



PATENT SPECIFICATION

676,818

Date of filing Complete Specification : Jan. 11, 1951.

Application Date : Feb. 2, 1950. No. 2736/50.

Complete Specification Published : Aug. 6, 1952.

Index at Acceptance :—Classes 79(i), A3f; and 79(iv), B3g.

COMPLETE SPECIFICATION.

Improvements in Single-Wheeled Agricultural Tractor Frames.

We, THOMAS ARTHUR HILL, a British Subject, of 20, Gladstone Terrace, Grantham, Lincolnshire, and BARFORD (AGRICULTURAL) LIMITED, a British Company, of Grantham, Lincolnshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement :—

10 This invention has reference to improve-

point approximately mid-way between the ends of the main chassis frame member and extending downwardly therefrom, and two 50 curved bars each joined to one of the legs at a point near the lower end of the leg and extending forwards and rearwards to points of attachment to the corresponding main 55 chassis frame member, the vertical legs being designed for attachment at their lower ends to an axle for carrying the wheel of the

ERRATUM

SPECIFICATION NO. 676,818

Page 2, line 80, for "647, 105" read "674, 105".

THE PATENT OFFICE,
26th February, 1954

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tractor wheelbarrow fashion by a walking operator. The chassis frame is constructed for the selected implement to be attached at one of its ends, all the various implements having a standard fixing device which is complementary to a part of the chassis frame constructed to receive such a device.

30 The object of the present invention is to provide a light and sturdy tractor of this type to which the implements can be quickly fitted at either end, which has a nice balance for steering wheelbarrow fashion from rear end, which suits walking operators of different heights, and wherein the handle-bars are detachable for packing purposes.

40 According to the invention, a single-wheeled agricultural tractor frame has a pair of spaced main longitudinal chassis frame members joined together by transverse members, two vertical legs each joined to one of the main chassis frame members at a

50 55 60 65 70 75 80 85 90

members of the engine, gearbox, wheel and tool-carrier are shown in broken lines, Figure 2 is a side view of a handle unit, Figure 3 is a plan of the chassis frame and handle unit, part of the handle unit being broken away. Figure 4 is a plan of the handle unit, and Figure 5 is a front elevation of the chassis frame.

The chassis frame comprises a pair of spaced main longitudinal members 1 which are preferably made of flat metal strip as shown, but which may be tubular. These two main members are joined together by two transverse flat bars 2 welded to the members 1 and by two transverse round bars 3 fixed to the members 1 by nuts 4. The rectangular frame thus formed is carried by two vertical legs 5 and two curved bars 6 which form axle brackets one on each side of the frame. Each of the legs 5, which are preferably made of flat strip metal as shown,

[Price 2s. 8d.]



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We, THOMAS ARTHUR HILL, a British Subject, of 20, Gladstone Terrace, Grantham, Lincolnshire, and BARFORD (AGRICULTURAL) LIMITED, a British Company, of Grantham, Lincolnshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement :—

This invention has reference to improvements in single-wheeled agricultural tractor frames designed for small power-driven vehicles herein called tractors, as they are adapted to have secured thereto interchangeable agricultural and similar land-working implements such as ploughs, cultivators, diggers, harrows, hoes, planters, seeders and tedders. The type of tractor to which the invention relates is conveniently termed a "light-duty" tractor, as it is of a comparatively small size suitable for use by private and small-holding farmers, this type comprising a light chassis frame on which is mounted an internal combustion engine driving a single land wheel, and to which is secured a pair of handlebars for steering the tractor wheelbarrow fashion by a walking operator. The chassis frame is constructed for the selected implement to be attached at one of its ends, all the various implements having a standard fixing device which is complementary to a part of the chassis frame constructed to receive such a device.

The object of the present invention is to provide a light and sturdy tractor of this type to which the implements can be quickly fitted at either end, which has a nice balance for steering wheelbarrow fashion from rear end, which suits walking operators of different heights, and wherein the handlebars are detachable for packing purposes.

According to the invention, a single-wheeled agricultural tractor frame has a pair of spaced main longitudinal chassis frame members joined together by transverse members, two vertical legs each joined to one of the main chassis frame members at a

point approximately mid-way between the ends of the main chassis frame member and extending downwardly therefrom, and two curved bars each joined to one of the legs at a point near the lower end of the leg and extending forwards and rearwards to points of attachment to the corresponding main chassis frame member, the vertical legs being designed for attachment at their lower ends to an axle for carrying the wheel of the tractor between the legs, and a detachable handle unit comprising two arms joined together by cross bars, the two arms being provided with hand grips at their upper ends and having lower ends designed to be bolted to the curved bars of the chassis frame.

