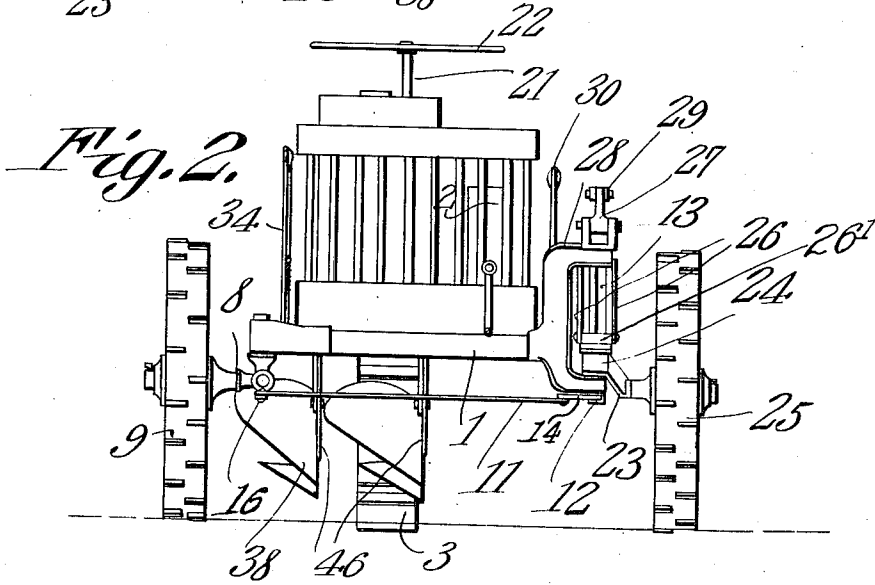
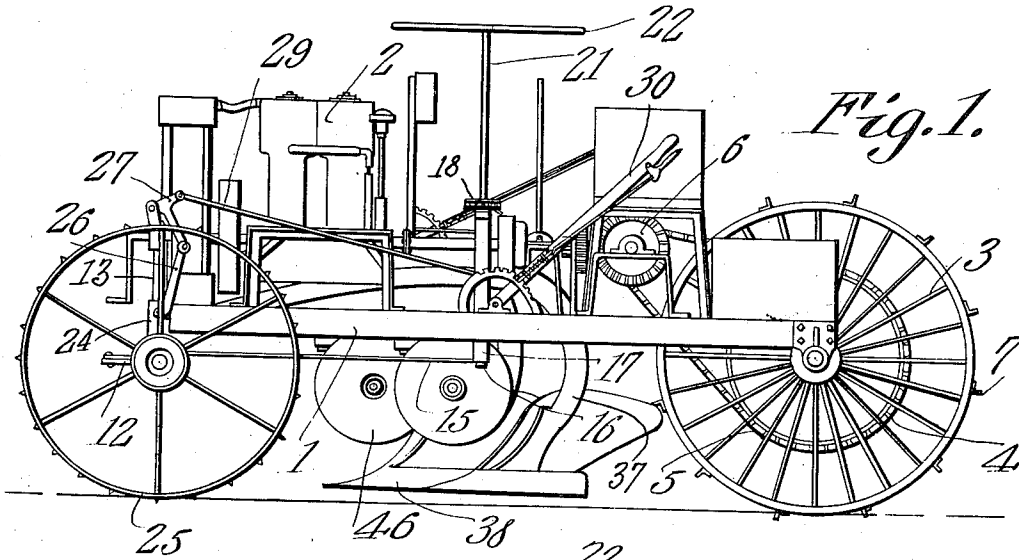


J. KNUDSEN.
MOTOR PLOW.
APPLICATION FILED SEPT. 10, 1909.

1,009,073.

Patented Nov. 21, 1911.

