

Aug. 2, 1938.

R. A. GRANT

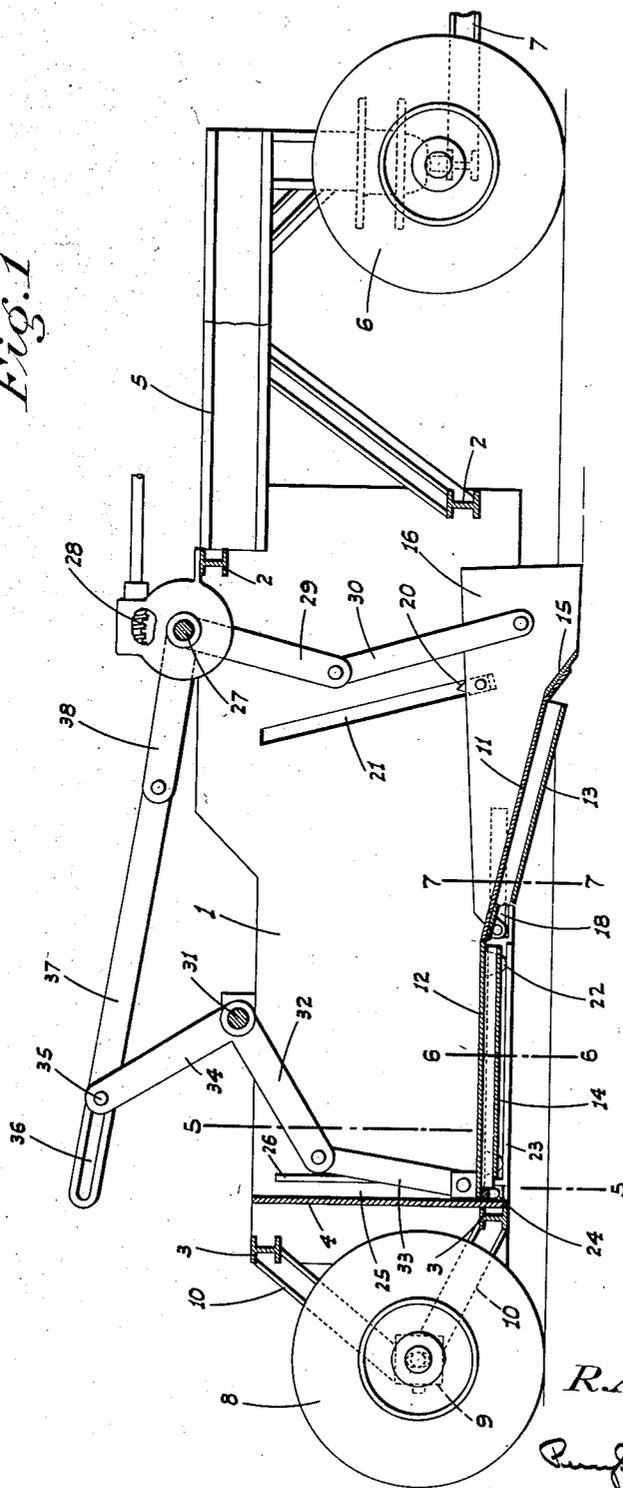
2,125,558

CARRYING SCRAPER

Filed July 6, 1936

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Fig. 1



INVENTOR
