May 9, 1939. H. K. RICHWINE 2,157,968

SELF-PROPELLED COMBINED EARTH SCOOPING AND CONVEYING-OFF APPARATUS

Filed June 23, 1937 5 Sheets-Sheet 1

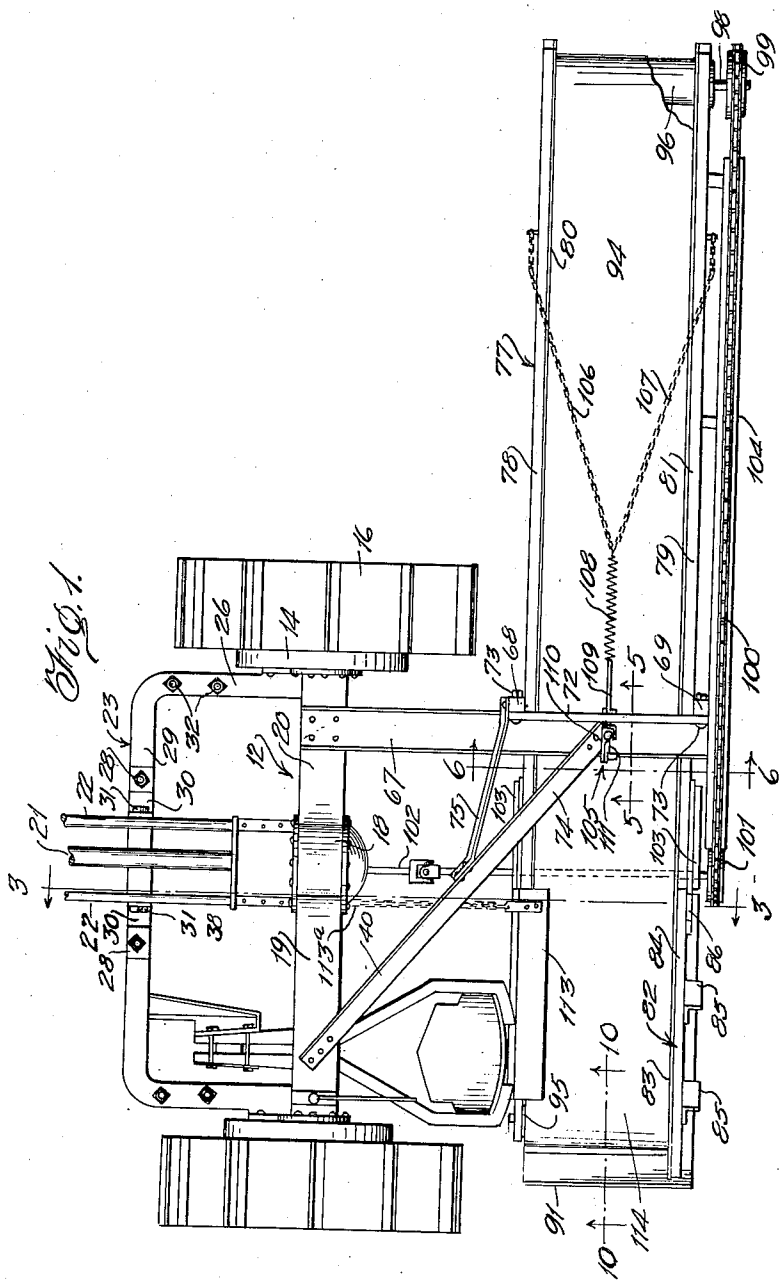


Fig. 1.

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Fig. 1.

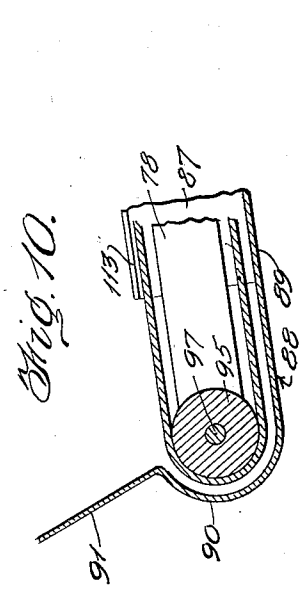


Fig. 2.

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Filed June 23, 1937 5 Sheets-Sheet 3

