides of the wheelbarrow are mounted on pivots 63. These springs tend to retain the actuator 62 in the position shown. But the latch 65 is superior thereto. The wheeled rest 67 is made as in the other construction, but is attached to the body 50 as shown.

The operation of this device will now be clearly apparent. As shown in Fig. 7, the wheelbarrow can be run along the ground, and with momentum into the pile, the operator holding the actuator 62. On reaching the limit of such movement, actuator 62 is locked, and the operator grasps the handle portions 68 of the bars 52 and swings the wheelbarrow to horizontal position. The body 50 is then easily returned down the inclined guides and locked by 60.

According to this modification, the body 50 on moving downward over the wheel 53, causes its digging edge to move a greater distance into the pile on being swung as aforesaid. The operator placing his foot on the wheel 53 and grasping the easily manipulated rearward extending handles 68 can readily swing the wheelbarrow back to horizontal position, at which time the body is

moved rearward by the facilitating inclined channel guides aforesaid.

When the wheelbarrow is in substantially upright position as in Fig. 7, the latch 60 does not engage rod 61a but is in spaced relation thereto. On swinging the handles 68 downward, after the initial run has been completed as aforesaid, the body 50 moves downward relative to the frame of the wheelbarrow until said latch engages the rod 61a. Thus the digging wall of the body 50 executes a greater forward movement into the pile, about the wheel 53, the latter being at this time supported by the operator's foot against rearward movement. The object is thus accomplished of preventing the body from being raised out of the pile on initiating the rearward movement of the handles 68.

The representation of the latches 60 and 65 is purely illustrative, and any construction well known in the art can be employed. The latch 60 can be released by hand or in any other suitable manner. In lieu of this latch, a stop can be used to limit the forward movement of the body, and a detent to lock the body in rearward position. From the last mentioned position the wheelbarrow is dumped.

I claim:—

1. A wheelbarrow including a body normally disposed in substantially horizontal position, supporting means for the body having a wheel at the forward end thereof, and guide means co-acting with the body and the supporting means for forward movement of the body at an angle to the supporting means and away therefrom to cause the body to pass in the same general direction over the said wheel, for a digging position of the body when the wheelbarrow is upturned on its forward end, said body moving backward with the aid of gravity on bringing the wheelbarrow back to substantially horizontal position.

2. A wheelbarrow including a body normally disposed in substantially horizontal position, a frame supporting the body, said frame having a wheel at the forward end thereof, said body and frame being upturned into digging position, and means for digging actuation movably coacting with the body and frame, said means being movable into rearward and upward extending position with respect to the frame in the said upturned position mentioned.

3. A wheelbarrow including a body, a frame supporting the same, said frame having a wheel at the forward end thereof, said body having roller means at its front wall coacting with the frame wheel in the upturned position of the wheelbarrow to support the same, and movable means extending rearward from the frame for digging actuation of the body.

