W. J. McFARLAND.

SNOW PLOW.

APPLICATION FILED APR. 8, 1908.

925,717.

Patented June 22, 1909.

4 SHEETS—SHEET 1.

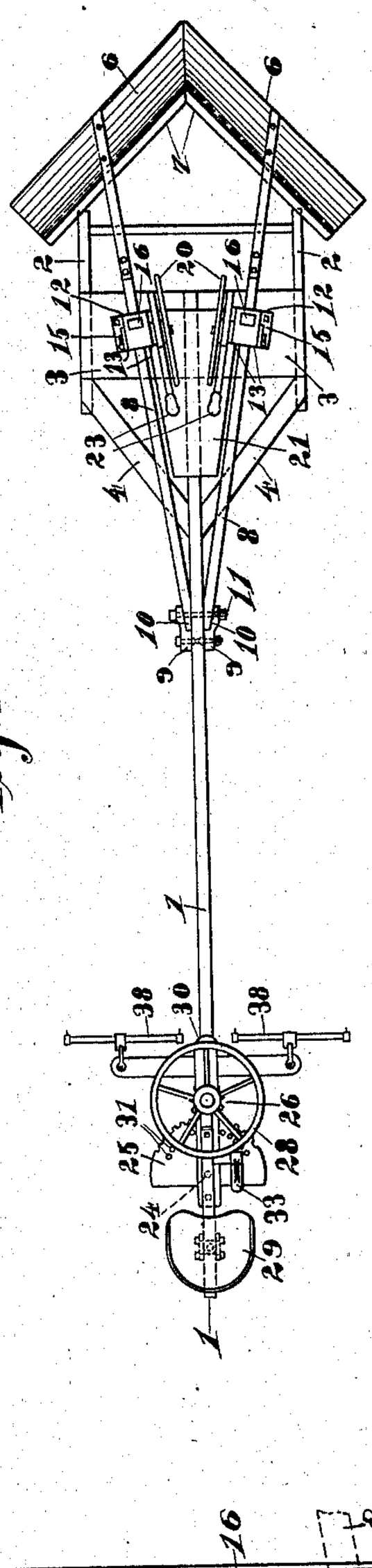

Fig. 1.

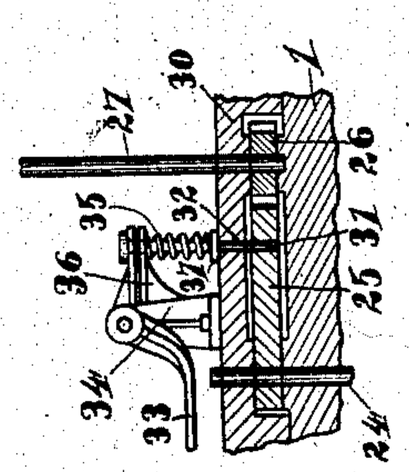

Fig. 4.

Fig. 3.