The invention and the subsidiary features thereof will be fully understood from the following more detailed description of a specific embodiment of the invention, reference being made to the accompanying drawings in which :—

Figure 1 is a side elevation in which the chassis frame is shown in full lines and the outlines of the engine, gearbox, wheel and tool-carrier are shown in broken lines,

Figure 2 is a side view of a handle unit,

Figure 3 is a plan of the chassis frame and handle unit, part of the handle unit being broken away.

Figure 4 is a plan of the handle unit, and

Figure 5 is a front elevation of the chassis frame.

The chassis frame comprises a pair of spaced main longitudinal members 1 which are preferably made of flat metal strip as shown, but which may be tubular. These two main members are joined together by two transverse flat bars 2 welded to the members 1 and by two transverse round bars 3 fixed to the members 1 by nuts 4. The rectangular frame thus formed is carried by two vertical legs 5 and two curved bars 6 which form axle brackets one on each side of the frame. Each of the legs 5, which are preferably made of flat strip metal as shown,

is welded or otherwise fixed to one of the members 1 approximately mid-way between the ends of the member and extends downwards therefrom. Each curved bar 6, which is also preferably made of flat strip metal, is welded or otherwise fixed to one of the legs 5 at a point 7 and extends forwards and rearwards from the point 7 to front and rear points 8 and 9 where it is welded or otherwise secured to the member 1. The legs 5 terminate below the points 7 and have slots 10 designed for fixing the axle of the wheel 11 of the tractor. The frame is thus designed to carry the wheel 11 between the legs 5 as indicated in Figures 1 and 5 of the drawings.

The transverse bars 2 serve as bearers for an engine 12 carried at the front end of the chassis frame above the members 1, and the transverse bars 3 are used to support a gearbox 13 carried behind the engine. The gearbox receives power from the engine through a belt drive 14 controlled by a clutch which may be of any suitable construction. The drive from the gearbox to the wheel 11 is by means of a chain drive enclosed in a chain case 15.

A tractor having such a frame is designed to be guided like a wheelbarrow by means of a handle unit attached to one end of the chassis frame. The handle unit comprises a pair of arms 16, which preferably consist of bent metal strips as shown, and which are tied together by cross bracing bars 17. The arms 16 are provided with hand grips 18 at their upper ends; and their lower ends 19 are bent parallel to one another with a space between them substantially equal to the width of the chassis frame, these lower ends 19 being thus designed to be bolted to the curved bars 6 by means of bolts 20 which pass through holes 21 provided for them in the ends 19 of the arms 16 and corresponding holes 22 provided in the bars 6. The handle unit is thus readily detachable for packing and transport. For most purposes the handle unit is required to be attached, as shown in the drawings, to the end of the chassis frame adjacent the gearbox. An engine throttle control 23 is mounted on one of the arms 16 and an engine clutch control 24 is mounted on the other arm 16 as indicated in Figure 4, these two controls being connected to the working parts they control by means of Bowden cables.

The weight of the engine and gearbox is distributed so that, although the chassis frame is more heavily loaded at the end on which the engine is mounted, a sufficiently even balance is obtained for convenience in guiding the vehicle as a wheelbarrow.

At the end of the chassis frame on which the gearbox is mounted, an implement-carrying framework 25 is fitted. This is in the form of an open framework through which a post 26 attached to the implement

can be passed and clamped when its height has been adjusted. The framework 25 may be pivotally adjustable between the extremities of the longitudinal members 1 of the chassis frame to enable the angle of the post 26 to be adjusted so that, no matter to what degree the chassis frame is tilted (owing to the differences in the height of different operators holding the hand grips 18), the post 26 can be set to any required ground attack angle. The particular arrangement for mounting the tool or implement on the tractor forms the subject of co-pending Application No. 2735 of 1950 (Serial No. 647,105) and no claim is made to it herein.

Holes 27 are provided at the end of the chassis frame on which the engine is mounted, so that the framework 25 for carrying the post 26 can be fitted alternatively at this end if desired.

Any suitable form of stand may be fitted to the vehicle to support it when it is not in use.

What we claim is:—

1. A single-wheeled agricultural tractor frame having a pair of spaced main longitudinal chassis frame members joined together by traverse members, two vertical legs each joined to one of the main chassis frame members at a point approximately mid-way between the ends of the main chassis frame member and extending downwardly therefrom, two curved bars each joined to one of the legs at a point near the lower end of the leg and extending forwards and rearwards to front and rear points of attachment to the corresponding main chassis frame member, the vertical legs being designed for attachment at their lower ends to an axle for carrying the wheel of the tractor between the two legs, and a detachable handle unit comprising two arms joined together by cross bars, the two arms being provided with hand grips at their upper ends and having lower ends designed to be bolted to the curved bars of the chassis frame.

