

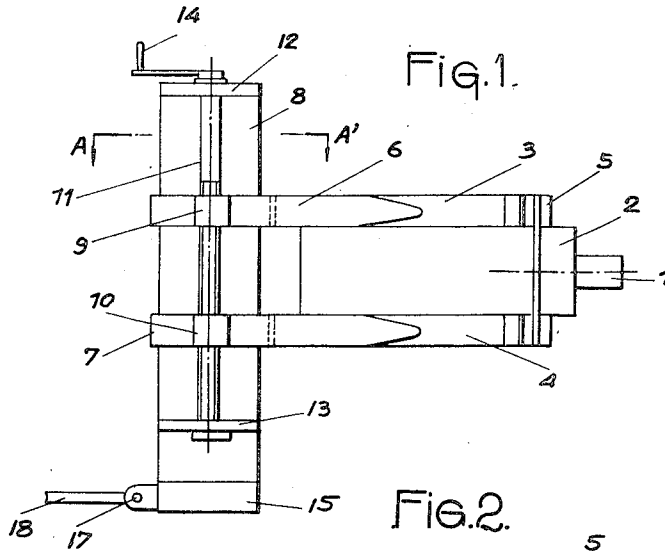
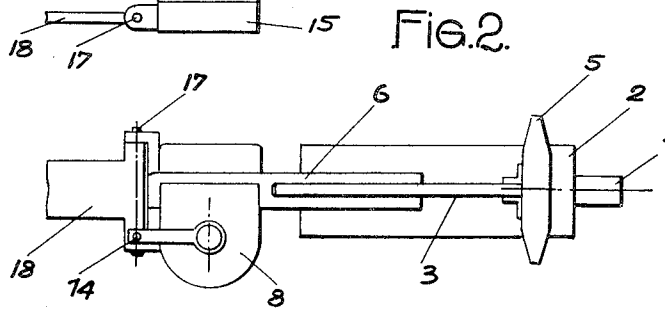
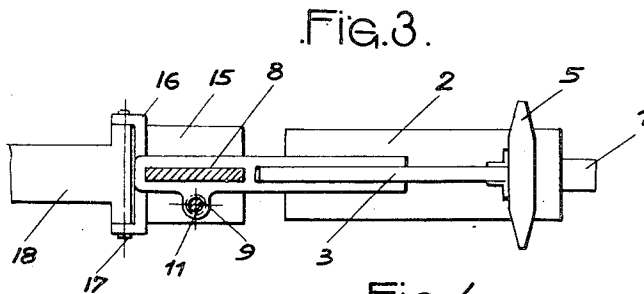
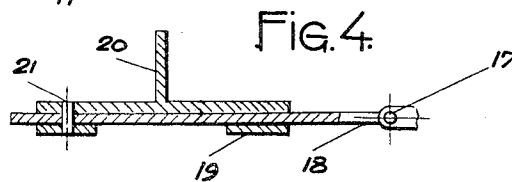
Dec. 19, 1950