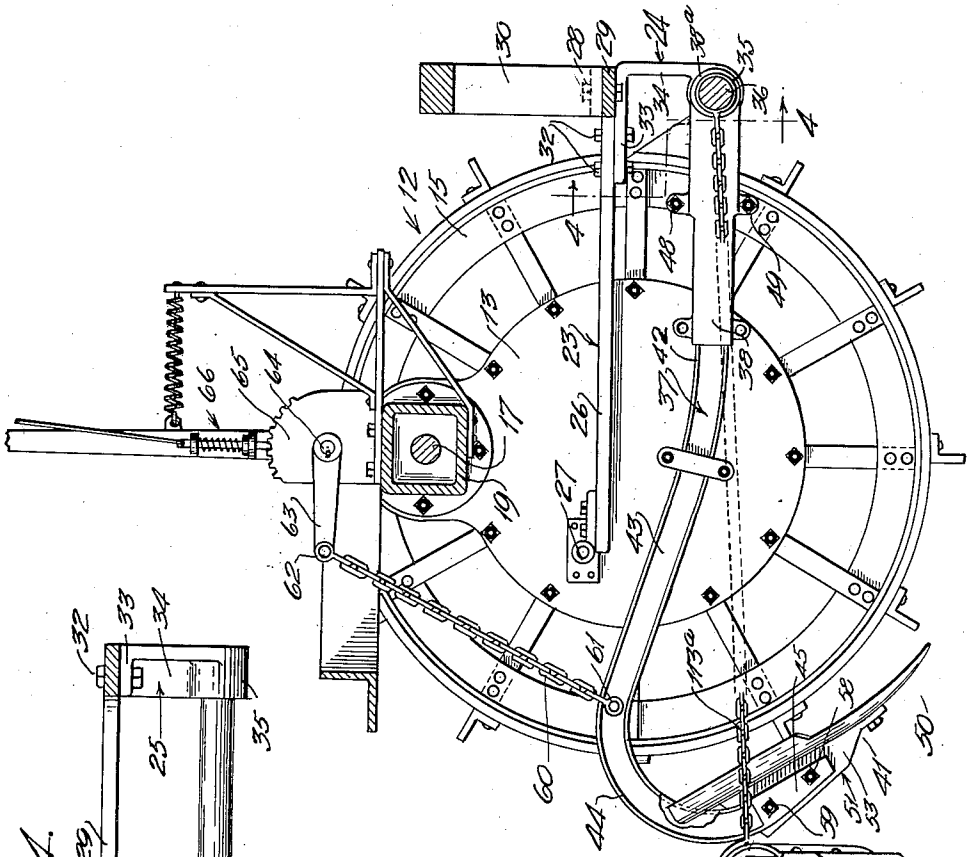


Fig. 3.

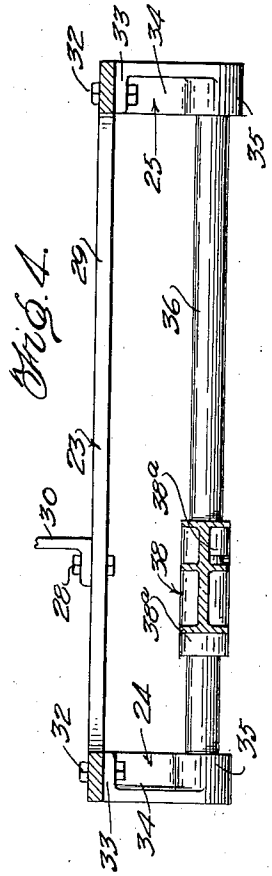


Fig. 4.

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SELF-PROPELLED COMBINED EARTH SCOOPING AND CONVEYING-OFF APPARATUS

Filed June 23, 1937 5 Sheets-Sheet 4

Fig. 5.

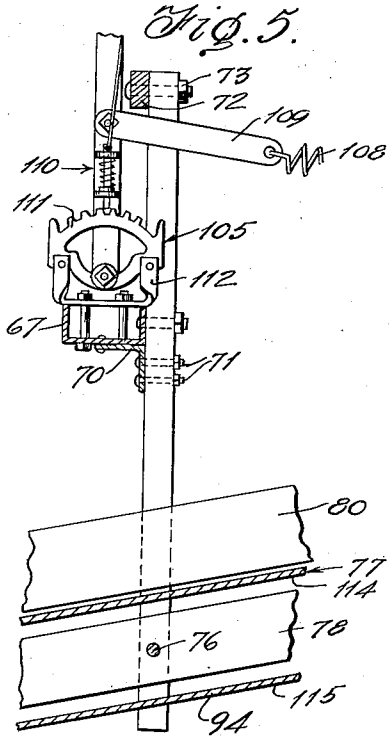


Fig. 6.

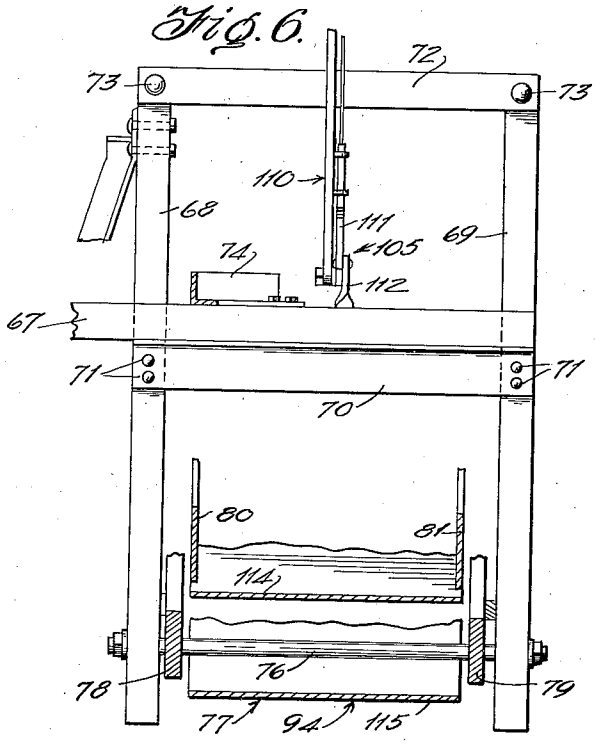


Fig. 7.

