Jan. 22, 1946. E. SLADECEK 2,393,345

ROAD SCRAPER

Filed Dec. 23, 1943 5 Sheets-Sheet 1

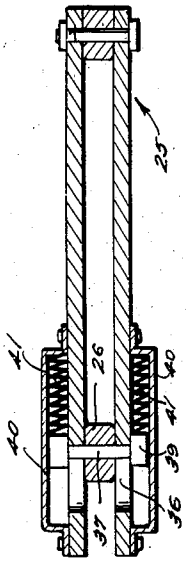

Fig. 6.

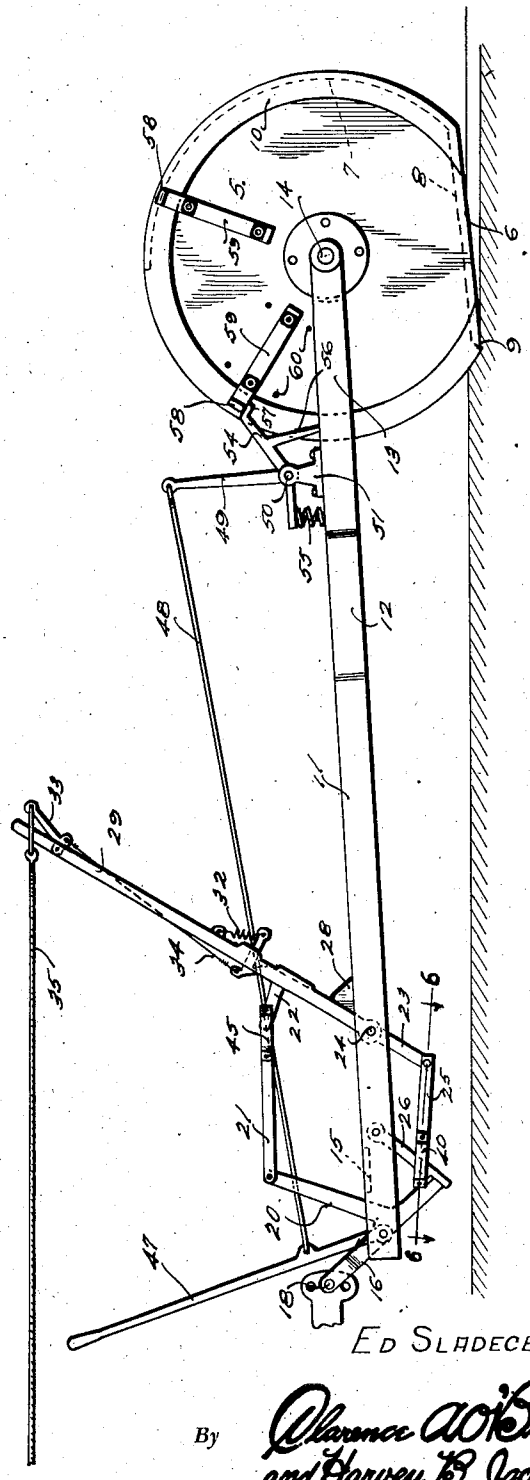

Fig. 7.

