A. G. BUGLER.

GANG PLOW.

APPLICATION FILED JUNE 7, 1912.

1,068,977.

Patented July 29, 1913.

3 SHEETS—SHEET 1.

Fig. 1.

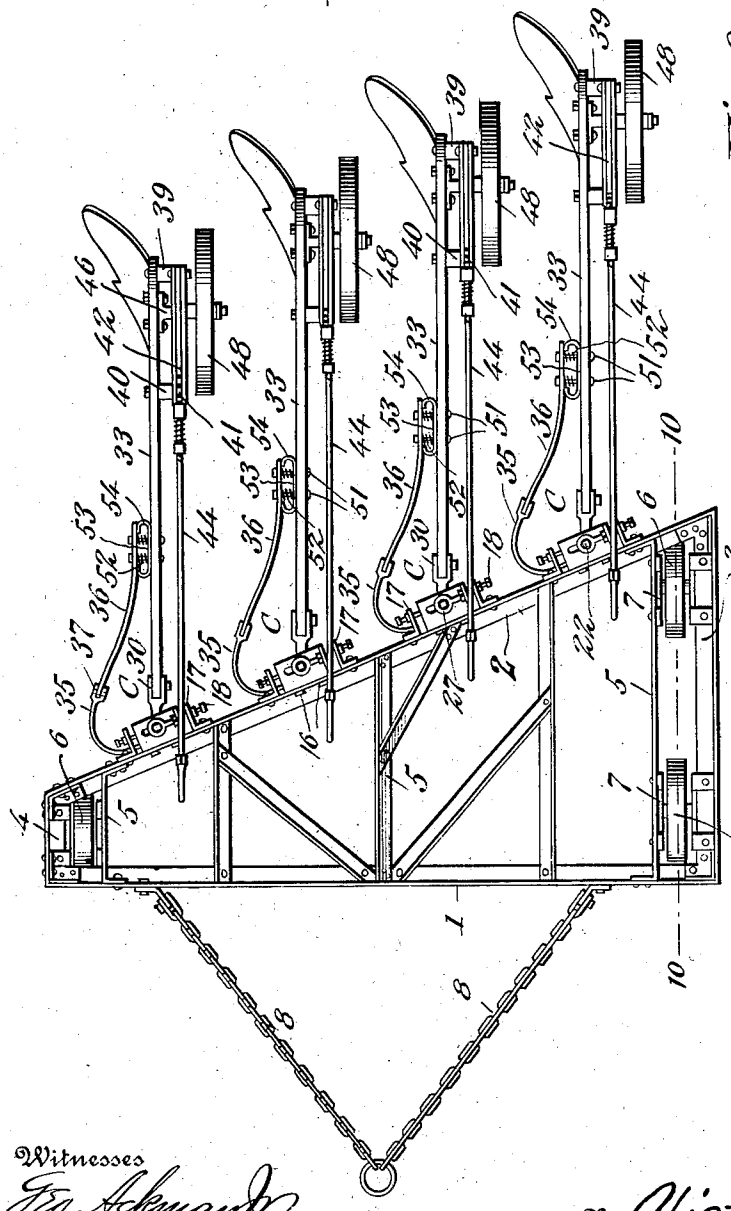


Fig. 9.

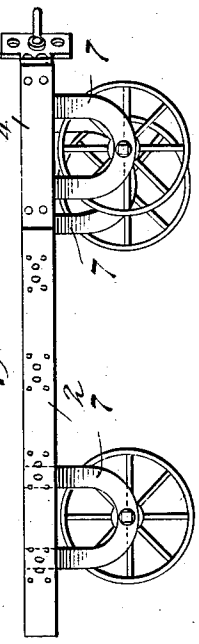
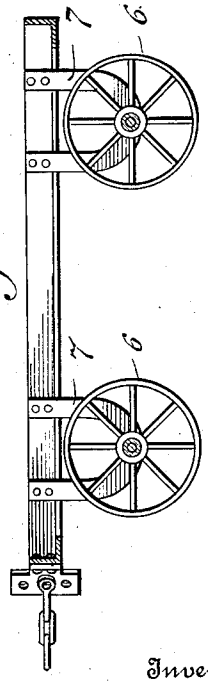