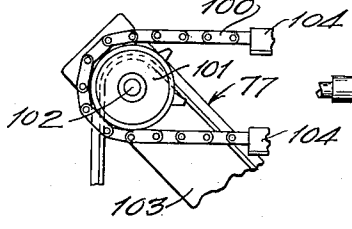


Fig. 8.

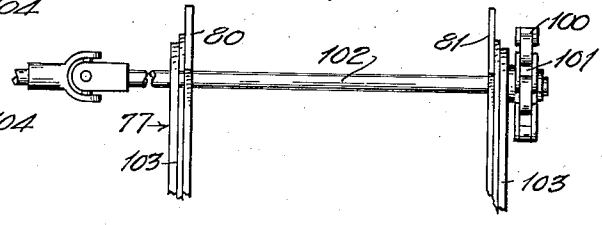
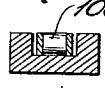


Fig. 9.



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Filed June 23, 1937 5 Sheets-Sheet 5

Fig. 11.

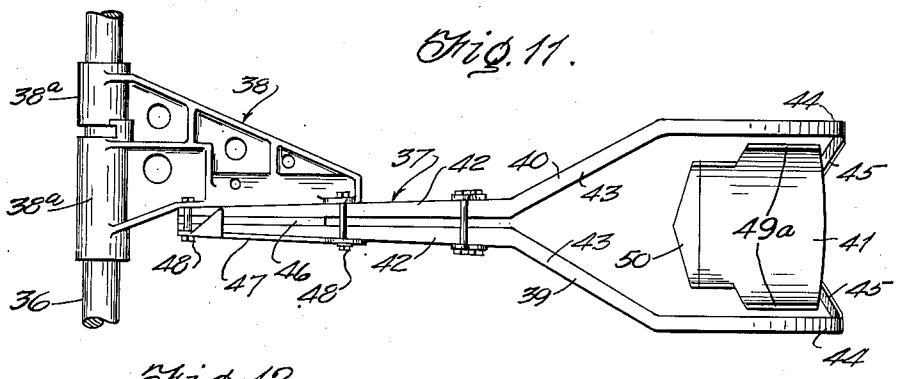


Fig. 12.

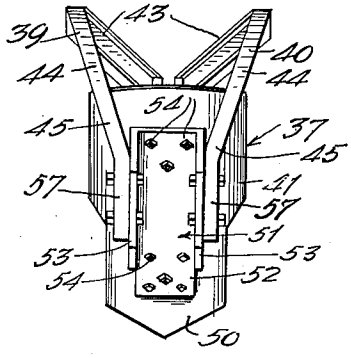


Fig. 15.

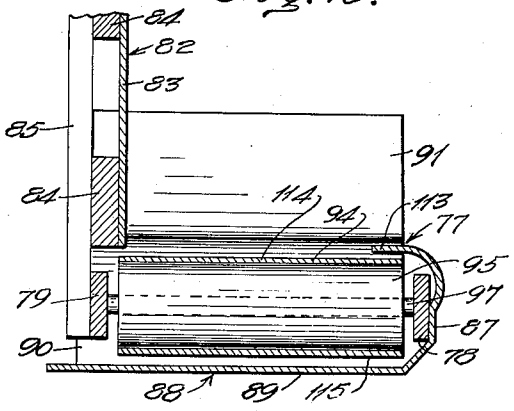


Fig. 13.

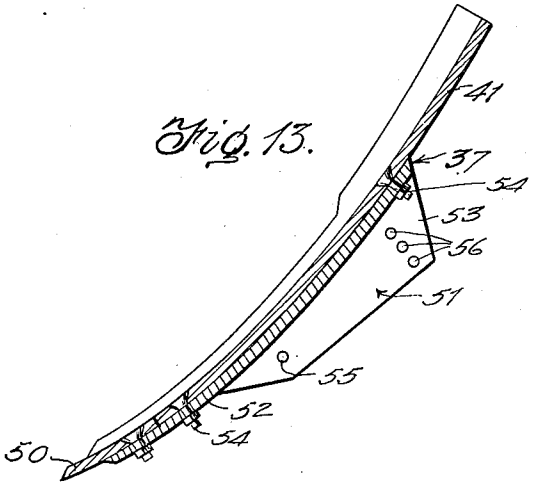
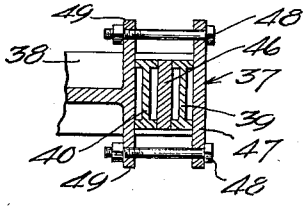


Fig. 14.