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ROAD SCRAPER

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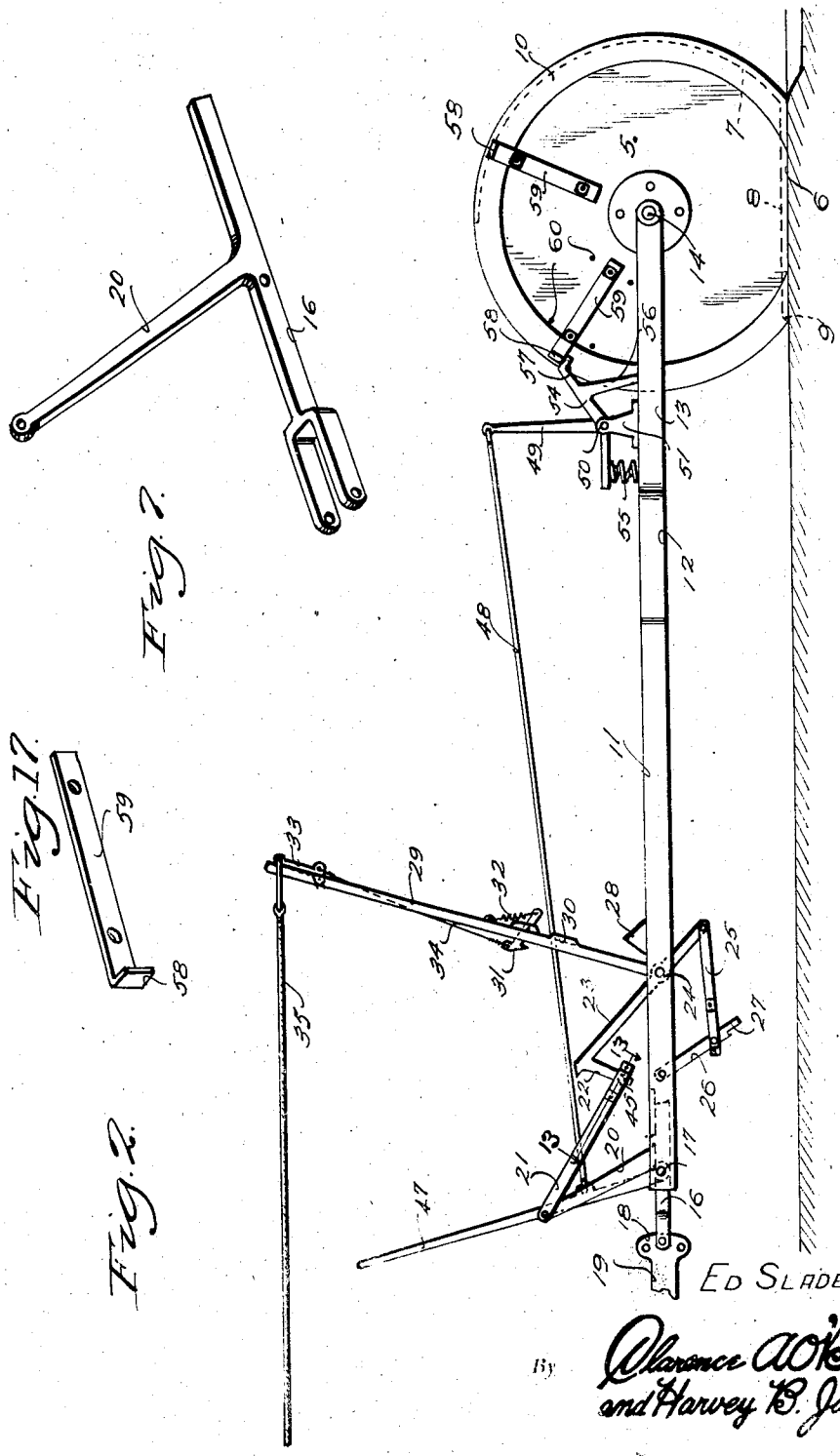

Fig. 1.

Fig. 1A.

Fig. 2.