4. A wheelbarrow including a substan-

- tionally horizontally elongated body and a supporting frame therefor, said frame comprising a wheel at the front end of the body, said body being movable forward along the frame in the lengthwise direction thereof and over the wheel so as to be in front of said wheel in upturned position of the wheelbarrow, said frame being operative for swinging the body rearward with respect to the said wheel as a pivot to return the body to initial position.
5. A wheelbarrow including a body, a frame supporting the same, the frame having a single central wheel at the forward end thereof, said body and frame being normally substantially horizontal and being upturned into digging position, and guide means coacting therewith for movement of the body in the general direction of the frame at a substantially constant angle thereto to cause the body to move with its front wall into relative proximity to the ground in the upturned position, and said front wall making a steep angle with the ground, and the said frame having its upper portion extending substantially rearward in the said upturned position to facilitate rearward swinging of the frame and body.
6. A wheelbarrow including a body, a wheeled frame on which the body is mounted, means to drive the wheelbarrow with the body moving forward into a pile in upturned position of the wheelbarrow, said body being mounted to move along said frame toward the front end thereof to form with the frame an enlarged base for the wheelbarrow in upturned position of the latter.
7. A wheelbarrow including a substantially horizontally elongated body and a supporting frame therefor, said frame comprising a wheel at the front end of the body, said body being movable forward along the frame in the lengthwise direction thereof and over the wheel so as to be in front of said wheel in upturned position of the wheelbarrow.
8. A wheelbarrow including a horizontal elongated body, a supporting frame therefor, a wheel on the frame at the front end of the body, said wheel movably carrying said frame in upturned position of the wheelbarrow, and manual means extending upward and rearward at an angle with said frame, said means movably engaging the front end of the frame and coacting with the body to drive the same forward.
9. A wheelbarrow including a body, a supporting frame therefor, a front wheel on the frame, said body touching the ground in the upturned position of the wheelbarrow, said body being movable in downward direction over the wheel, on moving said frame rearward toward normal position, and means to limit the said downward movement of the body.
10. A wheelbarrow including a body, a supporting frame therefor, a front wheel on the frame, said body being movable along said frame over the wheel, said body touching the ground in the upturned position of the wheelbarrow, said body being movable in downward direction over the wheel on moving said frame rearward toward normal position, and means to limit the said downward movement of said body.
11. A wheelbarrow comprising a horizontally elongated body open at the top thereof, and a frame under said body supporting the same, said frame having a wheel adjacent to the front end of the body and a handle spaced to the rear of said body, said body being movable along the frame in a frontward direction, the front wall of the body constituting a digging wall in the upturned position of the wheelbarrow, said front wall substantially touching the ground on movement of the body as aforesaid.
12. A wheelbarrow comprising a horizontally elongated body open at the top thereof, and a frame under said body supporting the same, said frame having a wheel adjacent to the front end of the body and a handle spaced to the rear of said body, said body being movable along the frame in a frontward direction, the front wall of the body constituting a digging wall in the upturned position of the wheelbarrow, said front wall substantially touching the ground on movement of the body as aforesaid, the body being movable along the frame in the frontward direction on initial movement to return the body to normal position, and means to limit the movement of the body along the frame and the body being returned by gravity to normal position on returning the frame to substantially horizontal position.
13. A wheelbarrow comprising a horizontally elongated body open at the top thereof, and a frame under said body supporting the same, said frame having a wheel adjacent to the front end of the body and a handle spaced to the rear of said body, said body being movable along the frame in a frontward direction, the front wall of the body constituting a digging wall in the upturned position of the wheelbarrow, said front wall substantially touching the ground on movement of the body as aforesaid, the body having downward inclined engagement with the frame to cause the body to move substantially by the action of gravity on returning the wheelbarrow to its normal substantially horizontal position.
14. A wheelbarrow comprising a horizontally elongated body open at the top thereof, and a frame under said body supporting the same, said frame having a wheel adjacent to the front end of the body and a handle spaced to the rear of said body, said body being movable along the frame in a frontward direction, the front wall of the body constituting a

digging wall in the upturned position of the wheelbarrow, said front wall substantially touching the ground on movement of the body as aforesaid, and means beneath the frame

movably engaging the same in proximity to the front end thereof, said means being adapted to extend in spaced relation to the frame in upturned position of the wheelbarrow to permit the body to be driven into a pile.

15. A wheelbarrow comprising a horizontally elongated body open at the top thereof, and a frame under said body supporting the same, said frame having a wheel adjacent to the front end of the body and a handle spaced to the rear of said body, said body being movable along the frame in a frontward direction, the front wall of the body constituting a digging wall in the upturned position of the wheelbarrow, said front wall substantially touching the ground on movement of the body as aforesaid, and means beneath the frame movably engaging the same in proximity to the front end thereof, said means being adapted to extend in spaced relation to the frame in upturned position of the wheelbarrow to permit the body to be driven into a pile, the body having anti-friction means at the front end thereof which supports the same, in co-operation with the wheel on the frame, in upturned position.