Fig. 10.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

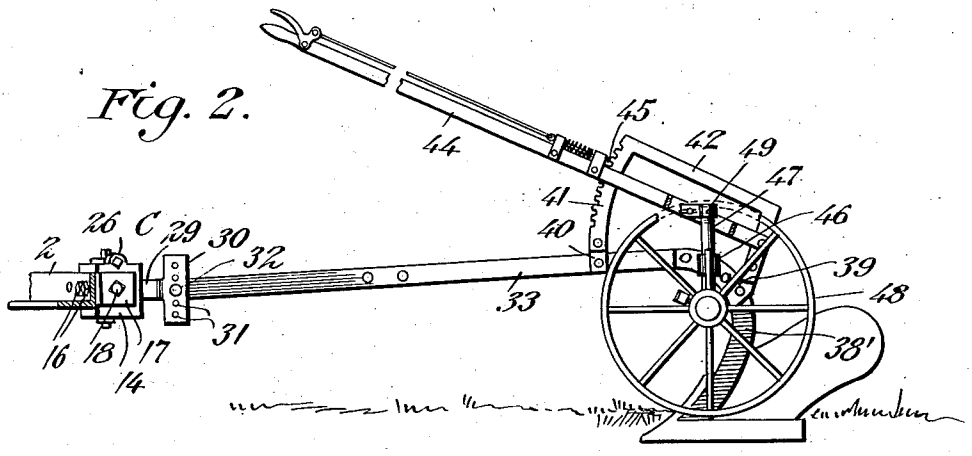


Fig. 3.

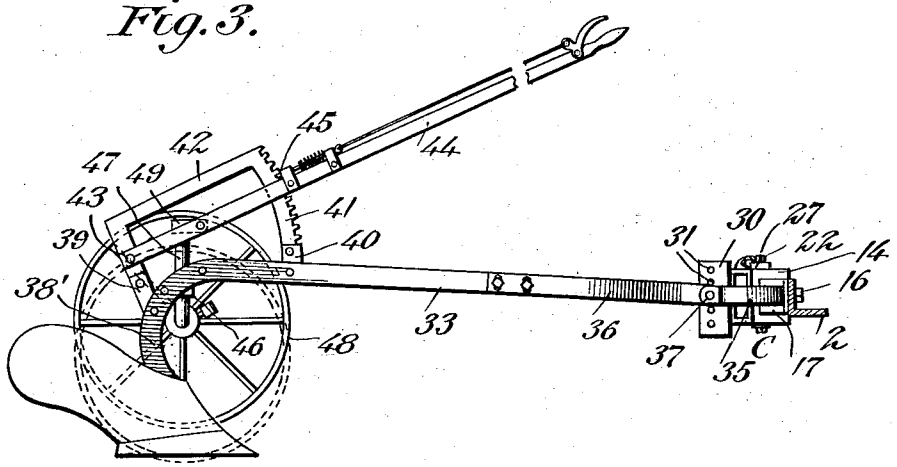
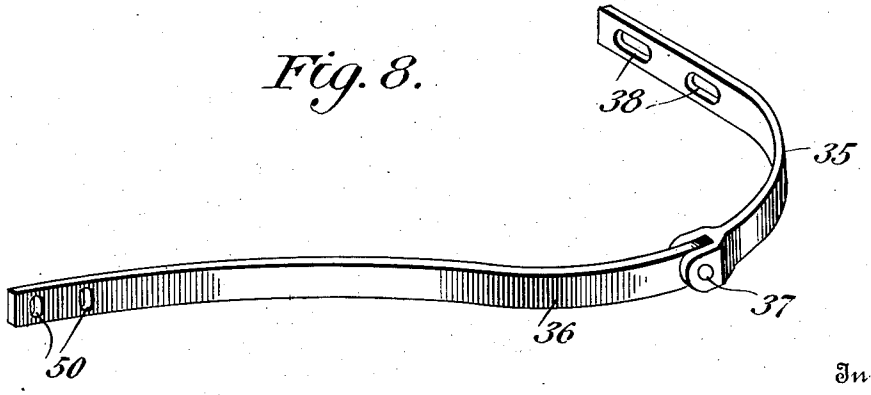


Fig. 8.



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3 SHEETS—SHEET 3.

Fig. 4.