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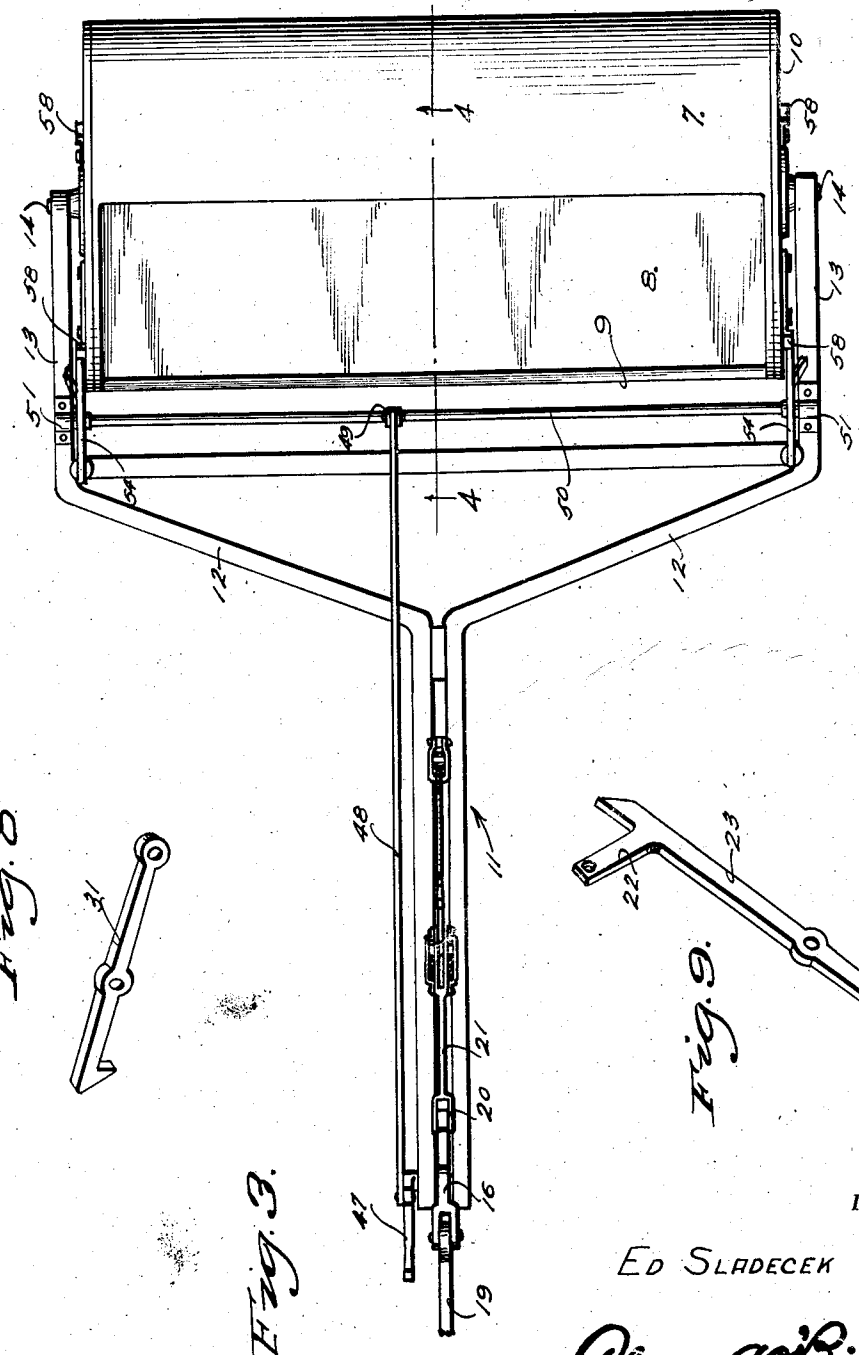

Fig. 3.

Fig. 8.

Fig. 9.

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Fig. 5.

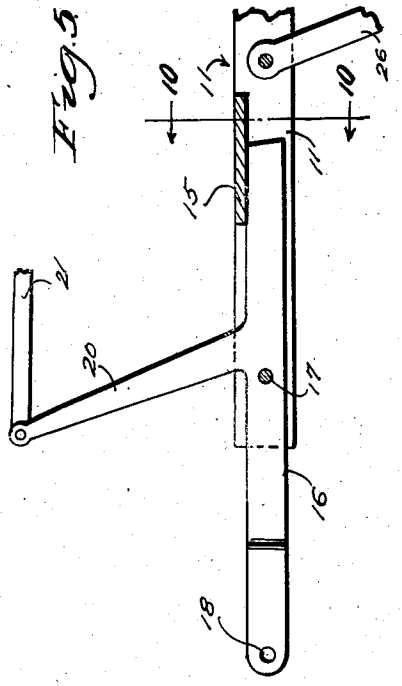


Fig. 12.

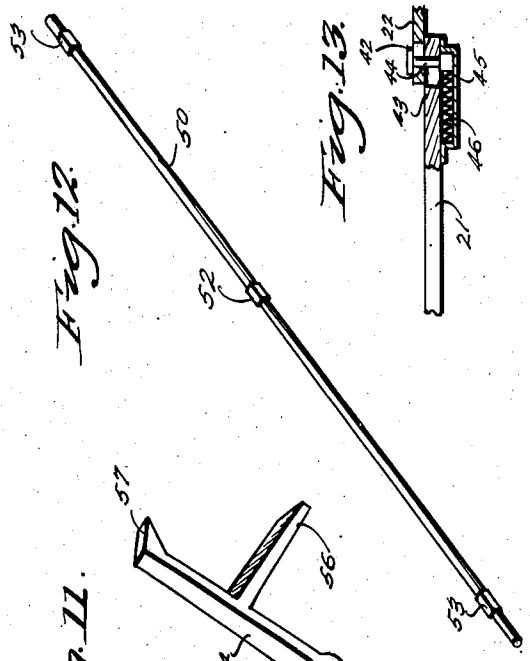


Fig. 13.

Fig. 11.

