

Dec. 10, 1940.

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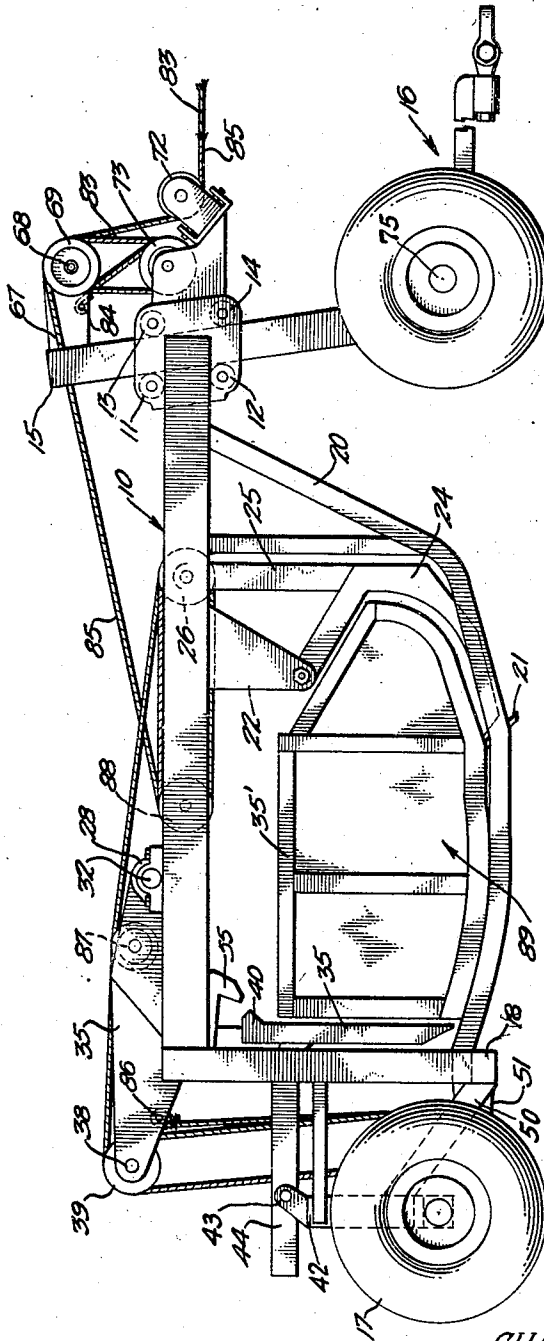
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Fig. 1.



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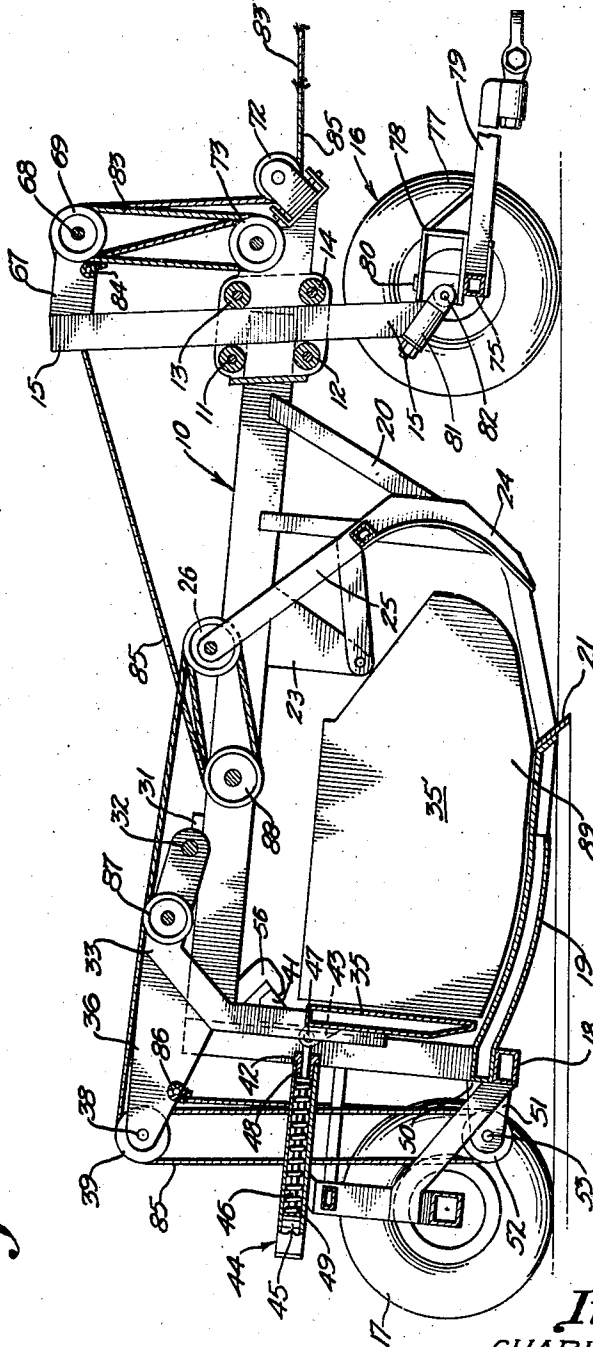
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Fig. 2