R.A. Grant

R. A. Grant
ATTORNEY

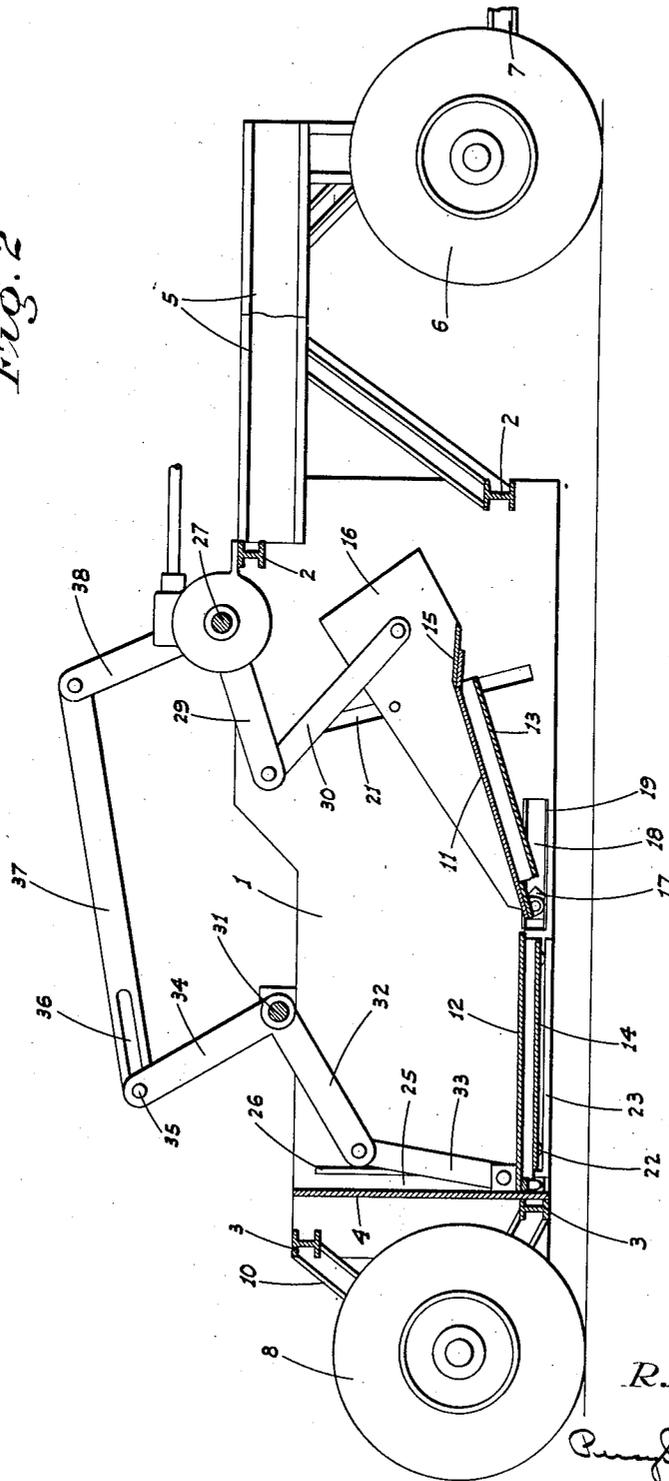
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R. A. GRANT
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Fig. 2