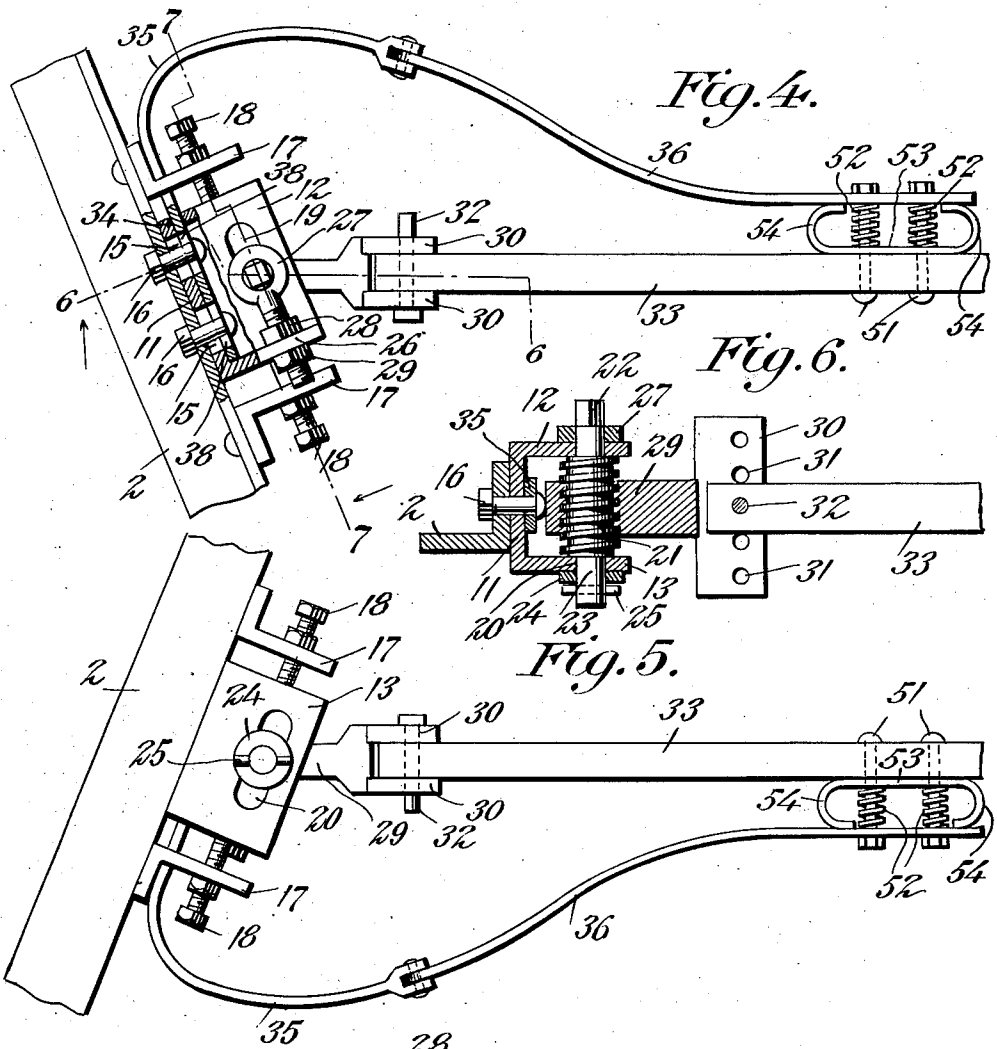
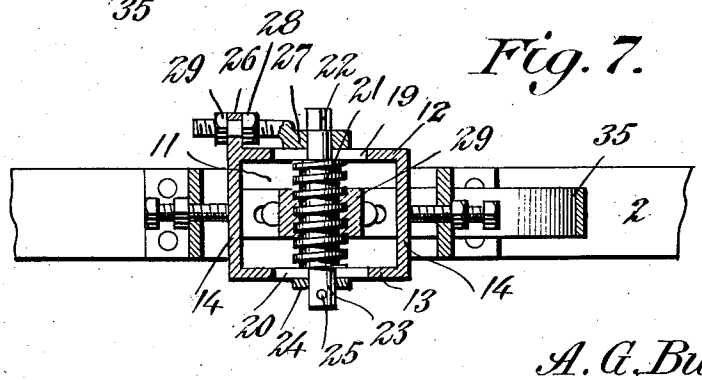


Fig. 6.

Fig. 5.

Fig. 7.



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UNITED STATES PATENT OFFICE.

ARTHUR GEORGE BUGLER, OF WARNER, ALBERTA, CANADA.

GANG-PLOW.

1,068,977. Specification of Letters Patent. Patented July 29, 1913.

Application filed June 7, 1912. Serial No. 702,300.

To all whom it may concern:

Be it known that I, ARTHUR G. BUGLER, a citizen of the United States, residing at Warner, in the Province of Alberta and Dominion of Canada, have invented new and useful Improvements in Gang-Plows, of which the following is a specification.

This invention relates to gang plows, and it has for its object to produce a gang plow of simple and efficient construction in which the individual plows shall be equipped with gage wheels whereby the action of each plow may be controlled.

A further object of the invention is to provide simple and improved means for connecting the individual plow beams with the traction frame in such a manner that the front end of each beam may be minutely adjusted both vertically and laterally.