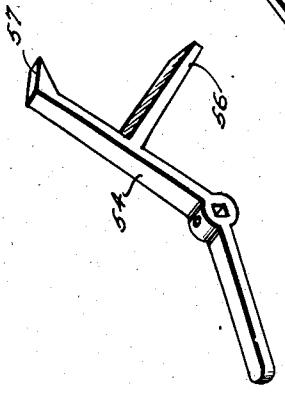


Fig. 10.

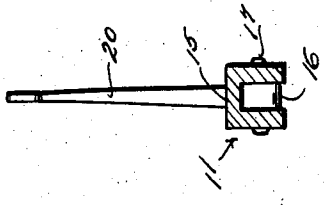
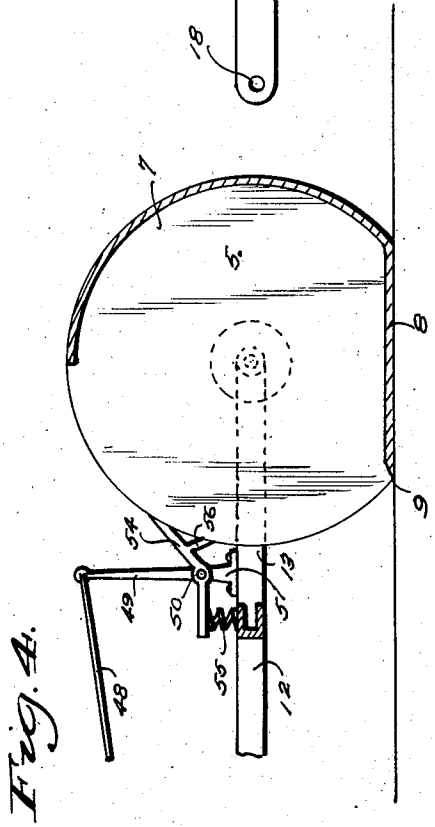


Fig. 4.



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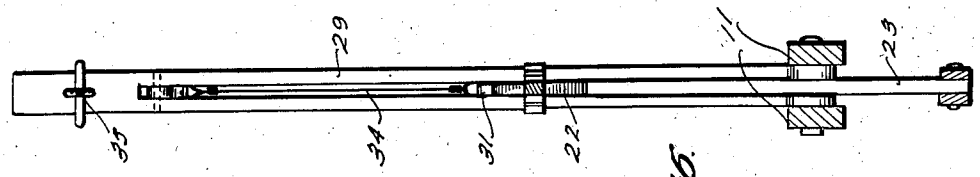

Fig. 16.

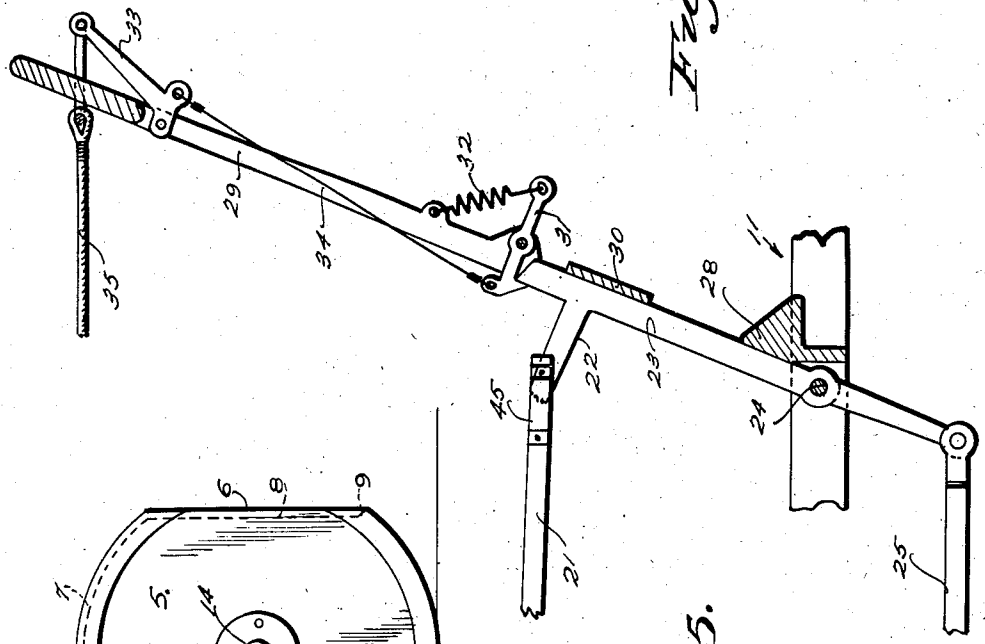

Fig. 15.