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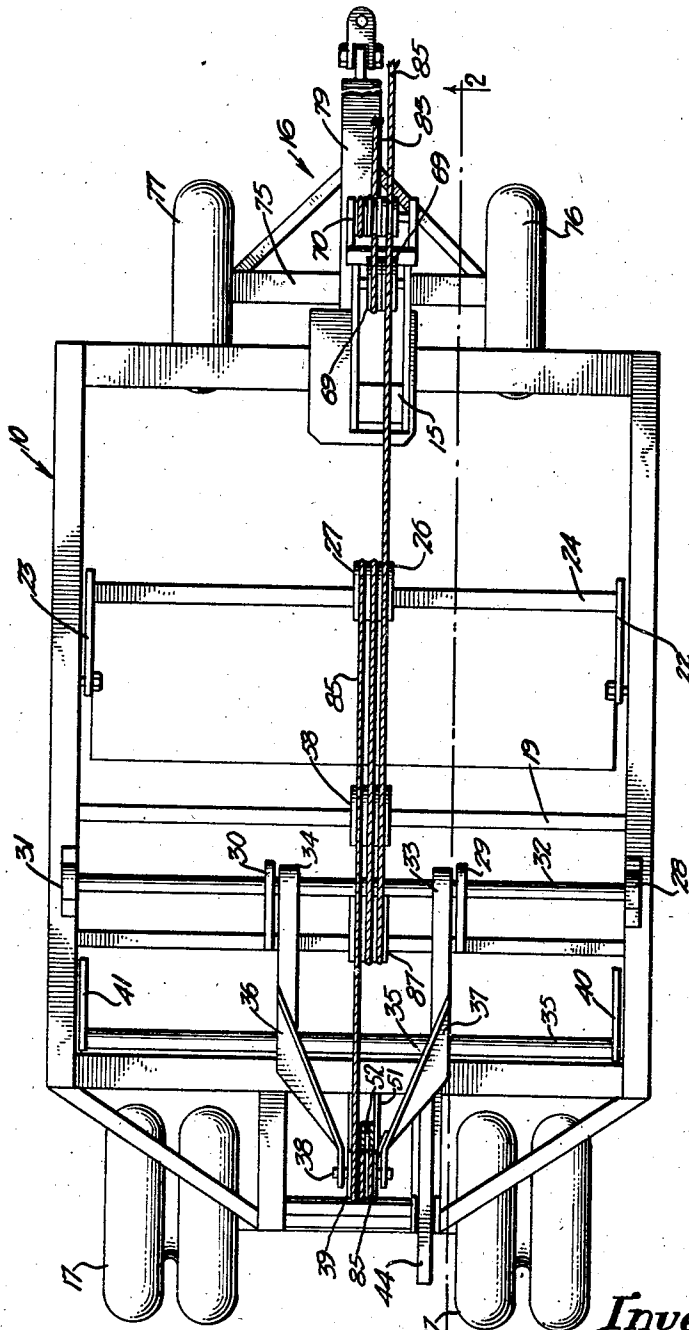
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Fig. 3.



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3 Claims. (Cl. 37—126)

This invention relates to material moving means and particularly pertains to the type of device known as a carryall scraper and is a continuation in part of my co-pending application entitled Scrapers, Serial No. 40,847, filed September 16, 1935.

The principal object of the present invention is to provide a scraper which has a bucket disposed with the frame, the two sections of the frame being movable with relation to each other so that the bucket and the main frame may be readily raised and lowered upon the upstanding arm associated with the front truck of the device to allow the main frame and the bucket to be readily and easily raised and lowered while carrying a capacity load.

The invention is illustrated by way of example in the accompanying drawings in which:

Figure 1 is a view of the side elevation of the device.

Figure 2 is a view in longitudinal cross-section as seen on line 2—2 of Figure 3 of the drawings.