P. HENRIOD
IMPLEMENT COUPLING

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3 Sheets-Sheet 1



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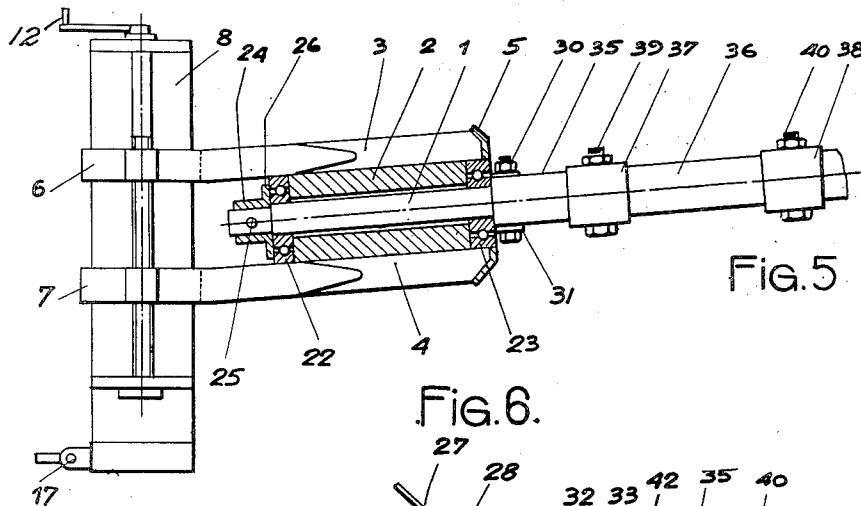
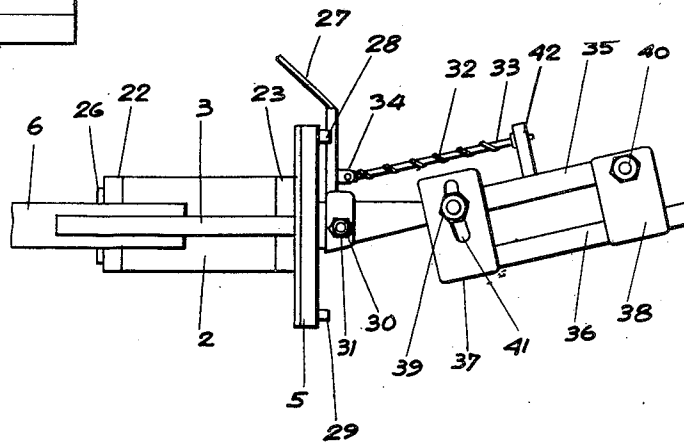
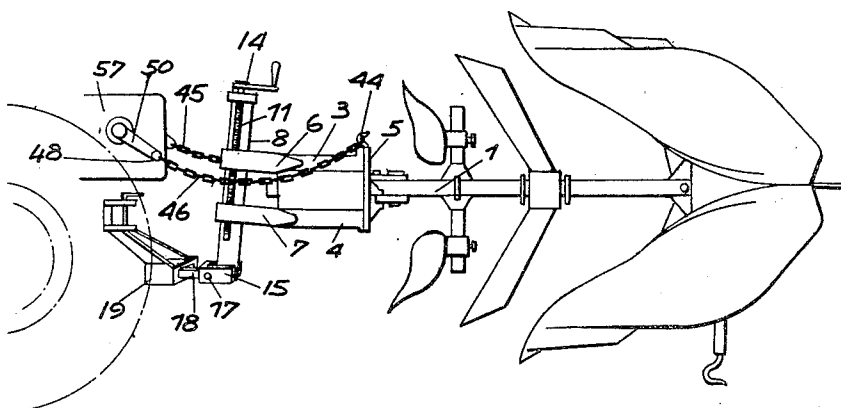


Fig. 9.



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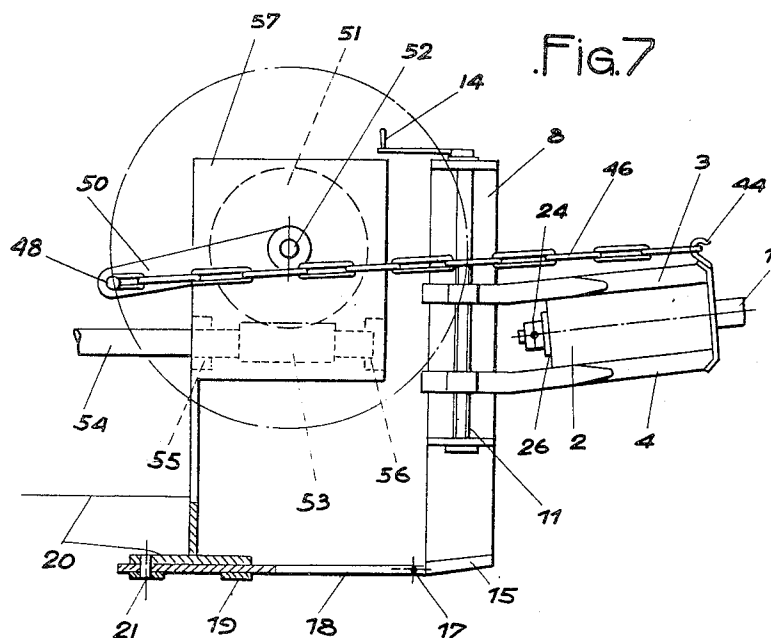
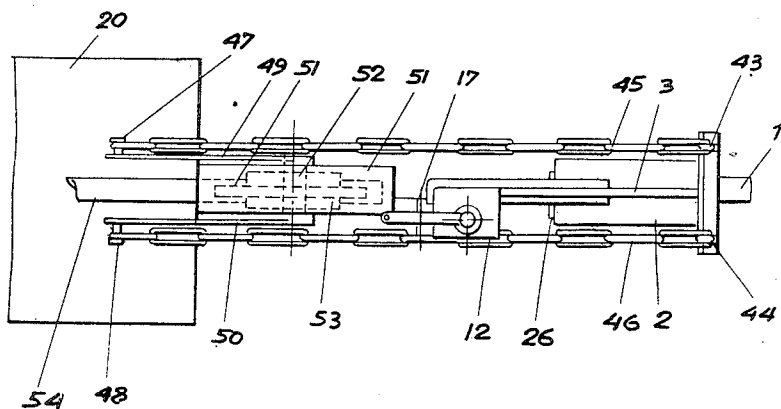


FIG. 8.