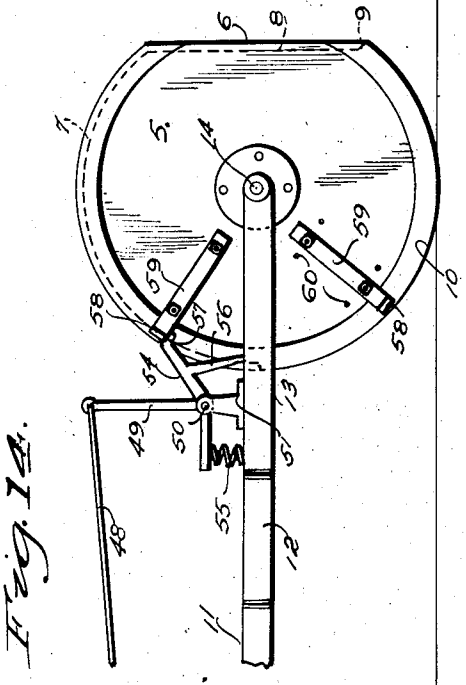

Fig. 14.

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Patented Jan. 22, 1946 2,393,345

UNITED STATES PATENT OFFICE

2,393,345

ROAD SCRAPER

Ed Sladecek, Granger, Tex.

Application December 23, 1943, Serial No. 515,414

4 Claims. (Cl. 37—140)

This invention relates to road scrapers, and has more particular reference to improvements in scrapers of the fresno or buck type.

The primary object of the present invention is to provide a road scraper of the above type particularly designed to be hitched to and drawn by a tractor, the means for hitching the scraper to the tractor embodying devices whereby the scoop of the scraper may be kicked or suddenly tilted from scraping to load-transporting position, which devices may be readily controlled from the driver's seat of the tractor.

Another object of the invention is to provide simple and efficient means for releasably limiting turning of the scoop so that it may be retained in load-transporting position or permitted to rotate to load-dumping position.

Another object of the invention is to provide a scraper attachment for tractors of the above kind, which attachment is comparatively simple in construction, durable, and efficient in operation.

Other objects and features of the invention will become apparent from the following description when considered in connection with the accompanying drawings, and the invention consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the drawings and claimed.

In the drawings, wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a side elevational view of a road scraper constructed in accordance with the present invention, the scoop being in scraping position.

Figure 2 is a view similar to Figure 1 showing the parts positioned as they appear subsequent to kicking the scoop from scraping to load-transporting position.

Figure 3 is a top plan view of the device as shown in Figure 2.

Figure 4 is a fragmentary longitudinal section taken on line 4—4 of Figure 3.

Figure 5 is an enlarged detail view partly in longitudinal section and partly in side elevation, showing the forward end of the draft tongue of the scraper and the associated hitch lever for connecting the tongue to the draw bar of a tractor.

Figure 6 is an enlarged detail sectional view taken on the plane of line 6—6 of Figure 1.

Figure 7 is an enlarged perspective view of the hitch lever.

Figure 8 is an enlarged perspective view of the pivoted catch used to restrain the auxiliary lever against movement away from the main lever, to keep the scoop in scraping position.

Figure 9 is a perspective view of said auxiliary lever.

Figure 10 is a section taken on line 10—10 of Figure 5.

Figure 11 is an enlarged perspective view of one of the pivoted detents employed in connection with stop lugs carried by the scoop for limiting turning movement of said scoop to a desired one of its different positions.

Figure 12 is a perspective view of the rock shaft on which said detents are mounted.

Figure 13 is a fragmentary sectional view taken on line 13—13 of Figure 2.

Figure 14 is a fragmentary side elevational view of the scraper showing the scoop in dumping position.

Figure 15 is an enlarged detail view, partly in elevation and partly in longitudinal section, the view showing the main and auxiliary levers together with associated parts.

Figure 16 is an elevational view looking toward the right of Figure 15, and

Figure 17 is an enlarged perspective view of one of the stop lug strips attached to the ends of the scoop.

Referring in detail to the drawings, the present scraper includes a relatively wide shallow scoop having flat end walls 5 that are of generally circular form, but have straight bottom edge portions, as at 6. The end walls 5 are connected by a curved back wall 7 and a flat bottom wall 8 whose ends contact the straight edges 6 of the end walls 5 and whose forward free edge is sharpened to provide a scraping edge, as at 9. It will thus be seen that the scoop is open at the front and partially open at the top, the end walls being reinforced along their circular edge portions by curved runners 10.