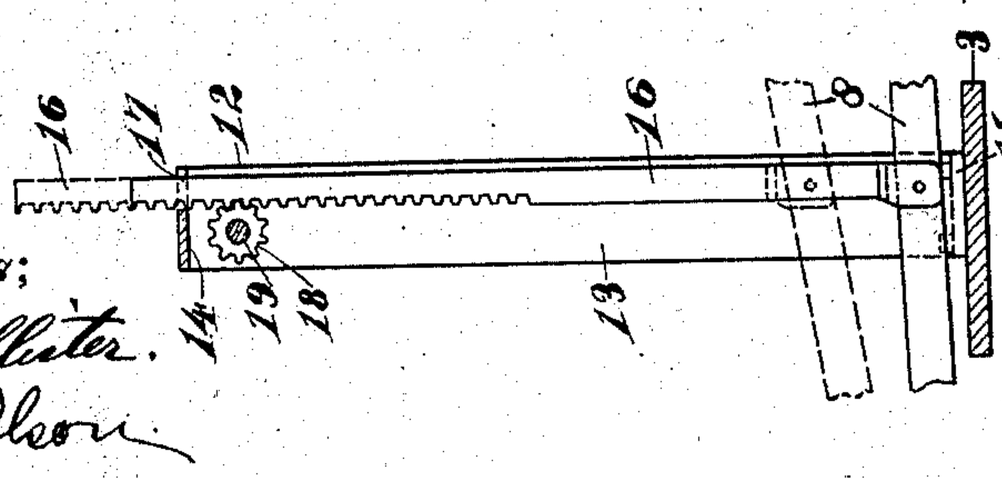

Fig. 2.

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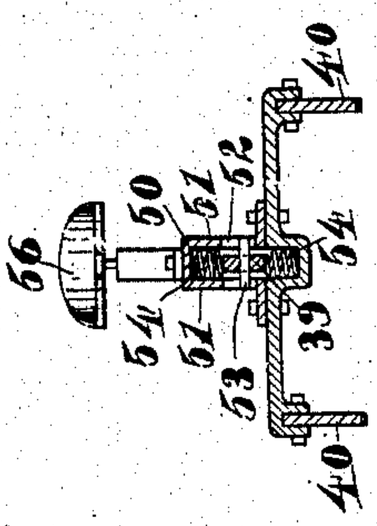


Fig. 6.

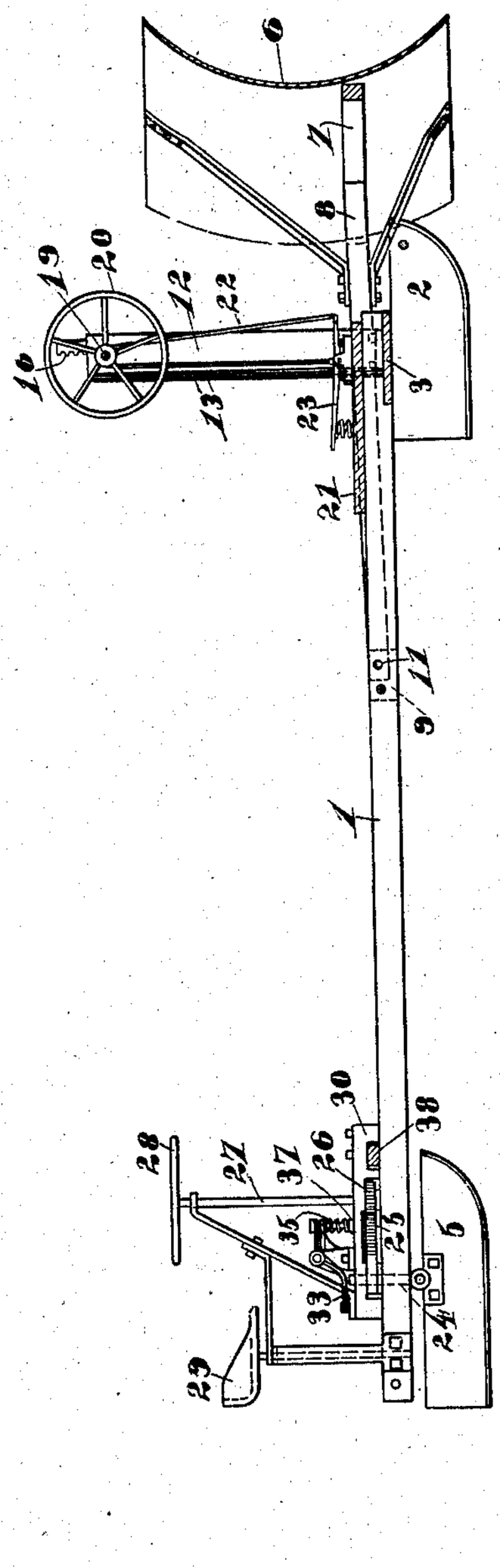


Fig. 2.