3 SHEETS-SHEET 1.



Witnesses

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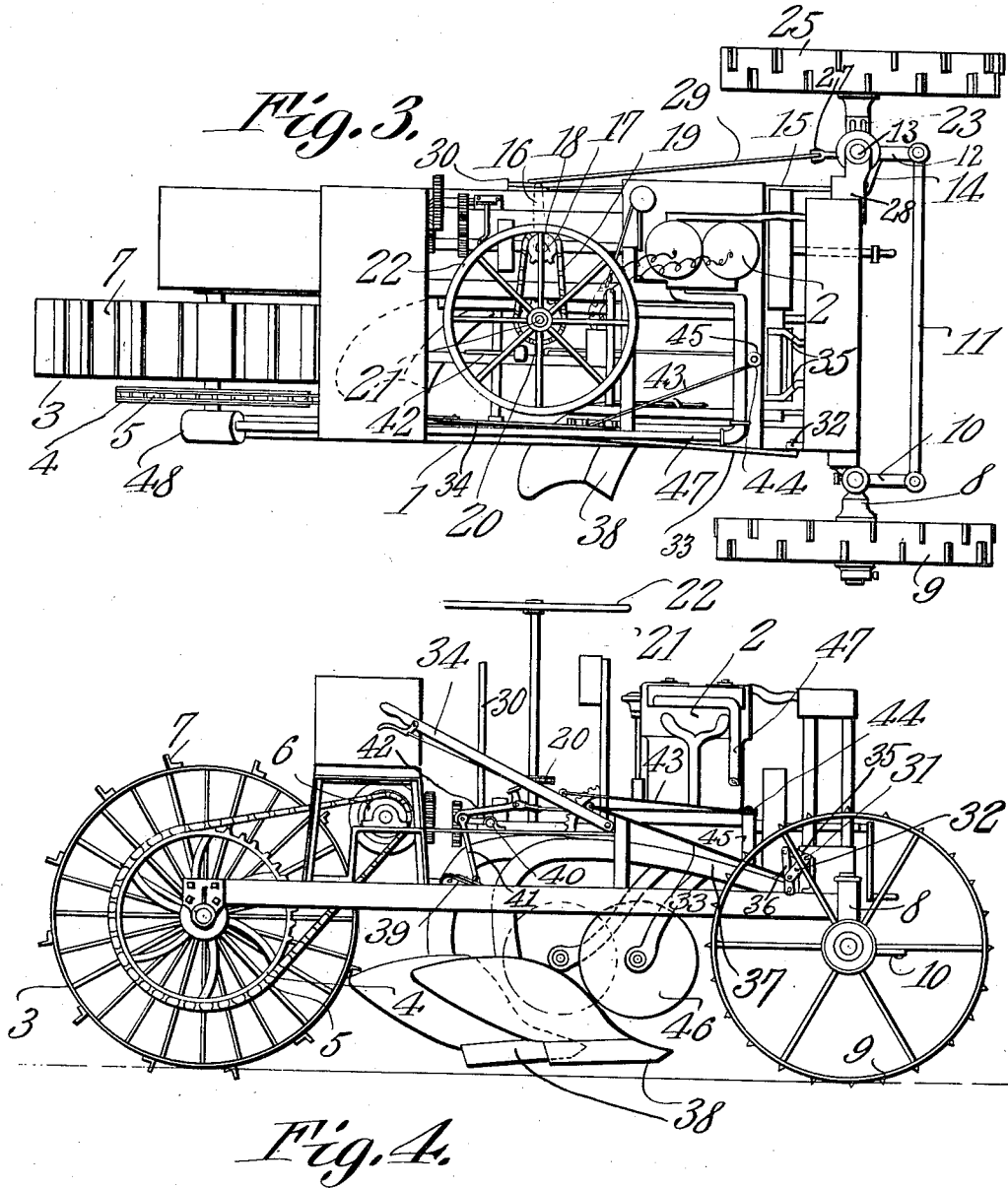
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3 SHEETS—SHEET 2.



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3 SHEETS-SHEET 3.

Fig. 5.