The scraper includes a draft tongue 11 composed of two similar members rigidly connected in adjacent spaced relation and having diverging arms 12 at their rear ends which terminate in rearwardly extending spaced parallel rear end portions 13, in the rear ends of which are journaled stub shafts 14 carried by the end walls 5 of the scoop, centrally of the latter. It will thus be seen that the scoop is journaled for free rotation about the central transverse axis so that it may turn to tilted scraping position, as shown in Figure 1, to load-transporting position, as shown in Figures 2 and 4, with the flat bottom 8 parallel with the ground surface, or to load-

dumping position, as shown in Figure 14, with the bottom 8 vertically disposed at the rear of tfhe scraper and the open side of the scoop lowermost.

The two members of the draft tongue 11 are bridged and rigidly connected near their forward ends by a plate 15, as shown by dotted lines in Figures 1 and 2, and more clearly shown in Figure 5. Pivoted between the forward ends of these tongue members and intermediate its ends is a hitch lever 16 whose pivot is indicated at 17, and the rear end portion of whose rearward arm is arranged to engage the under side of the bridge plate 15 when said hitch lever is disposed parallel or in alignment with the draft tongue. The forward end of lever 16 is apertured, as at 18, to facilitate connection of the same with the clevis at the rear end of the tractor draw bar, a fragment of which is shown at 19. Hitch lever 16 has a rigid arm 20 projecting upwardly from its intermediate portion, and the upper end of this arm is connected by a link 21 with a forwardly projecting arm 22 provided on the upper end portion of an auxiliary lever 23 pivoted intermediate its ends, as at 24, between the members of draft tongue 11 rearwardly of hitch lever 16. The lower arm of auxiliary lever 23 is connected by a link 25 with a pivoted detent 26 hinged to and depending from the draft tongue 11 directly behind the hitch lever 16 and forwardly of auxiliary lever 23, said detent 26 having a notched lower end 27 arranged to engage the rear arm of hitch lever 16 and hold it in the inclined tilted position of Figure 1, wherein the rear arm of said hitch lever 16 is swung to a position downwardly away from the bridge piece 15 of draft tongue 11. When the parts are in this position, it will be seen that the draft tongue 11 is depressed to a forwardly inclined position. Rearward swinging movement of auxiliary lever 23 is limited by a stop lug 28 provided on draft tongue 11 directly behind lever 23 above its pivot 24. A main lever 29 is also pivoted at its lower end upon the pivot 24 for movement independently of the auxiliary lever 23, and rearward swinging movement of main lever 24 is also limited by the stop 28. However, main lever 29 carries a lateral projection 30 which engages the rear edge of the upper arm of auxiliary lever 23 so that forward swinging movement of main lever 29 will also cause forward swinging movement of the auxiliary lever 23. In order to prevent unintentional forward swinging movement of auxiliary lever 23, relative to main lever 29, the latter lever is provided with a pivoted catch 31 arranged to engage over the upper end of auxiliary lever 23 and yieldingly maintained in engagement with the latter by a spring 32. Means is provided which is operable from the driver's seat of the tractor for releasing the catch 31 when desired, such means consisting of a lever 33 pivoted to the upper end of main lever 29 and having an arm connected by wire 34 with catch 31, another arm of lever 33 being connected to a flexible member or rope 35 extended forwardly to a position within convenient reach of the driver of the tractor. In order to cushion shocks incident to operation of the devices just described as to construction, yieldable connections are provided between the link 21 and arm 22 of auxiliary lever 23 and between link 25 and pivoted detent 26, as respectively shown in Figures 13 and 6. Referring to the latter figure, it will be seen that the link 25 consists of two similar spaced members between the forward ends of which the detent 26 extends, and whose forward ends are longitudinally slotted, as at 36. A transverse pin 37 is carried by the detent 26 and its ends project outwardly through the slots 36 where they are headed, as at 39. The heads 39 are movable in casings 40 attached to the outer sides of the members of link 25, and compression springs 41 are interposed between the heads 39 and the rear ends of the casings 40. This construction permits the detent 26 to yield rearwardly relative to the hitch lever 16 and relative to the link 25. Referring to Figure 13, the arm 22 of auxiliary lever 23 has an elongated slot 42, and the adjacent end of link 21 has an elongated slot 43, in which slots is disposed a transverse pin 44. A head on one end of pin 44 is disposed at the outer side of arm 22, and another head on the other end of pin 44 is movable in a casing 45 attached to the outer side of link 21. A compression spring 36 in casing 45 bears at one end against the last-named head of pin 44 and at its other end against the inner or forward end of casing 45. Thus, arm 22 and link 21 are pivotally connected, and the connection is yieldable longitudinally of link 21. The purposes and manner of operation of the construction and devices just described will later become apparent.