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Patented May 9, 1939 2,157,968

UNITED STATES PATENT OFFICE

2,157,968

SELF-PROPELLED COMBINED EARTH SCOOPING AND CONVEYING-OFF APPARATUS

Hugh K. Richwine, Liberal, Kans.

Application June 23, 1937, Serial No. 149,969

10 Claims. (Cl. 37—99)

This invention relates to a self-propelled combined earth scooping and conveying-off apparatus designed primarily for use in connection with the building of terraces, ditches, banks and the forming of trenches and furrows, but it is to be understood that an apparatus, in accordance with this invention is for any employment and any purpose for which it may be found applicable, and the invention has for its object to provide, in a manner as hereinafter set forth, a self-propelled combined earth scooping and conveying-off apparatus including a scooping unit so constructed and arranged to provide, on the forward travel of the apparatus for the earth to be continuously scooped up thereby, conducted upwardly on and guided by the front thereof and continuously discharged therefrom in a rearward direction from over the top thereof into an earth conveying-off unit acting to transport the scooped up material to a point removed from the path of travel of the scooping unit.

A further object of this invention is to provide, in a manner as hereinafter set forth, an apparatus of the type referred to including a tractor and means whereby its scooping and conveying-off units may be independently angularly adjusted in relation to said tractor.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a self-propelled, combined earth scooping and conveying-off apparatus which is comparatively simple in its construction and arrangement, strong, durable, compact, readily assembled, thoroughly efficient in its use, conveniently adjusted and comparatively inexpensive to set up.

To the above ends essentially and to others which may be hereinafter set forth, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and as illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but is is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a fragmentary view in top plan of the apparatus, the front of the tractor not shown,

Figure 2 is a rear elevation of the apparatus,

Figure 3 is a section on line 3—3, Figure 1,

Figure 4 is a section on line 4—4, Figure 3,

Figure 5 is a section on line 5—5, Figure 1,

Figure 6 is a section on line 6—6, Figure 1,

Figure 7 is a fragmentary view in side elevation illustrating one end of the driven means of the material conveying-off unit,

Figure 8 is a fragmentary view in side elevation showing the driving connection for said driven means,

Figure 9 is a section on line 9—9, Figure 2,

Figure 10 is a section on line 10—10, Figure 1,

Figure 11 is a top plan view of the combined scooping and earth directing unit when hitched to the tractor,

Figure 12 is a rear elevation of the unit shown in Figure 11,

Figure 13 is a lengthwise section of the scoop forming an element of the unit shown in Figure 11,

Figure 14 is a detail in cross section showing the spacer for the beams of the combined scooping and earth directing element, and

Figure 15 is a detail cross section on line 16—16, Figure 2.

The apparatus includes a propulsion means in the form of a tractor of any suitable type. Only the rear portion of the tractor is illustrated. The tractor indicated at 12 includes a pair of casings 13, 14 for enclosing driving means, not shown, for the tractor wheels 15, 16, rear axles 17 (only one shown) for operating the driving means within the casings 13, 14, a housing 18 for a differential (not shown) employed for driving the rear axles, rear axle housings 19, 20 integral with the housing 18 and connected to the casings 13, 14 centrally of the top of these latter, a drive shaft 21 for the differential, and a frame portion 22. The elements 13 to 22 aforesaid are of known construction and arrangement.

The apparatus includes a horizontally disposed yoke-shaped member 23 which is arranged in the rear portion of the tractor between the casings 13, 14, extends forwardly with respect to the wheels 15, 16 and constitutes a suspension for a pair of hangers 24, 25. The member 23 is open at its rear and has the rear ends of the sides 26 thereof anchored to the inner sides of the casings 13, 14 as at 27 (Figure 3). Anchored at their lower ends, as at 28 upon the top of the front 29 of the member 23 is a pair of oppositely disposed inwardly extending upstanding combined coupling and bracing elements 30 which at their upper ends are secured to the sides of the frame portion 22 as at 31, Figure 1.

The hangers 24, 25 are oppositely disposed, positioned against the front terminal portions of the lower faces of the sides 26 of the member 23 and anchored to the latter by the holdfast devices 32. Each hanger includes an upper horizontal leg 33

and a vertically disposed front leg 34 depending from the front end of leg 33. The lower end of leg 34 is formed with an inwardly opening socket 35. Mounted at its ends in the sockets 35 on the legs 33 is a coupling bar 36 of circular cross section and which provides for coupling the forward end of the earth scooping-up and directing unit 37 with the tractor.