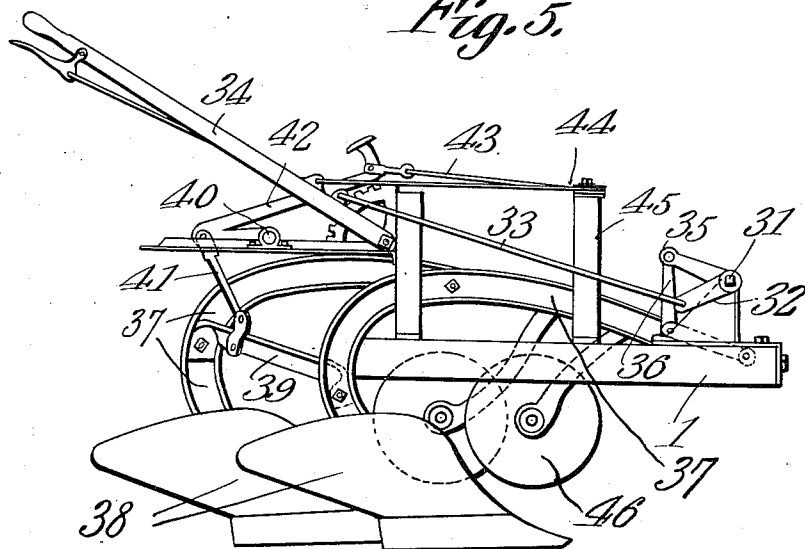


Fig. 6.

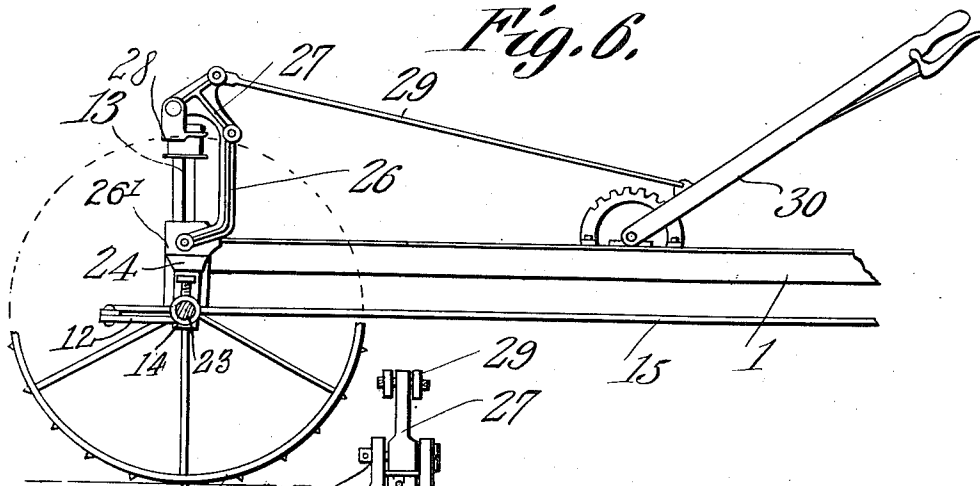
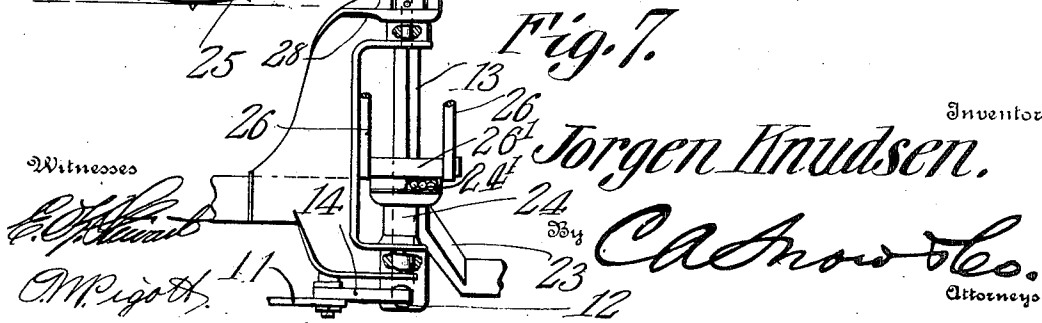


Fig. 7.