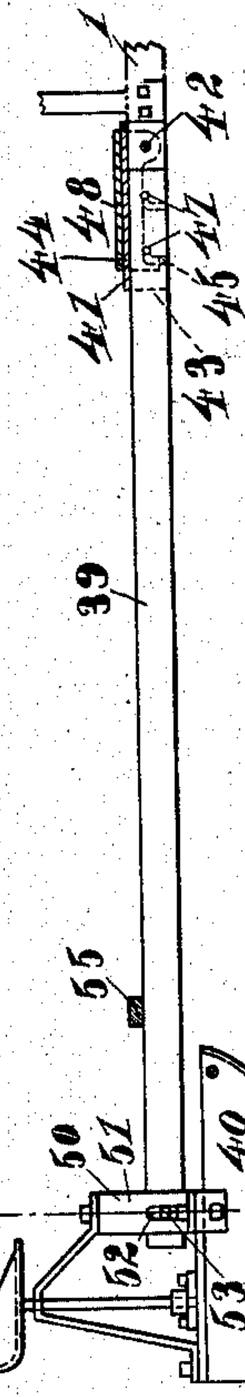
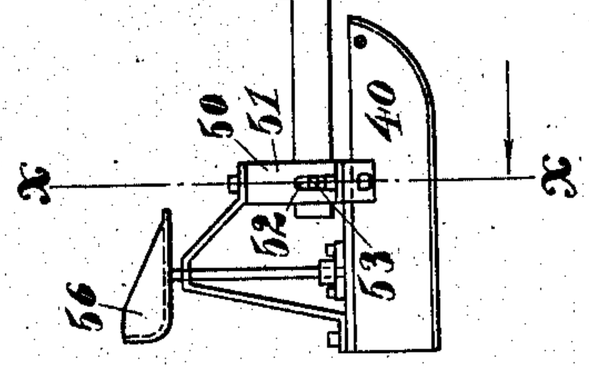


Fig. 5.

Fig. 3.



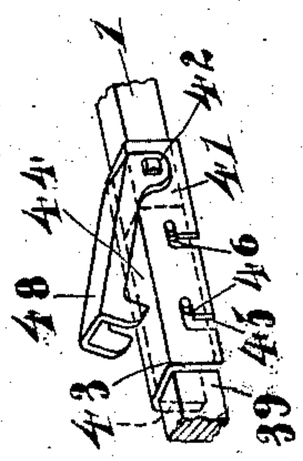


Fig. 7.

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4 SHEETS—SHEET 3.