The unit 37 is disposed between the center of bar 36 and the casing 13 and includes a hitch or coupler 38, a pair of spaced beams 39, 40 of like form and a scoop 41 which is disposed at an inclination from its bottom to its top with respect to the hitch 38 and rear portion of tractor 12. The member 41 is arranged rearwardly of the tractor wheels 15, 16. Each beam has a front straight portion 42, an intermediate portion 43 which inclines upwardly and outwardly from the rear end of portion 42 and a curved rear portion 44 which extends rearwardly from and depends from the rear or upper end of the portion 43. The rear part 45 of portion 44 is arranged at the rear of the scoop 41. Between the front portions of the beams 39, 40 is arranged a spacer 46. The hitch or coupler 38 has its front formed of a pair of sleeves 38a which are loosely mounted on the bar 36. The front portions 42 of the beam and the spacer 46 between said portions are clamped to one side of the hitch or coupler 38 by a clamping plate 47 and the holdfast devices 48. The said side of hitch 38 and the plate 47 have apertured ears 49 through which extend the holdfast devices 48. The portions 42 of the beams extend rearwardly from the hitch 38.

The scoop 41 is of concavo-convex contour in lengthwise and transverse section, has its leading portion of less width than its follower portion and has its follower portion so formed as to provide throughout the length thereof what may be termed side retainers for the material as it travels upwardly on the front of the scoop. The retainers indicated at 49a are substantially of flange-like form. The front end 50 of the leading portion of scoop 41 is pointed. In fact, the scoop 41 has its leading portion consisting of what may be termed a tapered part merging at its rear into a rectangular part of greater length than the tapered part. The scoop will be formed of two sections anchored together in a manner to be referred to. The unit 37 includes a yoke-shaped member 51 having its base 52 of greater length than its sides 53. The said base 52 is positioned against the back of and anchored to the sections of the scoop 41 by the holdfast means 54. Each of said sides 53 in proximity to its front end is formed with an opening 55 and in proximity to its rear end with a group of openings 56. The openings 55 align. The openings of the groups 56 align. The lower parts 57 of the rear portions 44 of the beams incline forwardly from top to bottom and are positioned against the outer faces of the sides of the member 51. Each part 57 has a lower opening for registry with an opening 55 and an upper opening for registry with a selected opening of each group of openings 56. A holdfast means 58 extends through the aligned openings 55 and the lower openings in parts 57 for connecting the beams and scoop 41 together. A holdfast means 59 extends through selected aligned openings of the groups 56 and the upper openings in parts 57 for not only connecting the beams and scoop 41 together, but to prevent the latter shifting relative to the beams. The openings 56 enable the angular adjustment of the scoop relative to the beam, and in this connection the holdfast means 58 will constitute a pivot for the scoop to permit it to be swung to align one of the openings of each group 56 with the upper openings of parts 57 after which the holdfast device 59 is extended through the aligned openings and secured to member 51. The unit 37 is also capable of being adjusted relative to the tractor for controlling the depth of operation of the unit and for such purpose a chain 60 is attached at one end to the rear part of the unit, as at 61, and has its other end connected as at 62 to the outer end of a crank arm 63 carried by a rock shaft 64 journaled in an upstanding toothed plate 65 mounted on the top of the rear portion of the tractor. A braced spring controlled pawl and lever mechanism 66 of suitable form associates with the plate and has its lever fixed to shaft 64 or rocking the latter.

Anchored upon the axle housing 20 is the front end of a rearwardly extending channel bar 67 of a length to project rearwardly of unit 37. Secured intermediate their ends to the outer side of bar 67 are a front and a rear vertically disposed upright 68, 69 respectively disposed in parallel spaced relation and connected together by a brace 70 arranged against the bottom of bar 67. The ends of brace 70 are anchored to the inner sides of uprights 68, 69 as at 71. A brace 72 is anchored at its ends, as at 73 to the upper ends of uprights 68, 69 on the inner sides of the latter. The uprights 68, 69 and braces 70, 71 form a vertical hanger frame. Anchored at its front end to the axle housing 19 and at its rear end on and to the bar 67 is a horizontally disposed inclined brace 74. Secured at its upper end to the upper part of upright 68 is an upstanding inclined brace 75 which has its lower end anchored to brace 74 intermediate the ends of the latter. Extending through and connected to the uprights 68, 69 in proximity to their lower ends is a pivot rod 76 for a purpose to be referred to.

The apparatus includes a conveyor unit 77 for receiving the scooped up material discharged rearwardly from over the top of the scoop 41 of unit 37. The unit 77 embodies a pair of spaced parallel side cheeks 78, 79 of the desired height and length which extend between the uprights 68, 69 and are loosely mounted intermediate their ends on the pivot rod 76. Arranged between the upper portions of, disposed upwardly from and positioned in proximity to the side cheeks 78, 79 are a pair of material confiner members 80, 81 respectively of the desired height and length. The rear ends of the confiner members are spaced forwardly of the rear ends of the side cheeks and align with each other. The unit 77 includes an upstanding abutment 82 disposed directly rearwardly of and which has its lower end portion aligned with this upper portion of scoop 41. The abutment 82 consists of a metallic plate 83 having its rear face secured to a pair of spaced superposed reinforcing members 84 preferably, of wood. The abutment 82 is arranged in superposed relation to the rear terminal portion of the top edge of side cheek 79. The members 84 are secured together and to the side cheek 79 by a pair of spaced vertical straps 85 which are anchored to said members and to the outer side face of cheek 79. The lower member 84 is connected to the side cheek 79 by a strap 86 anchored to such member and the said cheek and such member is positioned rearwardly of confiner 81. Secured to the forward side face of side cheek 78 at the rear terminal portion of the latter is an upstanding bracket 87 for a purpose to be referred to. The