INVENTOR
R.A. Grant

Ralph E. White
ATTORNEY

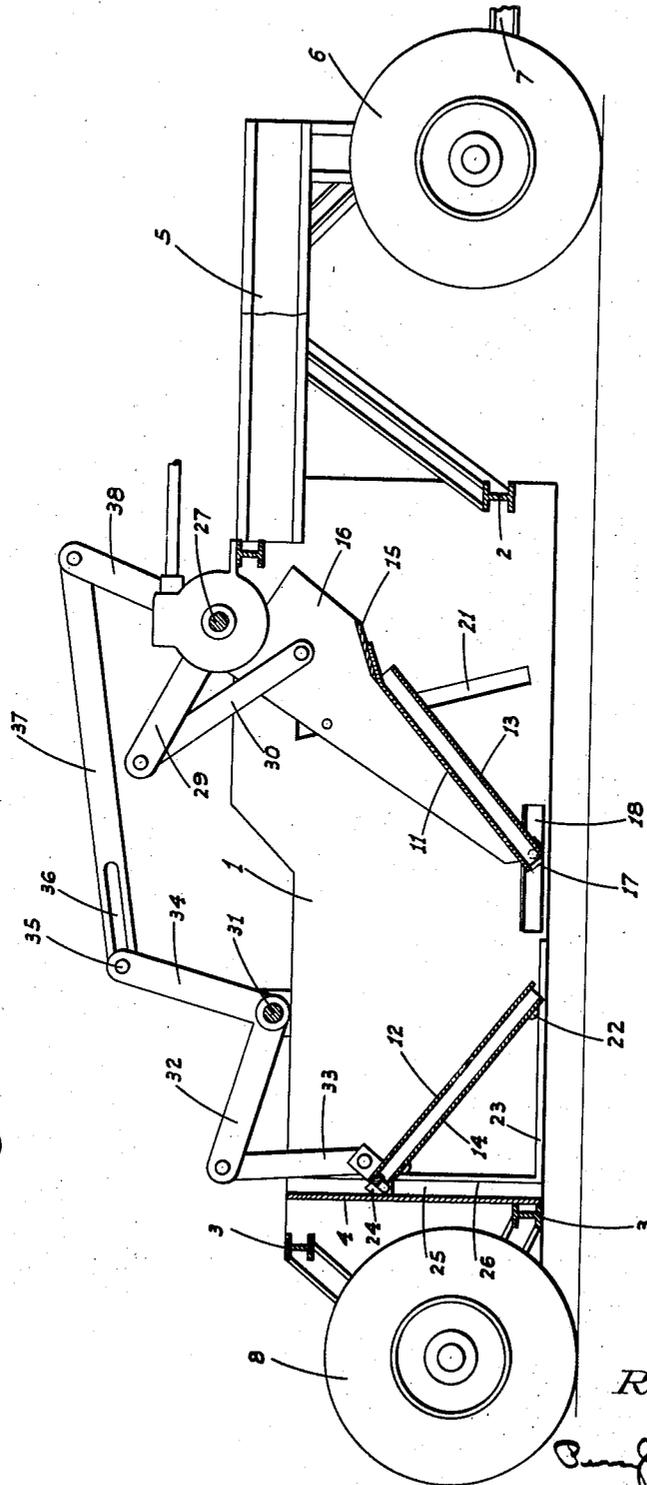
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Fig. 3