16. A wheelbarrow comprising a horizontally elongated body open at the top thereof, and a frame under said body supporting the same, said frame having a wheel adjacent to the front end of the body and a handle spaced to the rear of said body, said body being movable along the frame in a frontward direction, the front wall of the body constituting a digging wall in the upturned position of the wheelbarrow, said front wall substantially touching the ground on movement of the body as aforesaid, the body having anti-friction means at the front end thereof which supports the same, in co-operation with the wheel on the frame, in upturned position.

17. A wheelbarrow comprising a horizontally elongated body, a frame under said body supporting the same, said frame having a wheel at the front end of the wheelbarrow and a handle at the rear end thereof, said body having a front wall adapted to dig in upturned position of the wheelbarrow, and means movably engaging the frame in proximity to the front end of same, said means extending upward and considerably to the rear of the main frame in the upturned position aforesaid, said means permitting the wheelbarrow to be manually driven into a pile for digging.

18. A wheelbarrow comprising a horizontally elongated body, a frame under said body supporting the same, said frame having a wheel at the front end of the wheelbarrow and a handle at the rear end thereof, said

body having a front wall adapted to dig in upturned position of the wheelbarrow, and means movably engaging the frame in proximity to the front end of same, said means extending considerably to the rear of the main frame in the upturned position aforesaid, said means permitting the wheelbarrow to be manually driven into a pile for digging, said body having anti-friction means at its front end to support the body in the upturned position of same.

19. A wheelbarrow including a body, a frame on which the body is mounted, a central wheel on the forward end of the frame, means to drive the wheelbarrow with the body moving forward into a pile in upturned position of the wheelbarrow, and a wheeled rest on the forward end of the body forming with the wheel of the frame an enlarged base for running the wheelbarrow along the ground in the upturned position, the front wall of the body making a steep angle with the ground and being in relative proximity thereto at its lower end.

20. A wheelbarrow including a body, a frame on which the body is mounted for movement therealong toward the front end of the frame, a single central wheel at the front end of the frame supporting the same, and a wheeled rest on the front end of the body, said wheeled rest forming with the said wheel an enlarged base on upturning the wheelbarrow and moving the body along the frame as aforesaid, said enlarged base permitting the wheelbarrow to be easily run along the ground, for the purpose set forth, the front wall of the body making a steep angle with the ground and being in relative proximity thereto at its lower end.

21. A wheelbarrow including a substantially horizontal elongated body and a supporting frame therefor, a wheel at the front end of said frame supporting the same, said frame comprising a handle spaced to the rear of said body, and means movably engaging the frame in proximity to the front end thereof, said means extending upwardly and in spaced rearward relation to the frame on upturning the wheelbarrow, whereby said means may be manually actuated to drive the body into a pile, said means being movable into proximity to the frame on returning the wheelbarrow with the body in normal, substantially horizontal position.

22. A wheelbarrow including a substantially horizontal elongated body and a supporting frame therefor, a wheel at the front end of said frame supporting the same, said frame comprising a handle spaced to the rear of said body, and means movably engaging the frame in proximity to the front end thereof, said means extending upwardly and in spaced rearward relation to the frame on upturning the wheelbarrow, whereby said means may be manually actuated to drive the

body into a pile, said means being movable into proximity to the frame on returning the wheelbarrow with the body in normal, substantially horizontal position, said means being pivotally mounted on the frame for movable engagement therewith as aforesaid.

23. A wheelbarrow including a substantially horizontal elongated body and a supporting frame therefor, a wheel at the front end of said frame supporting the same, said frame comprising a handle spaced to the rear of said body, and means movably engaging the frame in proximity to the front end thereof, said means extending upwardly and in spaced rearward relation to the frame on upturning the wheelbarrow, whereby said means may be manually actuated to drive the body into a pile, said means being movable into proximity to the frame on returning the wheelbarrow with the body in normal, substantially horizontal position, there being a spring provided tending to move the said means to rearward spaced relation as aforementioned, and other means to hold said means in proximity to the said frame against the force of the spring.

In testimony whereof I affix my signature.

FRANCIS J. DOWLING.