bracket 87 at its lower end merges into one side of a combined protecting and confining element 88 consisting of a forwardly extending upwardly inclined lower part 89, an upstanding curved intermediate part 90 and an upstanding rear part 91 inclining rearwardly from top to bottom. The confiners 80, 81 are coupled to the side cheeks by any suitable means, such as by way of example, the means 93 as shown in Figure 2.

The unit 77 includes an endless conveying belt 94 which travels around the rollers 95, 96 carried by shafts 97, 98 respectively, journaled in the outer and inner ends respectively of the side cheeks 78, 79. The rollers are arranged between the cheeks. The shaft 98 is extended from the side cheek 79 and carries a sprocket 99 driven from an endless sprocket chain 100, operated by a sprocket pinion 101 carried by a transmission shaft 102 formed of a pair of sections universally jointed together. The shaft 102 is suitably supported by a bracket 103 secured to the confiner 81. Attached to the side cheek 79 and confiner 81 are superposed track forming means 104 for the chain 101.

The side cheeks and confiners are disposed at an upward inclination and have their lower ends disposed rearwardly of the tractor wheel to the left. The side cheeks and confiners are disposed at an inclination with respect to the track forming means 104 for the chain 100.

The position of the unit 77 is at right angles to the line of draft of tractor 12. The side cheeks 78, 79 extend horizontally with respect to the tractor frame from a point rearwardly of wheel 15 to a point laterally to the desired extent with respect to the wheel 16 depending upon the length of the side cheeks. The inclination of the endless conveying belt with respect to tractor 12 or the ground may be varied and for such purpose an adjusting structure 105 is provided therefor. The structure 105 includes a pair of chains 106, 107 connected at their outer ends to the side cheeks 78, 79 respectively, a coiled spring 108 connected at its outer end to the inner ends of chains 106, 107, a link 109 attached at its outer end to the inner end of spring 108 and at its rear end pivotally connected to the lever element of a spring controlled pawl and lever mechanism 110, an arcuate rack forming member 111 which coacts with the pawl element of mechanism 110 and has the lower end of the lever element of said mechanism pivotally connected thereto, and a support 112 for and which is anchored to member 111. The support 112 is positioned upon the top of and is anchored to bar 67.

The bracket 87 is of angle shaped contour and includes a horizontal portion 113 which overlaps the inner side of the rear terminal portion of the upper run or stretch 114 of the belt 94 and acts to cause the earth or material discharged from over the top of scoop 41 to be deposited on the belt and also to prevent the material passing between the cheek 78 and the inner side edge of the belt. The portion 113 is to be of the desired length and width to accomplish the purpose referred to. The bracket 87 is connected to the bar 36 by a holding chain 113a.

The abutment 82 prevents the passage of the material from off of the outer side of the lower or rear terminal portion of the upper run or stretch 114 of belt 94 when the material is discharged onto the belt from over the top of the scoop 41.

The element 88 functions as a wear protecting means for the lower end of the side cheeks, a protector for the roll 95, a shield for the lower or rear terminal portion of the lower run or stretch 115 of the belt 94, and a confiner or arrestor for materially reducing the passing off of the earth from the lower end portion of belt 94.

On the forward travel of the tractor, the unit 37 will act to scoop up the earth, which will be directed upwardly on the front of scoop 41 to the upper end of the latter and discharged in a rearward direction from over the top edge of scoop 41 on to the belt 94 which will transport the earth and dump it at the point desired.

The transmission shaft 102 is operated from the differential. The bracket 87 and element 88 is an integral structure and constitutes a sled for supporting the lower end of the conveyor.

The front loading elevator or conveyor has the following advantages: The dirt is raised up and the elevator is pulled under it. This eliminates the necessity for a wide conveyor belt. The elevator is so designed to exclude the dirt from the rollers and belt, that in connection with the scoop element, the lower end of the elevator will slide in the furrow made by the scoop element. This fact alone reduces the power required because the scoop does not have to raise the dirt more than a few inches before it is deposited on the belt.

In rough ground the spring tension on the outer end of the elevator gives flexibility, which eliminates undue breakage.

The combination of the plow scoop and front loading elevator completes a turning and ditching machine that will fit on any tractor and work efficiently at any sped.

One man can operate this machine and run the tractor as well.

This apparatus does not require a large tractor. The apparatus is simple, easy to operate and can be manufactured at a cost so reasonable that every farmer can afford to own one. With this machine terraces can be constructed at a cost of fifteen dollars per mile, while the present cost for the same terrace constructed with other equipment averages from forty to eighty dollars per mile. The apparatus will reduce the cost of constructing terraces seventy-five percent, as compared with present equipment being used.