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UNITED STATES PATENT OFFICE.

JORGEN KNUDSEN, OF RACINE, WISCONSIN.

MOTOR-PLOW.

1,009,073.

Specification of Letters Patent. Patented Nov. 21, 1911.

Application filed September 10, 1909. Serial No. 517,176.

To all whom it may concern:

Be it known that I, JORGEN KNUDSEN, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented a new and useful Motor-Plow, of which the following is a specification.

This invention relates to motor plows and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a self-propelling breaking plow and with this object in view the structure includes a frame mounted upon dirigible wheels located at its forward end and operatively connected together with means for raising the frame with relation to one of the said dirigible wheels while the frame remains in fixed relation to the other dirigible wheel. A traction wheel supports the rear portion of the frame and is operatively connected with the source of power mounted upon said frame. The traction wheel is located to travel upon the bottom of a furrow opened by a plow attached to said frame. Means are provided for adjusting the depth at which the plow may operate below the surface of the soil and thus are provided means for raising and lowering the frame with relation to one of the dirigible wheels, that the said frame may at all times be maintained in level position and the traction wheel supporting the rear portion of the frame may have maximum frictional contact with the bottom of the furrow in which it travels.

In the accompanying drawings:—Figure 1 is a side elevation of the plow. Fig. 2 is a front elevation of the same. Fig. 3 is a top plan view of the same. Fig. 4 is a side elevation viewing the side of the plow opposite from that illustrated in Fig. 1. Fig. 5 is a detailed enlarged view showing means for raising and lowering the plow beams. Fig. 6 is a detailed view of mechanism for raising and lowering the forward portion of the frame with relation to one of the dirigible wheels which travels upon the unbroken land. Fig. 7 is a detailed view of a portion of the said mechanism viewing the same at a right angle to that illustrated in Fig. 6.

The plow includes a frame 1 upon which is mounted an engine 2. A traction wheel 3 is journaled at the rear portion of the frame 1 and is provided with a sprocket rim

4 around which a sprocket chain 5 passes. The said chain also passes around a journaled sprocket wheel 6 which is operatively connected with the engine in any suitable manner. The wheel 3 is provided upon its periphery with a series of tractors 7.

An arm 8 is pivotally attached to one corner of the forward portion of the frame and a wheel 9 is journaled for rotation upon the said arm. The arm 8 is provided with a forwardly projecting lug 10 which is connected by means of a cross rod 11 with a forwardly projecting lug 12 fixed to the lower end of a vertically disposed shaft 13 which is journaled for rotation at the opposite corner of the said frame. A laterally disposed lug 14 is also attached to the lower end portion of the shaft 13 and the forward end of a rod 15 is pivotally connected with the inner end of the said lug 14. At its rear end the rod 15 is pivotally connected with an arm 16 which is radially disposed from a journaled shaft 17. A sprocket wheel 18 is fixed to the shaft 17 and a sprocket chain 19 passes around the wheel 18 and a similar wheel 20 mounted upon a journaled shaft 21. The shaft 21 is provided with a hand wheel 22 whereby the said shaft may be manually rotated. Thus it will be seen that means are provided for swinging the arm 8 and the shaft 13 simultaneously.

An arm 23 is provided with a collar 24 having a non-circular opening which snugly receives the non-circular shaft 13 and the said collar may slide vertically on the said shaft. A wheel 25 is journaled for rotation upon the arm 23. A rocker 27 is fulcrumed at the upper end of a yoke 28 forming a corner piece of the frame 1. Links 26 are pivotally connected at their upper ends with one end of the rocker 27 and at their lower ends with a plate 26' which is slidably mounted upon the shaft 13 but which does not rotate with the same. Bearing balls 24' are interposed between the collar 24 and the plate 26' as shown in Fig. 7 of the drawing. A rod 29 is pivotally connected at its forward end with the rocker 27 and at its rear end to a lever 30 which is fulcrumed upon the frame 1. Thus it will be seen that by swinging the lever 30 and thereby moving the rod 29 longitudinally the rocker 27 will be swung in a vertical plane and the links 26 will be moved longitudinally whereby the collar 24 may be moved to any desired point on the shaft 13. Thus the forward portion