INVENTOR
R. A. Grant

Benjamin S. ...
ATTORNEY

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Fig. 5

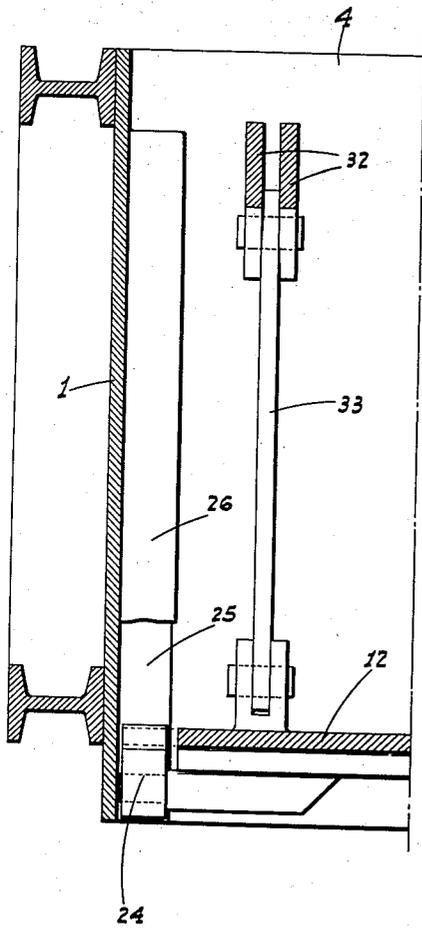


Fig. 6

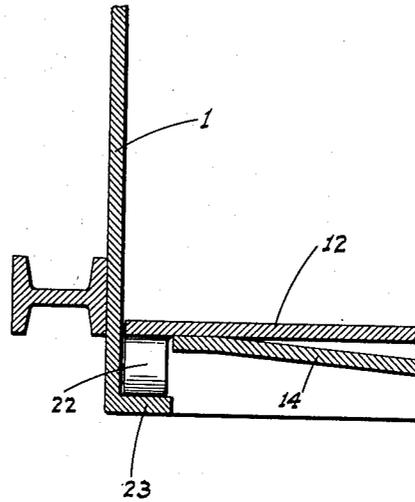
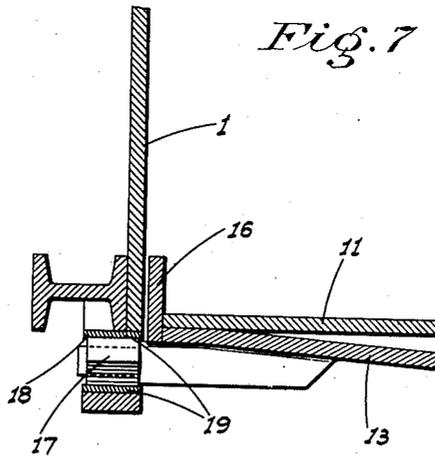


Fig. 7



INVENTOR
R. A. Grant

BY *Paul J. ...*
ATTORNEY

UNITED STATES PATENT OFFICE

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CARRYING SCRAPER

Rolland A. Grant, Lodi, Calif.

Application July 6, 1936, Serial No. 88,988

9 Claims. (Cl. 37—126)

This invention relates to tractor-drawn large capacity scrapers, my principal object being to provide a scraper of this general type arranged so it may be loaded with a minimum of power, and its load discharged when desired in a ready manner and also with a minimum of power.

A further object of the invention is to produce a simple an inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a sectional elevation of the scraper showing the scraper blade in a digging position.

Figure 2 is a similar view showing the forward bottom member raised without the rear bottom member being affected.

Figure 3 is a similar view showing both bottom members raised and separated for dumping the load.

Figure 4 is a top plan view of the scraper.

Figures 5, 6 and 7 are fragmentary transverse sections on lines 5—5, 6—6 and 7—7 respectively of Fig. 1.

Referring now more particularly to the characters of reference on the drawings, the body of the scraper comprises substantially rectangular reinforced side plates 1 connected at the front and rear by vertically spaced cross rails 2 and 3 respectively, and having a vertical back plate 4 just ahead of the lower rear rail 3, a rigid horizontal V frame 5 is secured in rigid connection with and projects forwardly from the front rails 2 at about the level of the top of the body.

A wheel truck 6 supports the front end of the frame, and is swivelly connected thereto for universal movement. A tongue 7 projects forwardly from the truck for attachment to the drawbar of a tractor. The rear end of the scraper body is supported by a pair of transversely aligned and separate wheel trucks 8, each truck being mounted for swivel movement in a vertical transverse plane in connection with a bearing block 9 connected to the rear cross rails 3 by rearwardly projecting supporting bars 10.

The load supporting members of the scraper comprise separate front and rear bottom plates 11 and 12 respectively, both of which are braced against deflection by under plates 13 and 14 respectively arranged in truss form transversely of the scraper as indicated in Figures 5 to 7. The

front plate is provided at its forward end with a downwardly projecting scraping blade 15, and has side plates 16 increasing in height to the front and extending ahead of the blade some distance.

The front plate 11 is supported at its rear end from the body of the scraper by swivel blocks 17 projecting outwardly of its side edges and riding in horizontal guide slots 18 cut through the plates 1 adjacent their lower edges. The block engaging faces of the slots are preferably faced with strips 19 of wear resisting steel, and the blocks are sharp nosed at their ends in order to dislodge any dirt which might rest on the guides and which might otherwise cause the blocks to bind or be jammed.

The side plates 16 intermediate their ends also support swivel blocks 20 of the same form as blocks 17, which ride in upstanding guide slots 21 cut through the plates 1 with a rearward slope to the top.