A divisional application Serial No. 149,970 was filed of even date herewith and has since issued as Patent No. 2,142,919.

What I claim is:

1. In a mobile combined earth scooping-up and carrying-off apparatus of that type including an upwardly inclined conveyor structure disposed at right angles to the line of draft and having an endless driven earth conveying-off means, and an element for scooping up the earth and discharging it on said means, the combination of an upstanding abutment disposed in superposed relation with respect to the top of the lower terminal portion of the rear side of and adapted to be secured to said structure, a horizontally directed upwardly inclined wear preventor for and disposed lengthwise of the lower end terminal portion of the bottom of said structure, a curved upstanding protector integral at its lower end with the lower end of said preventor for and opposing the lower end of said structure, an upstanding outwardly inclined earth confiner merging at its lower end into the upper end of said protector, and an upstanding bracket arranged forwardly of the forward side of said structure and integral at its lower end

with the forward side of said preventor, said bracket being secured to the forward side of said structure and having a rearwardly directed upper portion overlapping a part of the upper run of said conveying means constituting an earth shield.

2. In a mobile combined earth scooping up and carrying-off apparatus of that type including an upwardly inclined conveyor structure disposed at right angles to the line of draft and having an endless, driven earth conveying-off means, the combination of a forwardly directed upwardly inclined wear preventor for and disposed below and lengthwise of the lower end terminal portion of the bottom of said structure, said preventor being disposed in laterally extended rearward relation with respect to the rear side of the said terminal portion, a curved upstanding protector integral at its lower end with the lower end of said preventor for and opposing the lower end of said structure, an upstanding outwardly inclined earth confiner merging at its lower end in the upper end of said protector, and an upstanding bracket arranged forwardly of the forward side of said structure and integral at its lower end with the forward side of said preventor, said bracket adapted to be secured to the forward side of said structure and being formed with a rearwardly directed part overlapping the forward side marginal portion of the upper run of the conveying-off means constituting an earth shield.

3. In a mobile combined earth scooping up and carrying-off apparatus of that type including a tractor and an upstanding combined earth scooping-off and directing unit, the combination of a driven, upwardly inclined, resiliently suspended, pivotally supported conveyor structure arranged rearwardly of said tractor and element, disposed at right angles to the line of draft and driven from the tractor, and a combined wear preventing, protecting and earth confining unit mounted on the lower terminal portion of said structure and including a part disposed below said lower terminal portion, a part exteriorly of and opposing the lower end of said structure, a part forwardly of and connected to the forward side of said structure, a part overlapping the forward side marginal portion of the upper face of said structure and an upstanding outwardly inclined part having its lower end positioned in proximity to the lower end of the upper face of said structure, and means for connecting said confining unit to the tractor.

4. In a mobile apparatus for the purpose set forth, in combination an upwardly inclined conveyor structure including an endless conveying belt for loading at its lower terminal portion, an earth shield connected to said structure and disposed on the forward side marginal portion of the upper run of said belt at its lower end terminal portion, an upstanding earth abutment disposed on the rear side of said structure adjacent the rear side edge of the lower terminal portion of said belt, and an upstanding outwardly inclined confiner connected with said structure, extending outwardly from and having its lower end disposed in proximity to the lower end of said upper run.

5. In a mobile combined earth scooping-up and conveying-off apparatus of that type including a tractor and an upstanding combined earth scooping-up and directing element, the combination of an upwardly inclined adjustable endless conveyor arranged rearwardly of said tractor and element, disposed at right angles to the line of draft and including upper and lower runs, a pair of uprights disposed at opposite sides of the conveyor, means for suspending the uprights from the tractor, a pivot rod mounted in the lower portions of the uprights and extending through the conveyor, front and rear side cheeks arranged relatively to said runs and mounted on said rod, combined supporting and operating means for the conveyor carried by the side cheeks, driving means for said operating means driven from the tractor, front and rear spaced parallel confiners disposed over and lengthwise of said upper run and of less length than said cheeks, means for connecting the confiners to the cheeks, an upstanding abutment adjacent the inner ends of the confiners and having its bottom disposed in superposed relation with respect to the top edge of the lower terminal portion of the rear side cheek, and spaced means arranged against the rear surfaces of the abutment and rear side cheek for securing the abutment to the rear side cheek.

6. In a mobile combined earth scooping-up and conveying-off apparatus of that type including a tractor and an upstanding combined earth scooping-up and directing element, the combination of an upwardly inclined adjustable endless conveyor arranged rearwardly of said tractor and element, disposed at right angles to the line of draft and including upper and lower runs, a pair of uprights disposed at opposite sides of the conveyor, means for suspending the uprights from the tractor, a pivot rod mounted in the lower portions of the uprights and extending through the conveyor, front and rear side cheeks arranged relatively to said runs and mounted on said rod, combined supporting and operating means for the conveyor carried by the side cheeks, driving means for said operating means driven from the tractor, front and rear spaced parallel confiners disposed over and lengthwise of said upper run and of less length than said cheeks, means for connecting the confiners to the cheeks, an upstanding abutment adjacent the inner ends of the confiners and having its bottom disposed in superposed relation with respect to the top edge of the lower terminal portion of the rear side cheek, spaced means arranged against the rear surfaces of the abutment and rear side cheek for securing the abutment to the rear side cheek, and flexible means connected with the lower terminal portion of the front side cheek and to the tractor for coupling the conveyor with the tractor.