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UNITED STATES PATENT OFFICE

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IMPLEMENT COUPLING

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1 Claim. (Cl. 97—98)

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This invention relates to ploughs and more particularly to double-share ploughs which have to be turned around at the end of a furrow. The invention refers especially, though not exclusively, to power driven ploughs.

The principal object of this invention is to provide means permitting the plough to be raised or lowered.

Another object of this invention is to provide means affording the adjustment of the position of the plough beam so as to permit the breadth of the furrow to be varied.

A further object of this invention is to provide a plough of the aforesaid type wherein an eccentric device disposed on the tractor and driven by the engine of the latter acts on traction means so as to ensure the lifting or raising of the whole plough prior to its return at the end of a furrow.

In accomplishing these and other objects of this invention, I have provided the improved details of construction the preferred forms of which are illustrated in the accompanying drawings wherein:

Fig. 1 is a side elevational view of the device made in accordance with the invention for adjusting the height of the plough,

Fig. 2 is a plan view of the device shown in Fig. 1,

Fig. 3 is a section taken along line A—A' of Fig. 1,

Fig. 4 is a fragmentary sectional view of the attaching means shown in Figs. 2 and 3,

Fig. 5 is a side elevational view illustrating the device for turning the plough,

Fig. 6 is a plan view of the device of Fig. 5,

Fig. 7 is a side elevational view of the lifting device,

Fig. 8 is a plan view of the device of Fig. 7,

Fig. 9 is a perspective view of the plough embodying the invention.

Referring to Figs. 1 to 4, the beam 1 of the plough is pivotally fitted in a sleeve 2 which is carried between two arms 3, 4 and rigidly held in position by means of a cap-shaped piece 5. Both arms 3 and 4 fixedly carry at their forward ends two collars 6, 7 through which bar 8 may slide.

Two bosses, 9, 10 provided on one side of the collars 6, 7 have vertically tapped passageways, which are in alignment with each other and engage a substantially vertically arranged screw spindle 11 extending through said passageways.

On one side of bar 8, there are disposed two flanges 12, 13 which serve as bearings for the spindle 11. A crank 14 secured to the upper end of

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the screw-spindle 11 permits rotation of the latter.

At its lower end bar 8 carries a U-shaped stirrup 15 with a yoke member 16 through the legs of which passes a substantially horizontal pin 17 to which is articulated rod member 18 for attaching the plough to the tractor. Said rod member 18 is guided in a hollow sleeve 19 connected with the body 20 of the tractor by means of a link pin 21.

During the tillage, the device hereinabove described is adapted to connect a tractor 20 with the beam 1 of the plough in the following manner: When it is necessary to modify the depth of the tillage pitch, the crank 14 is actuated so as to move the screw spindle 11 which according to the direction of rotation raises or lowers the two bosses 9, 10 which are rigid with the arms 3, 4 which in turn support the beam 1 of the plough, thus diminishing or increasing the depth of ploughing.

If the plough is to be detached from the tractor, it suffices to withdraw the pin 17.

In Figs. 5 and 6, the sleeve 2 has the shape of a socket provided at both ends with ball bearings 22, 23 or other suitable bearings in which the end of the beam 1 is journaled. The part of beam 1 projecting beyond the ballbearing 22, is of circular cross-section and carries a collar 24 which is secured thereto by means of a pin 25 and is provided with a flange 26 abutting against the ballbearing 22 in order to fix the position of the beam in its axial direction.

The beam is preferably provided with a crank-shaped portion so that the centre of gravity of the plough is near to its pivoting axis, thus facilitating its turn around.

A pawl lever 27 engaging alternately with projecting catch 28 or 29 welded on cap-shaped piece 5 serves to turn the plough and to set it into one of its two extreme positions.