2. An agricultural tractor having a single-wheeled frame as claimed in Claim 1, wherein a framework for carrying a land-working implement is attached to one end of the chassis frame.

3. An agricultural tractor as claimed in Claim 2, wherein the framework for carrying the implement can be attached to either end of the chassis frame at will.

4. A single-wheeled agricultural tractor frame constructed substantially as herein described with reference to the accompanying drawings.

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Agent for the Applicants.

BAD ORIGINAL

PROVISIONAL SPECIFICATION.

Improvements in Single-Wheeled Agricultural Tractor Frames.

We, THOMAS ARTHUR HILL, a British Subject of 20, Gladstone Terrace, Grantham, Lincolnshire, and BARFORD (AGRICULTURAL) LIMITED, a British Company, of Grantham, Lincolnshire, do hereby declare this invention to be described in the following statement:—

This invention has reference to improvements in power-driven vehicles adapted to have secured thereto interchangeable agricultural and similar land-working implements, such as ploughs, cultivators, diggers, harrows, hoes, planters, seeders and tedders. The type of vehicle to which the invention relates is conveniently termed a "light-duty" vehicle, as it is of a comparatively small size suitable for use by private and small-holding farmers, this type comprising a light framework chassis on which is mounted an internal combustion engine driving a single land wheel, and to which is secured a pair of handlebars for steering the vehicle wheelbarrow fashion by a walking operator. The chassis is constructed for the selected implement to be attached at one of its ends, all the various implements having a standard fixing device which is complementary to a part of the chassis constructed to receive such device.

The object of the present invention is to provide a light and sturdy vehicle of this type to which the implements may be quickly fitted at either end, which has a nice balance for steering wheelbarrow fashion from either end, which suits walking operators of different heights, and wherein the handlebars are detachable for packing purposes.

According to the invention the chassis of the vehicle comprises a pair of spaced longitudinal main bars of flat strip or tubular metal joined together by cross ties and by a pair of cross engine bearers to support an internal combustion engine disposed at one side of the transverse centre of the chassis, there being a downwardly depending curved side bar of flat C configuration lying on its back with the horns upwardly inclined and welded or otherwise fixed to each main bar, and a vertical leg secured to each main bar approximately at the centre and extending down for securement to the centre of the said curved side bars. The pair of vertical legs terminate below the curved sides and are slotted to receive the axle pin of a land wheel mounted between the sides and having the top of its periphery between the main longitudinal bars and about on the level with or slightly below said main bars.

On the other side of the transverse centre of the main bars opposite the engine there is

mounted a gearbox receiving its drive from the engine shaft via belt and belt pulleys, a clutch being suitably interposed.

The distribution of the weight of the engine and gearbox in such a fashion, although slightly heavier at the engine end of the chassis, enables a fairly even balance when supported by handle bars extending upwardly from one end of the chassis, the latter pivoting about the single land wheel, especially when the handle bars are at the gearbox end of the vehicle.

The handlebars are a pair of similar metal bars splaying apart vee-wise from their bottom ends and are provided with grips at their upper ends, the pair being connected together by a pair of cross bracing bars. At their bottom ends the two handlebars are bent parallel to one another with a space therebetween equal to the width of the chassis, and these parallel ends are adapted to be bolted to the curved side members of the chassis. They are thus readily detachable for packing and transport, and if desired bolt holes may be provided at both ends of the chassis to receive the handlebars so that the vehicle may be operated from either end; for most purposes, however, the handlebars will project from the gearbox end of the chassis. The engine throttle control is mounted on one handlebar and an engine clutch control on the other, both communicating with their working points by Bowden cables.

At the gearbox end of the chassis an implement-carrying framework is fitted. This is in the form of an open framework through which a post attached to the implement may be passed and clamped when its height has been adjusted. The said open framework is pivotally adjustable between the extremities of the main longitudinal bars of the chassis whereby the angle of the implement post can be varied with respect to the vertical, and thus, no matter to what degree the chassis is tilted out of the horizontal (due to the height of the operator holding the handlebars), the tool post can be set to any requisite ground attack angle. Holes are provided in the chassis at the engine end, thereof so that the implement-carrying framework may be fitted alternatively at this end if desired.

Any suitable form of stand may be fitted to the vehicle to support the same when it is not in use.