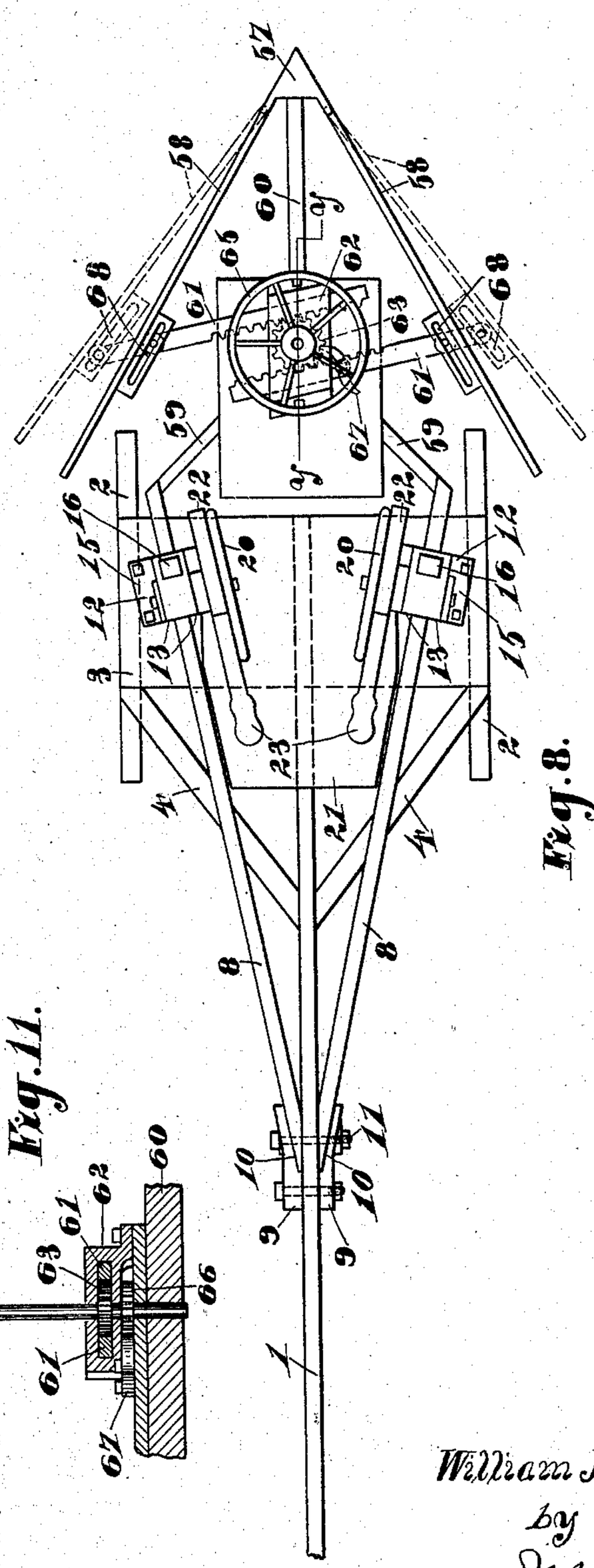

Fig. 8.

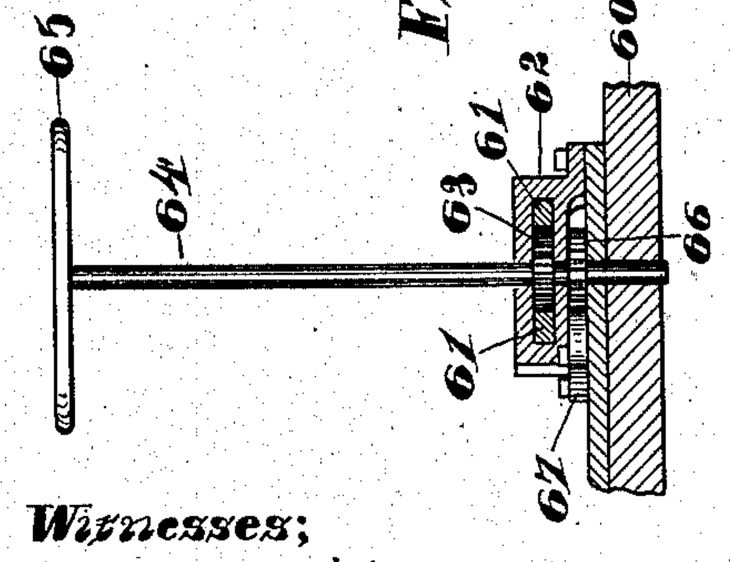

Fig. 11.

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4 SHEETS—SHEET 4.

