

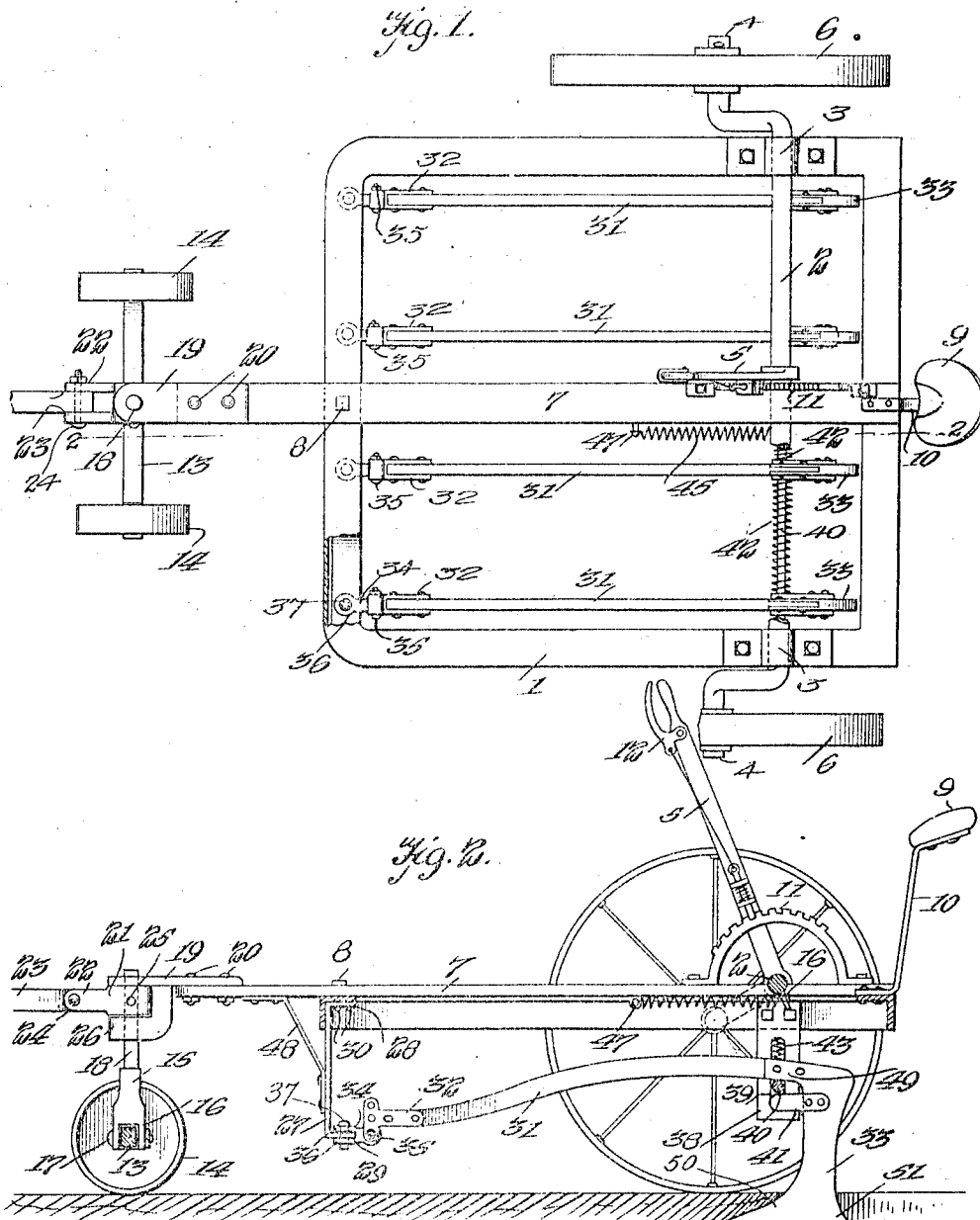
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GANG PLOW.

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# UNITED STATES PATENT OFFICE.

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## GANG-PLOW.

1,054,499.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that we, WILLIAM L. BOATRIGHT, a citizen of the United States, and a resident of Glendale, county of Maury, and State of Tennessee, and ARTHUR E. MURPHY, a citizen of the United States, and a resident of Columbia, county of Maury, and State of Tennessee, have invented certain new and useful Improvements in Gang-Plows, of which the following is a specification.

Our invention is an improvement in gang plows, and has for its object, the provision of means for supporting a gang of plows in such manner that the plows will be yieldingly held spaced apart laterally, and where-  
15 in the plows may yield upwardly and may be set to cut at varying depths.

A further object is to provide a particular form of plow arranged to thoroughly stir and loosen the soil to a considerable depth, without turning the same.

In the drawings: Figure 1 is a plan view of the improvement; and, Fig. 2 is a section  
25 on the line 2--2 of Fig. 1.