The rear bottom plate 12 is supported by lugs 22 disposed thereunder adjacent its side edges and in longitudinally spaced relation and which ride on rails 23 projecting inwardly from along the plates 1 at such a level that the rear edge of plate 11 is on a level with plate 12. At the back end, of plate 12, swivel blocks 24 are mounted adjacent the side edges thereof which ride in vertical guide slots 25 formed between the back wall 4 and forwardly disposed flanges 26 parallel thereto and secured on side plates 1.

The two separate bottom plates being thus supported, it will be seen that if the front plate is lifted at its front end from a substantially horizontal position, the rear end of said plate will be moved forwardly; while the relatively slight lowering movement of the plate to a digging or scraping level from such horizontal position will not materially shift the rear end of the plate.

Similarly, while the rear plate 12 cannot be moved below a horizontal position, it can be lifted, and such lifting, if applied to the plate at its rear end, will cause a rearward movement to be imparted to the front edge of such plate.

Such movement is imparted to the plates in the following manner: Journaled on the body of the scraper at the top and adjacent the front is a transverse shaft 27, whose rotation is power controlled, preferably from the tractor, by any suitable drive connection such as a worm gearing 28. Arms 29 are secured on the shaft near the side plates 1, and have links 30 connected thereto and to the side plates 16 of the front bottom member near the front end thereof. These arms and links are arranged so that when the scraping blade is in its lowest position, they are

substantially in outstretched alinement, when the shaft is rotated to swing the arms 29 up toward the rear, the bottom member 11 will of course be raised.

5 Toward the rear end of the body, another transverse shaft 31 is journaled at the top of the same, said shaft having rearwardly projecting arms 32 connected by links 33 to the rear bottom plate adjacent its rear end and sides. Upwardly projecting arms 34 are also secured on the shaft 31, the upper ends of which carry pins 35 riding in slots 36 formed in the rear portions of links 31. At their forward ends these links are connected to arms 38 secured on and extending rearwardly from shaft 27. These parts are arranged so that when the front plate 11 is in its lowest position, the arms 38 and links 37 are substantially in alinement and the pins 35 are at the front end of slots 36; the rear bottom plate then being in its normal or level position.

10 With this arrangement therefore it will be seen that the shaft 27 may be rotated through a certain arc, and the front bottom member moved between a forwardly sloping digging position, a substantially horizontal carrying position, and an initial dumping position with a rearward slope (as shown in Fig. 2) without affecting the shaft 31 and the rear bottom member 12, as soon as the rear ends of slots 36 engage pins 35 however, further rotation of the shaft 27 in the same direction will cause arms 32, and the rear end of plate 12, to be raised also. At the same time, the front bottom plate is also further raised, until as both plates assume the position shown in Fig. 3, a wide discharge gap is formed between their adjacent ends, and both plates lie at such angles that all the dirt readily slides off the plates and through this gap.

15 By allowing the front plate to have a certain amount of movement toward a discharging position before any movement is imparted to the rear plate, the power necessary to operate the discharge controlling mechanism is lessened over what would be the case if both plates, and the loads thereon, were lifted simultaneously from a level position. As it is, some of the load is discharged from the front plate before the load on the rear plate is lifted, and the strains on the operating mechanism are consequently lessened.

20 From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

25 While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviation from such detail may be resorted to as does not form a departure from the spirit of the invention, as defined by the appended claims.

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

35 1. A scraper comprising a wheel supported body which includes side plates, separate front and rear bottom plates disposed between the side plates normally forming a continuous load supporting surface, a scraper blade across the forward end of the front bottom plate, means operable at will to separate the bottom plates at their adjacent ends to provide a gap for dumping, at the same time causing said plates to have a downward tilt toward said gap and means mounting the plates so that with such movement their adjacent ends will remain in their original horizontal plane.