Figure 3 is a view in plan showing the general arrangement of parts of the present invention.

Referring more particularly to the drawings, 10 indicates in general the main frame structure, incorporated in the frame at its forward end are non-friction members 11, 12, 13, and 14, spaced apart and arranged to mount the front end of the frame for vertical movement on the upstanding arm or post 15 swivelly connected at its lower end to the front truck 16. The front truck 16 is adapted for connection to any suitable draft means. The rear end of the main frame structure 10 is suitably mounted upon rolling supports 17. Attached to the frame 10 at 18 is a suitably constructed bottom 19 which is held in place at its forward end by brace means 20. A scraper blade 21 is detachably secured to the forward edge of the bottom 19. Attached to the main frame 10 at each side thereof are brackets 22 and 23. Pivotaly mounted on the lower ends of each of these brackets is a front gate structure 24 provided with an upwardly projecting arm 25 carrying at its upper end and at each side thereof sheaves 26 and 27. Extending transversely of the frame 10 and journaled in suitable bearings 28, 29, 30, and 31, secured thereto is a crankshaft 32. Between the bearings 29 and 30 are a pair of arms 33 and 34 carrying a transversely extending rear gate 35 for horizontal swinging movement. Secured to arms 33 and 34 are rearwardly extending arms 36 and 37 carrying between their rear ends by means of a pin 38 a plurality of sheaves 39. Secured to the rear gate at each side thereof is a pair of stops 40 and 41. Secured to the frame 10 at 42 are brackets 43 which pivotaly support a boxlike structure 44. This structure comprises a block 45 secured to a rod 46 pivotaly connected at 47

and at its outer end to the rear gate 35. The boxlike structure 44 is provided at its forward end with a head member 48 having a central opening therethrough through which rod 46 passes. Interposed between the block 45 and the head member 48 is a compression spring 49 which encircles the rod 46. Secured to the frame 10 at a point indicated at 50 are bracket means 51 carrying a sheave 52 upon pin 53. The sheaves 39 and 52 are disposed and arranged in operating relationship to each other. These sheaves are in vertical alignment and receive a cable 85 which will be hereinafter described as providing means to swing the rear gate 35 on its axis in emptying the bucket 89. It is understood that the bucket in this instance includes the bottom 19, the rear gate 35, and side boards 35'. The gate 35 may be temporarily locked by locking hooks 55 and 56 which engage in members 40 and 41 carried by the gate. The hooks may be released by any suitable mechanism such, for example, as that indicated in my co-pending application of which this is a division.

Referring more particularly to the front truck structure 16 it will be seen that this truck comprises an axle 75 upon which a pair of wheels 76 and 77 are mounted. Mounted upon the axle 75 between the wheels is a yoke structure 78 comprising a draw bar 79 and carrying a kingpin 80 which runs vertically through the yoke 78 to allow lateral swinging movement of the truck 16. Mounted upon the lower end of the upright 15 is an inclined kingpin bearing 81 having a pin 82 running horizontally through the lower forward end of the inclined kingpin whereby the forward end of the inclined kingpin will be pivotally mounted to the yoke 78 rearwardly of the kingpin 80. This construction allows for the vertical movement of the drawbar 79 without changing the relative position of the upright 15 and also allows for the movement of the upright 15 when changing position when the main frame 10 is raised and lowered upon the upright, the operation of which will be described later. It will thus be seen that with the construction of the front truck as here described a universal action will be obtainable.

It will be understood that the mounting of the sheaves 69 and 70 on the one hand and sheave 73 on the other hand may be reversed if so desired. That is to say, that sheaves 69 and 70 may be mounted on the forward end of frame 10 and sheave 73 may then be mounted on the forward end of arms 67 carried by the upright 15. Again sheaves 69 and 73 may be mounted as shown in the drawings and the sheave 70 may be mounted on the forward end of the frame 10 instead of on the arms 67 as here shown. Attention is directed to the fact that the arm 67 is rigidly secured to the upper end of the post 15 and that it projects