In the present embodiment of the invention, a substantially rectangular open frame 1 is provided, composed of angle material, having one of its angular portions horizontal, and the other vertical, the vertical portion being at the outer side of the horizontal  
30 portion.

An axle 2 is journaled transversely of the frame at the rear thereof, in bearings 3, on the frame, and the ends or spindles 4 of the axle are cranked or offset laterally from the axle. A lever 5 is secured rigidly to the axle at its center, and a wheel 6 is journaled on each spindle or end of the axle.  
40 A tongue or draft plate 7 is secured to the frame, longitudinally thereof, and at the center, by means of bolts or rivets 8, and a seat 9 is connected to the rear of the frame by a spring plate 10.

A toothed sector 11 is secured to the draft plate adjacent to the axle and the lever is provided with the usual latch mechanism 12, cooperating with the sector, for holding the lever in adjusted position. When the axle is oscillated by the lever, the frame will be raised or lowered.

The draft plate 7 extends beyond the front of the frame, and a truck is arranged at the front end of the said plate. The truck  
55 comprises an axle 13, having at each end a

wheel 14, and a yoke comprising a body 15 and arms 16 is connected to the axle at its center.

The arms 16 of the yoke extend on opposite sides of the axle, and a bolt 17 is passed through the arms and the axle. The body 15 of the yoke is provided with a vertical pin 18, and a plate 19 secured at one end to the extended end of the draft plate, by bolts 20, is provided at the other end with  
65 an opening for receiving the pin.

A yoke has a bearing in its body 21 for receiving the pin, and the arms 22 of the yoke extend forwardly, and receive between them the rear end of a tongue 23. A bolt 24 is passed through the arms and the tongue; and a pin 25 is passed through the body and the pin to hold the yoke in place, below plate 19.

The plate 19 is provided with a bearing lug 26 spaced below the plate and engaging the pin below the yoke, the lug 26 being integral with the plate. A plate 27 is arranged transversely of the frame, below the front member thereof, and the said plate is  
80 connected to the frame by a plurality of bars 28.

The flange 28 is secured to the horizontal portion of the front frame member, by rivets 30, and the plows are connected to the flange 29. Each of the said plows is connected to a beam 31, provided at its front end with a T-clevis 32, the plow 33 being connected to the rear end of the beam.

Each of the clevises is double, that is having one member on each side of the beam, and a yoke is provided for connecting each beam to the flange 29. Each yoke comprises a body 34, pivoted to the clevis members by a bolt 35, and arms 36 embracing the flange 29, and held to the flange by a bolt 37.  
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In the present instance four plows are provided, and the beams are of such length that the plows are near the rear of the frame. Plates 38 are secured to the frame at each side thereof, adjacent to the plows, and each plate is longitudinally slotted, as shown at 39. A shaft 40 is arranged transversely of the plates in the slot, and an arm 41 is secured to each plow below the beam and approximately parallel therewith, each arm extending forwardly below the shaft 40. The shaft is thus held between the beams of the plows and the arms 41. The plows may be disengaged from the shaft, by  
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releasing the clevis from the yokes at the front, and moving said plows rearwardly, so that the shaft 40 will slip out from between the beams and the arms 41.

5 Coil springs 42 encircle the shaft between the adjacent plows, and a spring 43 is seated in the slot of each plate, between the shaft and the upper end of the slot. A spring 44 is also provided for the lever 5, the said spring having one end connected to 10 a lug 46 at the lower end of the lever and the other end to a pin 47 on the draft plate.

The springs 42 hold the plows in spaced relation, but permit them to yield laterally, 15 to avoid obstruction, and the springs 43 normally press the plows downward, holding them at the proper depth, while permitting them to yield upwardly.

The nearer the spindles 3 are to the same horizontal plane with the axle, the nearer 20 the frame to the ground, and the deeper the cut of the plows. When the said spindles are in vertical alinement with the axle, the frame is in its highest position, and the 25 plows are raised clear off the ground.

The adjustment may be made from the seat, and the pitch of the plows may be varied by means of the clevis at the front in the usual manner. When the point of 30 the plow is elevated by raising the clevis the tendency of the plow is to cut shallow, while when the point is lowered, the plow will tend to cut deep.

The extended end of the draft plate is 35 braced against plate 27, by means of a brace 48. The front truck supports the front of the frame, and swings with the tongue, on account of the pin 25 which connects the body 21 of the yoke to the pin.

40 The plows are not turning plows, but in the nature of subsoiling plows, breaking up and loosening the soil, without turning it over. The machine is first drawn over the ground in one direction, with the plows 45 at a depth of, say 8 or 10 inches. The ground is then plowed in a direction at right angles to the first, at a depth of 12 to 14 inches.

If the ground is not yet in satisfactory 50 shape, the soil may be again worked in the same direction as at first. Rolling colters will be placed in front of each plow in order that grass and trash may be cut to prevent choking of the plows, and the machine may 55 be drawn by horses or by power.