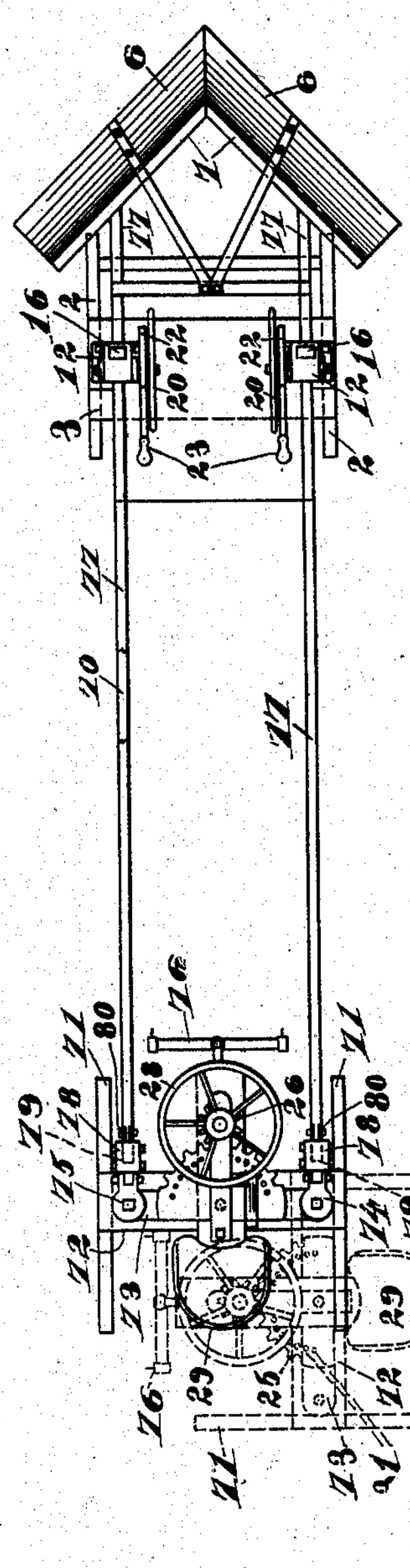

Fig. 9.

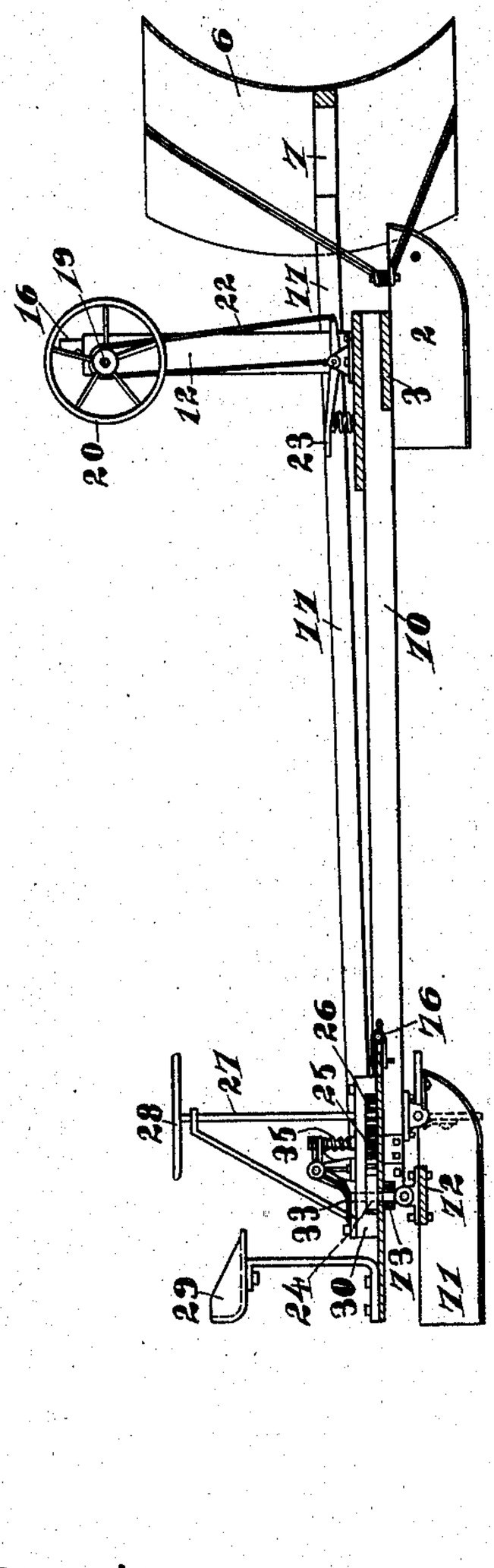

Fig. 10.