forwardly to overhang the frame. It will also be noted that the forward truck structure 18 is disposed in advance of the post and that the post is inclined. Due to this arrangement the post will be in a sense counter-balanced so that its action will be relatively free and so that it will not be difficult for the frame to adjust itself with relation to the post at any time. It will further be evident that this arrangement makes it possible for the load within the scraper to be more easily lifted and lowered. In operation of the device the elevation of the scraper blade 21 with respect to the surface of the earth is controlled by the manipulation of cable 83 which is anchored at one end to the arms 67 at 84 and which passes around and about sheaves 69 and 73 and then about the direction change sheave 72 and extending forwardly to a winding drum carried upon the draft means and which is of conventional design and is, therefore, not shown as it will be understood that any winding means will operate satisfactorily. Thus the slack in cable 83 will permit the forward end of frame 18 to move downwardly on the upstanding arm 15 and consequently the scraper blade 21 will be lowered. Rewinding of the cable 83 will result in lifting the forward end of frame 18 thus raising the scraper blade 21. Thus the forward end of the frame may be raised and lowered by manipulation of cable 83 to allow the forward end of the frame structure 18 to move up and down with relation to the upstanding arm 15 freely upon non-friction members 11, 12, 13, and 14. Cable 85 is anchored to the rearwardly extending arm 36 at 86 and passes downwardly around sheave 52 and upwardly and completely around sheave 39 and back around sheave 52 and then upwardly over sheave 39 and forwardly across the sheave 87 mounted upon the arm 33 and then forwardly around sheave 26 carried upon the upper end of arm 25 and then rearwardly around sheave 88 and then forwardly around sheave 28 and rearwardly around sheave 88 and then forwardly over sheave 78 and then downwardly and around direction change sheaves 72 and forwardly to the draft means to a conventional winding drum not shown, thus when the cable 85 is wound upon the winding drum the slack will be taken up and the gate 24 will move outwardly away from the bucket 89 and the cable will in turn act upon sheaves 39 and 52 and its anchor 86 to then move the rear gate 35 against the resistance of the spring 48 forwardly to eject the material from the bucket. It will be understood that with this arrangement the front gate will operate and will be moved to its open position before the forward movement of the rear gate 35 to eject a load. When slack is allowed on cable 85 when the winding drum is released the tension imposed upon spring 48 by the forward movement of the rear gate will return the rear gate to its normal position at the rear of the bucket and will operate the cable to allow the front gate 24 to return to its normal closed position with relation to the forward end of the bucket. It will thus be seen that with the structure here disclosed it will be possible to control vertical movement of the scraper frame and its bucket upon and with relation to the front truck and to raise and lower the scraper blade with relation to the surface to be acted

upon by means of a single cable operated from the draft means and that it will also be possible to open and close the front gate of the device and the rear gate thereafter to easily and effectively eject the load from the device by operation of a single cable controlling these two actions and that the construction and operation of the device is extremely simple compared to those now in use.

While I have shown the preferred form of my invention it is now known to me that various changes might be made in the combination, construction, and arrangement of parts by those skilled in the art without departing from the spirit of the invention as claimed.

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

1. In a device of the class described, a frame, wheels supporting the frame at its rear end, a front truck, a post mounted on and upstanding from said front truck, means mounting the forward end of said frame for free vertical movement on said post, sheave means mounted on the upper end of said post and overhanging the same in a forwardly direction, sheave means mounted on the forward end of said frame in advance of the post and in operating relation to the sheave on said post and a cable anchored at one end on said post and passing back and forth about said sheaves whereby said frame may be tilted about the rear wheels as an axis as its forward end is raised and lowered on said post.

2. In a scraper, a frame, means supporting the frame at its rear end, a front truck, a post mounted on and upstanding from said front truck and inclined upwardly and rearwardly therefrom, means mounting the forward portion of said frame for free up and down movement on said post, sheave means mounted on the upper end of said post and in advance thereof, sheave means mounted on the forward portion of said frame in advance of the post and in operating relation to the sheaves on said post and flexible means passing back and forth about said sheave means whereby the forward portion of said frame may be raised and lowered.

3. A scraper comprising a load receiving bucket having a scraping blade at the forward edge thereof, a rear axle at the rear of said bucket, a frame, one end of which is supported by the rear axle and which frame is free to swing vertically, said frame overhanging the bucket and supporting the same, a guide structure carried by the frame adjacent its forward end and comprising two horizontally aligned pairs of rollers disposed in spaced vertical relation to each other, the rollers being positioned at an oblique angle to the longitudinal axis of the frame upon which they are carried, a post fitting between the pairs of rollers and being disposed at the aforesaid oblique angle to the overhanging portion of the frame, a front axle secured to the lower end of the post with its axis in advance of the post, an overhanging arm secured to the upper end of the post and carrying a sheave, a sheave carried by the frame in advance of the post, and a flexible cable led around said sheaves and fixed at one end relative to the post whereby action to draw the frame and overhanging arm of the post together will tend to raise the frame on the post.

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