The machine is intended especially for preparing the ground for a second crop, after harvesting a small grain crop, as for instance, wheat, barley, or rye. Were a 60 turning plow used for this purpose, the damp under soil would be lifted over the dry, and trash, such as weeds and straw stubble and the like would be turned under.

The soil on top would dry out, and the 65 entire cultivated depth of ground would be

dry and lifeless. With the improved plow, the moist under soil is thoroughly stirred and loosened, and the dry upper soil is mulched in a manner to best conserve the moisture and prevent its evaporation. 70

Each of the plows 33 is in the form of a plate having its wide dimensions parallel with the beam, and having at its upper end a forwardly extending lug 49 for connection 75 to the beam. At its lower end the plate has a forwardly extending point 50, and a rearwardly extending heel 51, of less length than the point.

The lug 49 is riveted or bolted to the beam, and it will be evident that the plow 80 will not turn the soil, since no share is provided. The plows are blades arranged with their width parallel to the direction of motion, and will cut the soil in front and on top, and will also loosen and slightly 85 lift the under portion.

The lower end of the plate is straight, as shown, and the upper edges of the point and heel incline upwardly toward their connection with the body of the plate which is the 90 shank of the plow. The upper edge of the point and the front edge of the shank may be sharpened to form a cutting edge.

It will be understood that the frame may be braced suitably, the said bracing being 95 omitted for the sake of clearness. It will be noted that the connection of the beams with the frame, permits each plow and beam to be separated from the main frame without serious damage, in case the plow 100 should meet an obstruction. The bolt or pin 37 is of wood, and of sufficient strength to hold the beam in position under ordinary circumstances. When, however, the 105 plow meets with an obstruction of sufficient immobility to damage the mechanism, the pin or bolt 37 will break, and the beam will be pulled away backward without injury.

It will be understood that the spring 42 110 merely encircles the shaft 40 between the plows and acts to hold the plows in spaced relation. The springs bear above the axle against the plow beams and below the axle against the arm 41. The springs 43 are 115 mounted in any suitable manner between shaft 40 and the upper end of the slot 43. The plows are not rigidly secured to the shaft 40, the said shaft being held between the beam and the arm 41. That is, there 120 is a slidable connection between each plow and the shaft.

The depth of the cut of the plows may be varied by swinging the axle. It will be evident that the rear end of the frame may 125 be raised or lowered with respect to the ground in this manner.

We claim:—

1. A gang plow comprising a frame, an axle journaled transversely of the rear of 130

the frame and having each of its ends cranked, a wheel on each crank, means for oscillating the axle, means for holding the axle in adjusted position, draft mechanism connected with the front of the frame, a plurality of plow beams, each being pivotally connected at its front end to the front of the frame, a plow at the rear end of each beam, a shaft in front of the plows, a plate secured to the frame at each end of the shaft and having a longitudinal slot for the shaft, an arm connected to each plow and extending forwardly below the shaft, said arm being spaced from the beam a distance corresponding to the diameter of the shaft, a spring between the shaft and the upper end of the slot of each plate, and a spring on the shaft between each adjacent pair of plows.

2. A gang plow comprising a wheel supported frame, draft mechanism connected with the frame, a plurality of plow beams, each being pivotally connected at its front end to the front of the frame, a plow at the rear end of each beam, a shaft in front of the plows and directly below the beams, a slidable connection between each end of the shaft and the frame, springs normally holding the shaft in its lowermost position, an arm secured to each plow and extending forwardly below the shaft, each arm being spaced below the beam a distance corresponding to the diameter of the shaft, and yielding means for holding the arms in spaced relation.

3. A gang plow comprising a frame, wheels for supporting the frame, means for raising and lowering the frame with respect to the wheels, draft apparatus connected to the frame, a plurality of laterally spaced plow beams below the frame, each beam being pivoted to the front of the frame at the front end of the beam, a plow

at the rear end of each beam, a shaft arranged transversely of the plows in front of the plows, a plate at each end of the shaft, each plate being secured to the frame and having a vertical slot for the shaft, a spring between each end of the shaft and the upper end of the slot, means for slidably connecting each plow to the shaft, and a spring on the shaft between each adjacent pair of said connecting means.

4. A gang plow comprising a frame, wheels for supporting the frame, means for raising and lowering the frame with respect to the wheels, draft apparatus connected to the frame, a plurality of laterally spaced plow beams below the frame, each beam being pivoted to the front of the frame at the front end of the beam, a plow at the rear end of each beam, a shaft arranged transversely of the plows in front of the plows, a sliding connection between each end of the shaft and the frame, yielding means holding the shaft in lowermost position, means for slidably connecting each plow to the shaft, and yielding means for holding the said connecting means in spaced relation.

5. A gang plow comprising a supporting frame, a plurality of laterally spaced plow beams, a swinging connection between each of the said beams and the supporting frame at the front of the beam, a shaft supported below the frame and mounted to yield upwardly, said shaft being below the beams, each beam having an arm extending forwardly below the shaft, and springs on the shaft between the beams.

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