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676818 COMPLETE SPECIFICATION
 2 SHEETS This drawing is a reproduction of
 the Original on a reduced scale.
 SHEETS 1 & 2

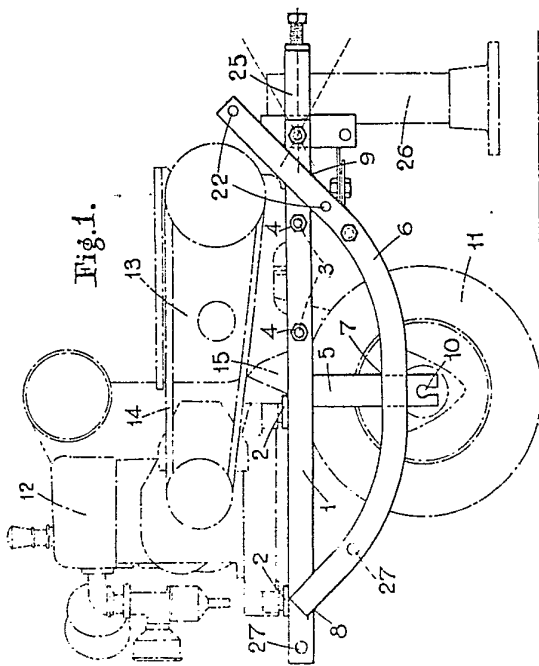


Fig. 1.

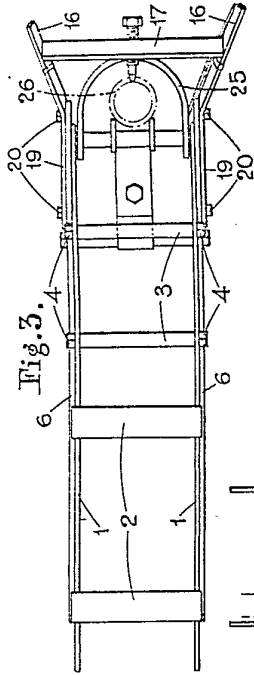


Fig. 3.

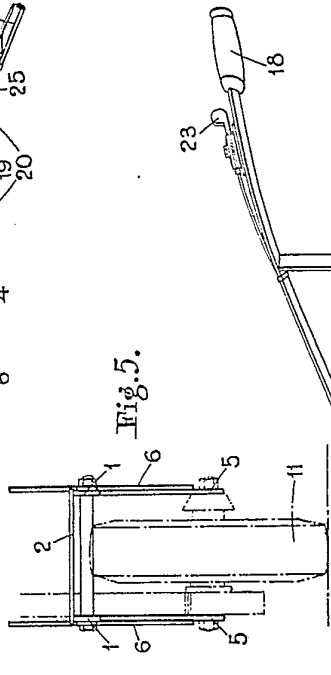


Fig. 5.

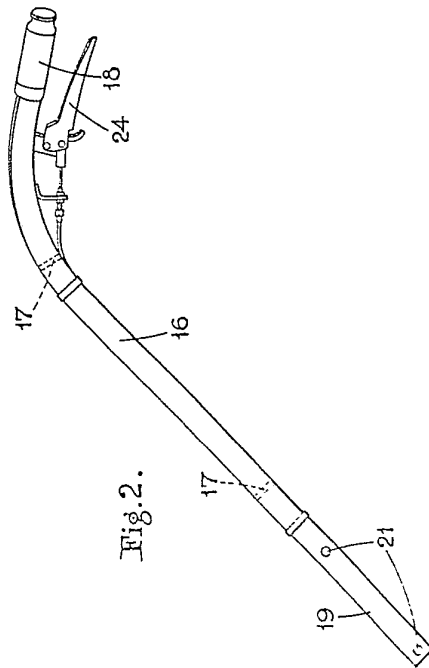


Fig. 2.