of the frame 1 at which the yoke 28 is located may be raised or lowered with relation to the center of the wheel 25 and consequently the frame may be maintained level, whether the plows (to be described) operate deep or shallow in the soil. Furthermore it will be seen that notwithstanding the fact that means are provided for raising and lowering the forward portion of the frame of the plow with relation to one only of the steering wheels, the said wheels remain approximately parallel and may be directed in any general direction to effect proper steering of the plow.

A shaft 31 is journaled for rotation at the forward portion of the frame 1 and is provided with a radially disposed arm 32 which is pivotally connected by means of a rod 33 with an operating lever 34 fulcrumed upon the frame 1. Arms 35 are also carried by the shaft 31 and are pivotally connected with links 36 which in turn are pivotally connected with the forward ends of the plow beams 37. Each beam 37 carries at its rear end a plow 38 and the rear portions of the beams 37 are spaced from each other by a strut 39. A crank shaft 40 is journaled for rotation in bearings provided upon the intermediate portion of the frame 1 and the crank shaft 40 is pivotally connected by means of a link 41 with the strut 39. A foot treadle 42 is also connected with the crank of the shaft 40 and a cable 43 is attached at one end to the forward portion of the treadle 42 and at its other end to the lever 34. The intermediate portion of the cable 43 passing around a pulley 44 which is journaled for rotation upon a post 45 erected upon the frame 1. Thus it will be seen that means are provided for raising and lowering the beams 37 and the plows 38 with relation to the frame of the plow. A disk colter 46 is carried by each beam 37 and is located in advance of the plows 38. By swinging the lever 34 it will be seen that through the connecting rod 33 the shaft 31 will be partially rotated and consequently the arms 35 attached to the said shaft will move about the axis of the shaft and through the connecting links 36 the forward portions of the beams 37 may be raised or lowered. At the same time that the lever 34 is swung the cable 43 is moved longitudinally and the treadle 42 will be swung upon the axis of the shaft 40 and thus the link 41 will be moved longitudinally and the rear portions of the beams 37 will be raised or lowered ac-

cording to the direction in which the lever 34 is swung. An exhaust pipe 47 is connected with the engine 2 and the said pipe extends back and is provided at its rear end with a muffler 48. The wheel 3 travels in the path of one of the plows 38 and inasmuch as the said wheel is rotated by its connection with the shaft of the engine 2 the said wheel serves as propelling means for the plow and the tractors 7 carried by the said wheel may travel upon the bottom of a furrow opened by the plow 38 in front. Thus the wheel 3 travels upon earth sufficiently compact to afford ample resistance to compel the plow to move along the ground. Furthermore it will be seen that by providing the adjusting means between one of the dirigible wheels and the frame that irrespective of the depth at which the plows may operate below the surface of the soil the plow frame may be kept level and therefore the traction wheel which is journaled to the frame will rest at its lower side squarely upon the bottom of the furrow and have maximum frictional contact therewith.

Having described my invention what I claim as new and desire to secure by Letters-Patent is:

A plow comprising a frame, a dirigible furrow wheel journaled at the forward end thereof at the furrow side, a vertically disposed yoke located at the forward end of the frame at the land side, a shaft journaled in said yoke, means for transmitting motion from said shaft to the said furrow wheel, a collar slidably mounted upon said shaft between the ends of the yoke, said collar being restrained against turning movement independent of the shaft, an arm carried by said collar, a wheel journaled on said arm, a rocker fulcrumed at the upper end of the yoke, links operatively connected to one end of said rocker, a plate slidably mounted upon the shaft above the collar and adapted to depress the same along the shaft, said links being pivotally connected at their lower ends to said plate, and a lever mechanism operatively connected with the other end of said rocker.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JORGEN KNUDSEN.

Witnesses:

CHAS. H. WELCH,
W. C. PALMER.