Pivoted to one side of the draft tongue 11 near its forward end is a further lever 47 which is connected by a rod 48 with an arm 49 projecting upwardly from the intermediate portion of a rock shaft 50 disposed transversely of and in front of the scoop and journaled at its ends in bearings 51 provided on the rear arm portions 13 of the draft tongue. The arm 49 preferably has a polygonal opening at one end to receive a polygonal intermediate portion 52 of shaft 50. Shaft 50 also has polygonal portions 53 near its ends which are received in correspondingly-shaped openings provided in the intermediate portions of detent levers 54 arranged at opposite ends of the scoop. Springs 55 are associated with detent levers 54 so as to yieldingly tilt them in a direction to swing their rearward arms rearwardly and downwardly, which rearward and downward swinging movement is limited by means of stop arms 56 carried by the detent levers 54 and arranged to engage the adjacent arm portions 13 of the draft tongue. The rear arms of detent levers 54 have rearwardly projecting lugs 57 normally disposed in the path of stop lugs 58, a pair of which are carried at spaced points on each end of the scoop. As shown, each stop lug 58 is preferably in the form of an out-turned end of a strip of metal 59 attached to the adjacent end wall 5 of the scoop in a position radially of the latter. Several sets of openings 60 may be provided in the end walls 5 to permit adjustment of the stop lugs 58 to best or proper position.

Assuming that the scoop is in load-transporting position with the bottom wall 8 flatly resting upon the road surface, and that the other parts are positioned as shown in Figures 2 and 4, the hitch lever 16 will be disposed coextensive with draft tongue 11, and a stop lug 58 of the scoop will engage a detent lever 54 at each end of the scoop. Thus positioned, the scoop may be drawn forwardly for transporting its load, and turning of the scoop in an anti-clockwise direction from load-transporting to scraping position will be prevented by the engagement of stop lugs 58 with detent levers 54. However, the scoop may be allowed to turn in this direction whenever desired to dump the load by simply swinging the lever 47 forwardly and releasing the detent levers 54 from the stop lugs 58. The scoop will then

turn to the dumping position of Figure 14, whereupon the lever 47 will be released so as to permit the detent levers 54 to engage the next set of stop lugs 58 and prevent further turning of the scoop. After the load has been dumped, detent levers 54 may be released again until the scoop returns to the load-transporting position of Figures 2 and 4. Should it now be desired to resume the scraping operation, main lever 29 may be swung forwardly until catch 31 engages auxiliary lever 23. Lever 29 is then swung rearwardly by direct actuation of the same so as to correspondingly swing auxiliary lever 23. The latter operation will cause hitch lever 16 to swing to the inclined position of Figure 1 by reason of the connection 21 between arm 22 of lever 23 and arm 20 of hitch lever 16. At the same time, the detent 26 is caused to swing forwardly by reason of the connection 25 between said detent 26 and the lower arm of auxiliary lever 23. The arrangement is such that when the main lever 29 reaches its rearmost position, the hitch lever 16 will snap into the notched lower end of detent 26 so that the hitch lever 16 will be retained in its inclined position by said detent 26. The entire operation is such as to cause the forward end of draft tongue 11 to be depressed, and this operation lowers the detent levers 54 and moves them away from the forward set of stop lugs 58 on the ends of the scoop. Upon forward travel of the scraper, contact of the scoop with the ground will cause it to turn until the stop lugs 58 again engage the detent levers 54. In this rotated position, the scoop will be tilted, or rather its bottom 8 will be tilted, to a forwardly inclined position, as shown in Figure 1, so that the sharp scraping edge 9 will engage the ground and bring about an effective scraping action. As soon as the scoop is full, a forward pull on rope 35 will effect release of catch 31 and will then start forward swinging movement of auxiliary lever 23 with the main lever 29. The resulting action is to release detent 26 and allow hitch lever 16 to swing to its normal position coextensive with draft tongue 11, the rear arm of hitch lever 16 kicking upwardly against bridge plate 15 to assist in causing the scoop to be tilted from scraping position, as shown in Figure 1, to load-transporting position, as shown in Figure 2. The yieldable connections shown in Figures 6 and 13 are used to absorb any shock which will occur at this time, thereby preventing breakage or damage to the interconnected parts and levers associated with the hitch lever 16. The load may again be transported and dumped, as previously described, after which the apparatus is re-set for scraping as also set forth above. Obviously, with the parts shown as in Figure 2, the device may be moved backwardly so as to utilize the scoop for pushing dirt up into a pile.