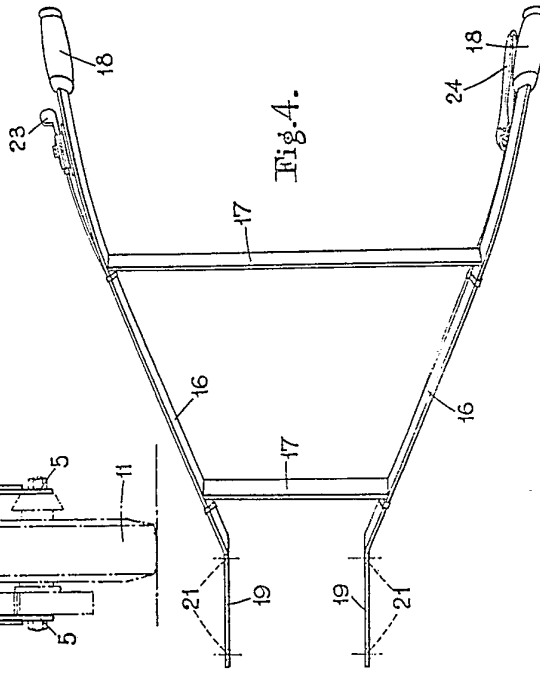
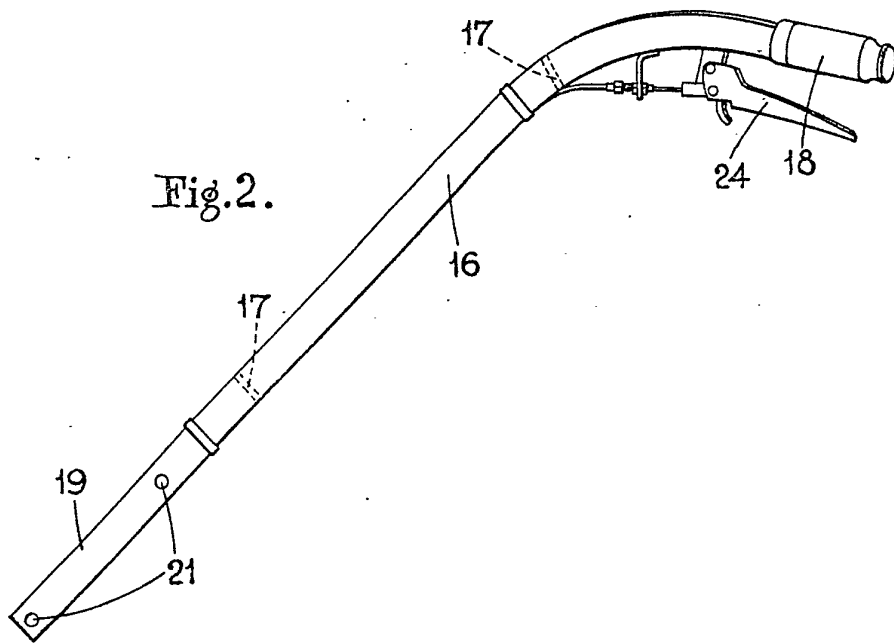
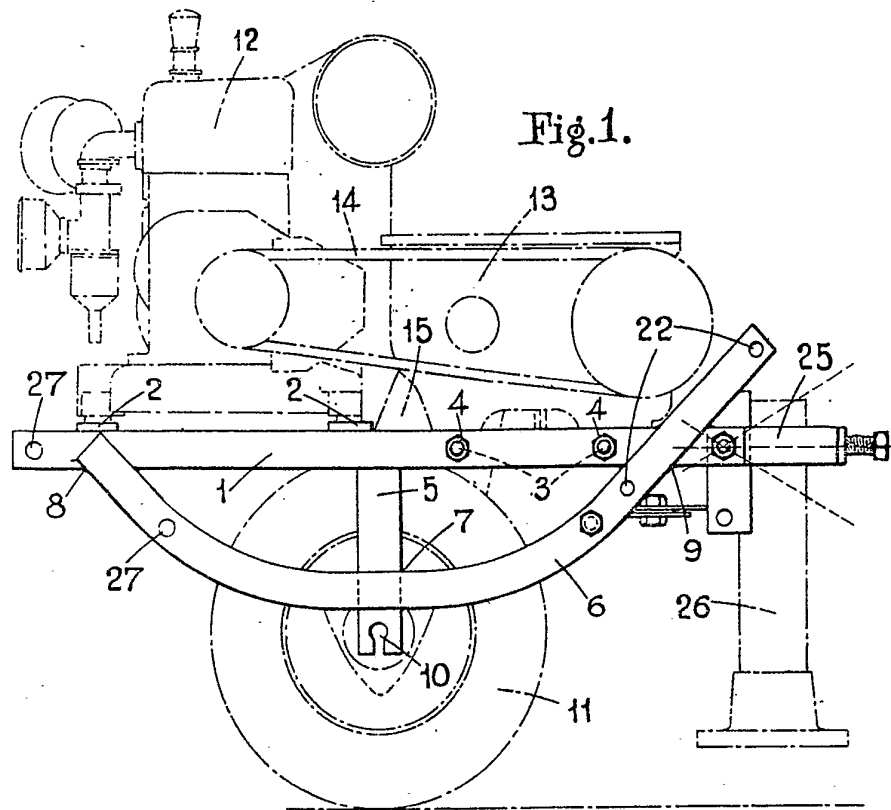


Fig. 4.



676,818 COMPLETE SPECIFICATION

2 SHEETS

This drawing is a reproduction of the Original on a reduced scale.

SHEETS 1 & 2