7. In a mobile combined earth scooping-up and conveying-off apparatus of that type including a tractor and an upstanding combined earth scooping-up and directing element, the combination of an upwardly inclined adjustable endless conveyor arranged rearwardly of said tractor and element, disposed at right angles to the line of draft and including upper and lower runs, a pair of uprights disposed at opposite sides of the conveyor, means for suspending the uprights from the tractor, a pivot rod mounted in the lower portions of the uprights and extending through the conveyor, front and rear side cheeks arranged relatively to said runs and mounted on said rod, combined supporting and operating means for the conveyor carried by the side cheeks, driving means for said operating means driven from the tractor, front and rear spaced parallel confiners disposed over and lengthwise of said upper run and of less length than said cheeks, means for connecting the confiners to the cheeks, an up-

standing abutment adjacent the inner ends of the confiners and having its bottom disposed in superposed relation with respect to the top edge of the lower terminal portion of the rear side cheek, spaced means arranged against the rear surfaces of the abutment and rear side cheek for securing the abutment to the rear side cheek, and adjusting means for the conveyor supported from said uprights and including a resilient suspension means having oppositely extending flexible parts secured to the side cheeks adjacent their outer ends.

8. In a mobile combined earth scooping-up and conveying-off apparatus of that type including a tractor and an upstanding combined earth scooping-up and directing element, the combination of an upwardly inclined adjustable endless conveyor arranged rearwardly of said tractor and element, disposed at right angles to the line of draft and including upper and lower runs, a pair of uprights disposed at opposite sides of the conveyor, means for suspending the uprights from the tractor, a pivot rod mounted in the lower portions of the uprights and extending through the conveyor, front and rear side cheeks arranged relatively to said runs and mounted on said rod, combined supporting and operating means for the conveyor carried by the side cheeks, driving means for said operating means driven from the tractor, front and rear spaced parallel confiners disposed over and lengthwise of said upper run and of less length than said cheeks, means for connecting the confiners to the cheeks, an upstanding abutment adjacent the inner ends of the confiners and having its bottom disposed in superposed relation with respect to the top edge of the lower terminal portion of the rear side cheek, spaced means arranged against the rear surfaces of the abutment and rearside cheek for securing the abutment to the rear side cheek, and spaced superposed guides for said driving means secured to the rear sides of the rear confiner and rear side cheek.

9. In a mobile combined earth scooping-up and conveying-off apparatus of that type including a tractor and an upstanding combined earth scooping-up and directing element, the combination of an upwardly inclined adjustable endless conveyor arranged rearwardly of said tractor and element, disposed at right angles to the line of draft and including upper and lower runs, a pair of uprights disposed at opposite sides of the conveyor, means for suspending the uprights from the tractor, a pivot rod mounted in the lower portions of the uprights and extending through the conveyor, front and rear side cheeks arranged relatively to said runs and mounted on said rod, combined supporting and operating means for the conveyor carried by the side cheeks, driving means for said operating means driven from the tractor, front and rear spaced parallel confiners disposed over and lengthwise of said upper run and of less length than said cheeks, means for connecting the confiners to the cheeks, an upstanding abutment adjacent the inner ends of the confiners and having its bottom disposed in superposed relation with respect to the top edge of the lower terminal portion of the rear side cheek, spaced means arranged against the rear surfaces of the abutment and rear side cheek for securing the abutment to the rear side cheek, adjusting means for the conveyor supported from said uprights and including a resilient suspension means having oppositely extending flexible parts secured to the side cheeks adjacent their outer ends, and spaced superposed guides for said driving means secured to the rear sides of the rear confiner and rear side cheek.

10. In a mobile combined earth scooping-up and conveying-off apparatus of that type including a tractor, an upstanding combined earth scooping-up and directing element and a conveyor structure carried with the tractor, arranged rearwardly of the tractor and said element and disposed at right angles to the line of draft, the combination of a suspension on the tractor, a pair of spaced parallel hangers depending from the suspension and formed with sockets at their lower ends, a coupling bar having its ends mounted in said sockets, a hitch loosely mounted at its forward end on and extended rearwardly from said bar, a pair of permanently spaced oppositely disposed connected together beams of like form extending rearwardly from the hitch and being provided with depending forwardly directed rear portions adapted to have said element connected thereto, said beams having their forward end terminal portions disposed at one side of the hitch, and means for anchoring said forward end terminal portions to the said side of the hitch.

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