It will be seen that the construction is comparatively simple, durable and easy to control and manipulate. At the same time, an efficient scraper is had which may be readily attached to a tractor for being drawn thereby.

What I claim as new is:

1. A road scraper adapted to be drawn by a tractor, comprising a frame having a draft tongue, a scoop mounted in the frame, means to hitch the draft tongue to the tractor, said hitch means including a hitch lever pivoted intermediate its ends to the forward end of the tongue and movable to an inclined position to depress the forward end of the draft tongue and permit the scoop to assume a tilted scraping position, means to latch the hitch lever in such inclined position, and manually operable means for releasing said latch means, said hitch lever being arranged to strike the draft tongue upon release of said latch means and continued forward travel of the tractor so as to assist in elevating the forward end of the draft tongue and shifting the scoop from scraping to load-transporting position due to straightening of the draft tongue and the hitch lever.

2. A road scraper attachment for tractors, comprising a frame having a draft tongue, a scoop mounted in the frame, a hitch lever pivoted between its ends to the forward end of the draft tongue and having an upwardly projecting intermediate arm, an auxiliary lever pivoted between its ends to the draft tongue rearwardly of the hitch lever, a yieldable link connection between said arm and said auxiliary lever, a swinging detent carried by the tongue and engageable with the hitch lever to hold it in an inclined position with the forward end of the tongue depressed to permit the scoop to assume a tilted scraping position, a link connection between said auxiliary lever and said detent, a main lever pivoted on an axis coincident with the pivotal axis of the auxiliary lever and engaged with the latter to move it forwardly, releasable means to hold the auxiliary lever against forward swinging movement relative to the main lever, and means manually operable by a forward pull to release said last-named means and swing the main and auxiliary levers forwardly so as to release the detent from the hitch lever and thereby allow the latter to swing and kick the forward end of the draft tongue upwardly for turning the scoop from scraping position to load-transporting position.

3. In a road scraper, a frame having spaced arms and provided with a forwardly projecting draft tongue, an elongated scoop arranged transversely of and journaled in the frame for rotation about a central transverse axis, manually releasable means to prevent rotation of the scoop upon forward travel of the scraper when said scoop is in load-transporting, scraping or load-dumping position, said means including spaced sets of stop lugs on the ends of the scoop, and lever-operated detent levers coacting with said stop lugs and mounted on the frame, a hitch lever pivoted between its ends to the forward end of the draft tongue and having an upwardly projecting intermediate arm, an auxiliary lever pivoted between its ends to the draft tongue rearwardly of the hitch lever, a yieldable link connection between said arm and said auxiliary lever, a swinging detent carried by the tongue and engageable with the hitch lever to hold it in an inclined position with the forward end of the tongue depressed and the detent levers lowered to permit the scoop to turn from load-transporting to scraping position, a link connection between said auxiliary lever and said detent, a main lever pivoted on an axis coincident with the pivotal axis of the auxiliary lever and engaged with the latter to move it forwardly, releasable means to hold the auxiliary lever against forward swinging movement relative to the main lever, and means manually operable by a forward pull to release asid last-named means and swing the main and auxiliary levers forwardly so as to release the detent from the hitch lever and allow the latter to swing and kick the forward end of the draft tongue upwardly for turning the scoop from scraping position to load-transport-

ing position upon continued forward travel of the tractor.

4. A road scraper adapted to be hitched to and drawn by a tractor, comprising a frame having a draft tongue, a scoop mounted in the frame, a hitch lever piovted intermediate its ends to the forward end of the draft tongue and adapted for connection with the tractor, and manually operable means for releasably holding the hitch lever in a tilted position with the forward end of the draft tongue depressed, said hitch lever being arranged to swing and strike the draft tongue when said hitch lever is released and under the influence of the forward pull of the tractor, whereby to kick the forward end of the draft tongue upwardly and thereby asist in turning the scoop from scraping to load-transporting position due to the straightening of the draft tongue and the hitch lever.

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