The lever 27 is fixed to the extremity of the beam 1 by a bolt 30 which connects lug 31 integral with the said lever 27, to the beam 1. A coil spring 32 extending on guide rod 32 which is pivoted to the lever 27 by means of a pin 34, exerts a pressure against the lever 27 which is thus held between catch 28 or 29.

In order to adjust the position of the beam and, consequently, the width of the furrow, two arms 35, 36 are provided which are carried by transverse plates 37, 38, to which arm 36 is affixed permanently whereas arm 35 is removably attached to said plate by means of bolts and screws 39, 40. The bolt 39 passes through a curved slot

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41 provided in the plate 37 so that by unscrewing this bolt 39, the arm 35 which is rigidly connected to the end of the beam 1 can pivot with respect to the arm 36 which forms a rigid connection with the plough. Thus, by locking said bolt, the plough is fixed in adjusted position. A bracket 42 is rigid with arm 35 to support guide rod 33 carrying the spring 32.

When it is necessary to turn the plough at the end of a furrow, it suffices to exert a pressure on the lever 27 to cause disengagement of the lever from the catch 28 in which said lever is engaged, and then to turn it through 180°. The entire plough then turns around its axis passing through the beam. The plough and the device described are so designed that the turning parts are well balanced and only a small effort is required to impart this rotating movement.

In Figs. 7 and 8, the arm 3 of the sleeve 2 is provided with two hooks 43, 44 connected by two chains 45, 46, to two pins 47, 48 carried by two cranks 49, 50 which are turned by means of a worm wheel 51 with which said cranks are fixedly connected by means of shaft 52. A worm 53 mounted on a shaft 54 causes the worm wheel 51 to turn. The shaft 54 is driven by the engine of the tractor 20 and runs in bearings 55, 56 mounted in a frame 57.

During the ploughing, the device represented is utilized in the following manner, when it is necessary to lift the plough to effect its turn around, as explained with reference to Figs. 5 and 6. The shaft 54 is coupled to the engine of the tractor, which revolves and thereby actuates the worm 20. The latter drives the worm wheel 51 which rotates the cranks 49 and 50. These cranks then pull the chains 45, 46, thereby causing bar 8 to pivot about pin 17. The sleeve 2 is thus lifted together with the beam 1 fitted in said sleeve and with the latter the remainder of the plough which is rigid with said beam 1. When the sleeve 2 is raised, the plough is turned, as explained hereinbefore, and put back into position, i. e. lowered again upon inverse operation of the cranks 49, 50, to plough a new furrow. During the ploughing, the chains 45, 46 are not stretched and they automatically bring back the plough to the axis of the tractor during the lifting operation.

The lifting device may be equipped with one crank 49 or any other eccentric member. It can thus be seen that in accordance with the invention there has been provided a coupling device for connecting an implement trailing behind a power driven tractor comprising a substantially upright bar, means supporting said bar and connected to said implement, a rotatable spindle extending along and generally parallel to said bar and supported thereby, said spindle threadedly engaging said supporting means so that rotation of said spindle displaces said supporting means with respect to said bar, a rod member pivoted to said bar with the pivotal axis horizontal, whereby said bar may be swung about said pivotal axis

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relatively to said rod member, said rod member extending forwardly to said tractor, a vertical pivot pin on said tractor pivotally connecting said rod member to said tractor, and guide means on said tractor and engaging said rod member between said vertical pivot pin and said bar for horizontal swinging movement of said rod member with respect to said tractor.

While the invention has been illustrated and described in great detail in the drawings and foregoing description, the same is to be considered as merely illustrative and by no means in a limitative sense.

The several modifications described herein, as well as others which will readily suggest themselves to persons skilled in this art, all considered to be within the broad scope of the invention, reference being had to the appended claim.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

A coupling device for connecting an implement trailing behind a power driven tractor comprising a substantially upright bar, means supporting said bar and connected to said implement, a rotatable spindle extending along and generally parallel to said bar and supported thereby, said spindle threadedly engaging said supporting means so that rotation of said spindle displaces said supporting means with respect to said bar, a rod member pivoted to said bar with the pivotal axis horizontal, whereby said bar may be swung about said pivotal axis relatively to said rod member, said rod member extending forwardly to said tractor, a vertical pivot pin on said tractor pivotally connecting said rod member to said tractor, and guide means on said tractor and engaging said rod member between said vertical pivot pin and said bar for horizontal swinging movement of said rod member with respect to said tractor.

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