A further object of the invention is to provide springs engaging the plow beams, whereby said beams will be yieldably supported in such a manner that if a plow should deviate from its course, owing to obstructions in the path thereof, it will be quickly and surely returned to its proper place as soon as the obstruction has been passed.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a top plan view of a gang plow constructed in accordance with the invention. Fig. 2 is a side elevation, showing one of the plows and showing also, in section, the beam of a traction frame with which it is connected. Fig. 3 is a side view showing the opposite side of the plow. Fig. 4 is a top plan view, enlarged, showing a portion of the rear beam of the traction frame and the front end of the plow beam connected therewith. Fig. 5 is a bottom plan view of the same. Fig. 6 is a sectional view, enlarged, taken on the line 6—6 in Fig. 4. Fig. 7 is a sectional view, enlarged, taken on the line 7—7 in Fig. 4. Fig. 8 is a perspective detail view of one of the actuating springs. Fig. 9 is a side elevation showing one side of the traction frame. Fig. 10 is a sectional detail view taken on the line 10—10 in Fig. 1.

Corresponding parts in the several figures are denoted by like characters of reference.

The traction frame of the improved gang plow comprises the front beam 1, the diagonally disposed rear beam 2, the side beams 3 and 4 and a plurality of reinforcing braces 5. The framework is preferably constructed of angle iron in such a manner as to produce a light but rigid and durable frame. Said frame may also be reinforced by means of braces and brace plates wherever desired. The frame is supported upon three wheels 6 which are mounted for rotation upon brackets 7 of approximate U-shape; the wheels, which are of relatively small diameter, will thus support the frame at the proper elevation. Draft means, such as chains 8, are suitably connected with the front beam of the frame for the purpose of connecting the same with a tractor whereby the plow is to be drawn over the field.

The plows, of which any desired number may be used, are connected with the diagonal rear beam of the frame by specially constructed devices including the clevis members C. Each of said clevis members comprises a front plate 11 having rearwardly extending flanges 12 and 13 at its upper and lower edges and with side walls 14, thus forming a box structure which is open at the rear. The front plate 11 is provided with slots 15 for the passage of bolts 16, whereby it is secured upon the frame bar 2 in such a manner as to be capable of sliding sidewise within the limits of the slots 15. Angle plates 17, which are bolted or otherwise secured upon the frame beam 2 adjacent to the sides of the clevis box, are provided with set screws 18 engaging the side walls 14, thus enabling the clevis box to be moved laterally and be held between the set screws 18 at any desired adjustment.

The top and bottom plates 12, 13 are provided with slots 19, 20 wherein a screw bolt 21 is guided for lateral movement, said screw bolt being provided at its upper end with a head 22 constituting a wrench seat and at its lower end with a reduced cylindrical projection 23 extending through and

guided in the slot 20 and secured by means of a washer 24 and a pin 25. One of the side walls 14 extends above the clevis box to form a flange 26 which is apertured for the passage of an eye bolt 27 engaging the neck of the screw bolt 21, which latter may thus be moved laterally in the slots 19, 20. The shank of the screw bolt is provided with nuts 28, 29 engaging opposite sides of the flange 26, thereby enabling the eye bolt, as well as the screw bolt which is engaged thereby, to be securely retained at various adjustments. The screw bolt carries an internally threaded sleeve 29 which is movable between the top and bottom flanges 12, 13 of the clevis box, said sleeve being provided with rearwardly extending T-shaped lugs 30 having apertures 31 for the passage of a pin or bolt 32 upon which a plow beam 33 may be hingedly mounted in such a manner as to be capable of swinging in a vertical plane. The sleeve 29 engaging the screw bolt 21 will enable the plow beam to swing or move in an approximately horizontal plane, the deviation from the horizontal being equal to the pitch of the threads upon the bolt 21, such deviation being in practice negligible.

The spring 36 is provided adjacent to its front end with vertically elongated apertures 50, best seen in Fig. 8, for the passage of fastening members, such as bolts 51, whereby said spring is connected with one side of the plow beam 33. For the purpose of holding the spring 36 somewhat spaced from the side of the plow beam, helical springs 52 are coiled about the bolts 51, and said helical springs are reinforced by means of a leaf spring 53 which is mounted upon the bolts, said leaf spring having U-shaped terminals 54 that are interposed between the opposed faces of the plow beam and of the spring 36. The springs 52, 53, while sufficiently powerful to maintain the spring 36 in spaced relation to the plow beam will permit the said spring to rock slightly in an approximately vertical plane, owing to the presence of the oblong bolt engaging apertures 50. The end of the spring 35 which extends through the slot 34 into the clevis box is provided with slots 38 engaging the bolts 16, thus enabling the spring to be moved with the clevis box when the position of the latter is changed.