40 2. A scraper comprising a wheel supported body which includes side plates, separate front and rear bottom plates mounted between the side plates normally forming a continuous load supporting surface, a scraper blade across the forward end of the front bottom plate operating, means applied to the front and rear plates adjacent their front and rear ends respectively for lifting the plates at said ends whereby to dispose them at a downward slope toward their adjacent ends, means guiding said plates at their adjacent ends for movement in a horizontal plane, and means guiding the plates adjacent their opposite ends for vertical movement in definite planes and arranged to cause the plates to separate at their adjacent ends when they are lifted at their opposite ends.

45 3. A scraper comprising a traction mounted dirt holding body, separate front and rear bottom plates disposed in the body and normally forming a continuous load supporting surface, a scraper blade across the forward end of the front bottom plate, means operable at will to separate the bottom plates at their adjacent ends to provide a gap for dumping and at the same time causing said plates to have a downward tilt toward said gap and means included with said first named means to allow one plate to be tilted to a predetermined angle before any tilting movement is imparted to the other plate.

50 4. A scraper comprising a wheel supported body which includes side plates, separate front and rear bottom plates mounted between the side plates normally forming a continuous load supporting surface, a scraper blade across the forward end of the front bottom plate, means mounting the front bottom plate in connection with the side plates for upward movement at its front end from a scraping position combined with forward horizontal movement at its rear end, means mounting the rear bottom plate in connection with the side plates for upward movement at its rear end combined with rearward horizontal movement at its forward end, and operating means applied to the plates whereby to thus move them.

55 5. A scraper comprising a wheel supported body which includes side plates, separate front and rear bottom plates mounted between the side plates normally forming a continuous load supporting surface, a scraper blade across the forward end of the front bottom plate, means mounting the front bottom plate in connection with the side plates for upward movement at its front end from a scraping position combined with forward horizontal movement at its rear end, means mounting the rear bottom plate in connection with the side plates for upward movement at its rear end combined with rearward horizontal movement at its forward end, operating means applied to the front plate to thus move the same and connections between the operating means and the rear plate to move the latter only after the front plate has been moved a predetermined amount.

60 6. A scraper comprising a wheel supported body which includes side plates, separate front and rear bottom plates mounted between the side plates normally forming a continuous load supporting surface, a scraper blade across the forward end of the front bottom plate, means mounting the front bottom plate in connection with the side plates for upward movement at its front end from a scraping position combined with forward horizontal movement at its rear 75

end, means mounting the rear bottom plate in connection with the side plates for upward movement at its rear end combined with rearward horizontal movement at its forward end, a rotatable transverse control shaft mounted on the body above the front bottom plate, arms projecting rearwardly from the shaft, means including links connecting said arms and plates toward the forward end of the latter whereby rotation of the shaft in a certain direction will cause the front plate to be lifted at said end, and means between the shaft and the rear bottom plate adjacent its rear end to lift the latter only after the front plate has been lifted a predetermined distance.

7. A structure as in claim 4, in which said last named means comprises another transverse shaft mounted above the rear bottom plate, arms projecting rearwardly from said shaft, links connecting said arms and the rear plate adjacent its rear end, other arms projecting from both shafts, and a link between said last named arms; there being a lost motion connection between the link and one of said last named arms.

8. A scraper comprising a traction mounted dirt holding body, separate front and rear bottom plates in the body normally forming a continuous load supporting surface, means applied to the plates at their opposite ends to lift the same, and means mounting the plates so that with such lifting, the adjacent ends of the plates will separate to provide a gap for dumping; the plate mounting means being arranged to maintain the separating ends of the plates in substantially their original horizontal plane.

9. A scraper comprising a traction mounted dirt holding body, separate front and rear bottom plates in the body normally forming a continuous load supporting surface, a horizontally movable pivot mounting for the rear end of the front plate, means applied to said plate to swing the same about said pivot mounting, means in the body adjacent the front of the plate and at the sides thereof forming substantially vertical guides, and elements swivelly mounted in connection with said front plate and engaging the guides.

ROLLAND A. GRANT.