From the foregoing description, it will be observed that each clevis box is laterally adjustable upon the rear beam of the traction frame, thus enabling initial adjustment to be made. A more accurate adjustment, laterally, of the plow beam may be effected by means of the eye bolt 27 carrying the screw bolt 21, and such adjustment may be effected without straining the spring composed of the hingedly connected members 35, 36, owing to the presence of the springs 52, 53 interposed between the plow beam and the spring member 36, and the oblong apertures in the latter, whereby rocking movement upon the bolts 51 is permitted. By turning the screw bolt 21, the sleeve 29 may be adjusted vertically, thus moving the front end of the plow in an upward or downward direction, as may be desired, and thus permitting an extremely delicate and accurate adjustment of the draft connection to be made. This is considered of great importance, especially in a gang plow where it is important that each plow should run perfectly true, a result which may be easily and quickly attained with the construction herein shown and described. In the event of any obstruction being encountered by any plow, said plow may yield upwardly or laterally in either direction, owing to the presence of the spring member composed of the hingedly connected parts 35 and 36, the former of which will yield to lateral pressure in either direction, while the hinge 37 connecting the members 35 and 36 and which is collinear with the hinge pin or bolt 32 will permit the plow beam to swing in an upward direction. The obstruction being passed, the spring will restore the plow beam to its initial position if it has been displaced in a lateral direction, while if it has been displaced upwardly, it will be restored by gravity to its initial position.

Each plow beam 33 has a standard 38′ upon which a suitably constructed plow is mounted and carried. Each plow beam is provided with an upwardly extending bracket 39 which is slightly offset in the direction of the landside. Each plow beam is also provided with a lug 40 which is likewise offset in the direction of the landside. Bolted upon or otherwise connected with the lug 40 is the lower end of a segment rack 41, the upper end of which is connected by a brace 42 with the upper end of the arm 39 by means of a pin or bolt 43 upon which a lever 44 is fulcrumed, said lever having a stop member 45 engaging the segment rack 41. A sleeve or bearing 46 secured upon one side of the plow beam serves to support a shaft 47 carrying at its lower end a gage wheel 48, the upper end of said shaft being journaled in a collar 49 which is suitably connected with the adjusting lever 44, whereby said gage wheel may be raised or lowered, as may be desired, to support the plow in the desired position.

In the operation of the improved gang plow it will be understood that the individual plows are enabled to adapted themselves to any inequalities in the surface of the ground, and the improved gang plow may, therefore, be successfully employed for the purpose of plowing land which is uneven

owing to the presence of buffalo wallows and the like. Owing to the special means employed for connecting the individual plow beams with the traction frame very accurate adjustment of the plows may be made, and the connection is of such a flexible nature that while the plow will be maintained for operation in the desired position, no breakage or injury is liable to result if obstructions are encountered.

Having thus described the invention, what is claimed as new, is:—

1. In a gang plow, a traction frame, a clevis box connected therewith, a plow beam hingedly associated with the clevis box, and a suitably curved spring comprising two hingedly connected members, one of said members being secured upon the plow beam, and the other member being associated with the clevis box for lateral adjustment relatively to the traction frame.

2. In a gang plow, a traction frame, a clevis box connected therewith, a plow beam hingedly associated with the clevis box, a curved spring comprising two hingedly connected members, one of which is connected with the clevis box, and means whereby the other of said members is connected with the plow beam for rocking movement with reference thereto.

3. In a gang plow, a traction frame, a clevis box connected therewith, a plow beam hingedly associated with the clevis box and a suitably curved spring comprising two hingedly connected members, one of said members being connected with the clevis box, and means whereby the other of said members is connected with the plow beam for rocking movement with reference thereto, said means including springs whereby said member is supported in spaced relation to the plow beam.

4. In a gang plow, a traction frame, a clevis box adjustably connected therewith, a plow beam hingedly associated with the clevis box, a suitably curved spring comprising two hingedly connected members, one of said members being connected with the clevis box for adjustment therewith, and means whereby the other member of the curved spring is connected with the plow beam for rocking movement with reference thereto, said means including connecting bolts and springs upon said bolts between the opposed faces of the plow beam and the spring member; the latter being provided with oblong apertures for the passage of the connecting bolts.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR GEORGE BUGLER.

Witnesses:

F. I. VAN ROOSKIER,

LEAKIE HANNA.