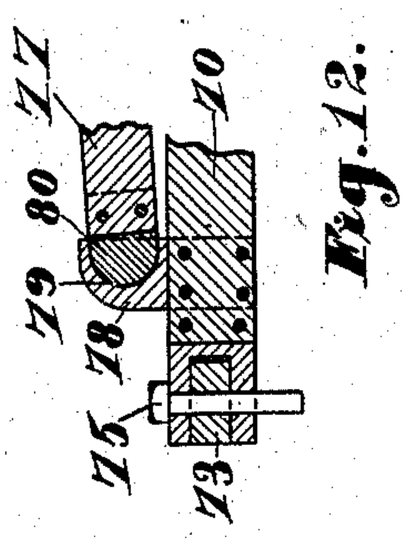

Fig. 12.

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UNITED STATES PATENT OFFICE.

WILLIAM J. McFARLAND, OF HEBRON, INDIANA.

SNOW-PLOW.

No. 925,717. Specification of Letters Patent. Patented June 22, 1909.

Application filed April 8, 1908. Serial No. 425,953.

To all whom it may concern:

Be it known that I, WILLIAM J. McFARLAND, a citizen of the United States, residing at Hebron, county of Porter, and State of Indiana, have invented certain new and useful Improvements in Snow-Plows, of which the following is a specification.

My invention relates to snow plows and particularly to horse propelled snow plows for opening roadways in towns and rural districts.

The object of my invention is to provide a snow plow which may be operated as readily in heavy snows as in lighter ones, and one which will clear away the snow in front of the horses, thereby giving them a better and more firm footing than is obtained otherwise.

A further object of my invention is to provide a snow plow as mentioned, which shall be readily adjustable.

Other objects will appear hereinafter.

With these objects in view my invention consists generally in a suitable frame mounted upon runners, a plow head arranged in front of said frame and runners and suitable draft gear arranged at the rear end of the frame for hitching horses thereto so that the horses will at all times be behind the plow head.

My invention further consists in a snow plow as mentioned, in which the plow head is adjustably connected to the frame, and in means for regulating the same.

My invention further consists in a snow plow as mentioned, equipped with a suitable steering gear and in various details of construction and arrangements of parts all as will be described hereinafter and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a plan view of a snow plow embodying my invention in its preferred form, Fig. 2 is a vertical longitudinal section thereof, Fig. 3 is a detail view upon an enlarged scale of one of the head adjusting devices, Fig. 4 is a detail sectional view of a portion of the steering apparatus, Fig. 5 is a side elevation of an extension which is employed when it is desired to hitch more horses to the plow, Fig. 6 is a vertical transverse section on the line *x*—*x* of Fig. 5, Fig. 7 is a perspective view of the coupling member; Fig. 8 is a plan view of a modified form of plow head, Fig. 9 is a plan view of a modified form of plow adapted for use with one horse, Fig. 10 is a vertical longitudinal section thereof, Fig. 11 is a section on the line *y*—*y* of Fig. 8, and Fig. 12 is a detail view illustrating the connection between the main frame and the head carrying frame.

Referring now to Figs. 1 to 4 inclusive, 1 indicates the main longitudinal member of the frame which is rigidly connected to and supported by a front sled consisting of a pair of runners 2 and the transverse member 3, the front end of the member or beam 1 being connected to the latter. 4—4 are a pair of braces extending diagonally from the runners 2 to the beam 1 rigidly bracing the same. The rear end of the beam 1 is supported upon a single runner 5 which is pivotally connected thereto and by means of which, the plow is guided. 6 indicates the plow head which is preferably of metal and provided with the horizontal frame or strengthening member 7. The plow head 6 is arranged in front of the front sled and is supported upon a pair of bars or beams 8—8 which are rigidly connected to the frame members 7 at substantially their center and extend diagonally rearwardly to meet the beam 1 to which they are pivotally connected. To this end the beam 1 is provided with a pair of castings 9 which are bolted to the sides thereof to the rear of the sled and braces 4, and having the sockets 10 to receive the ends of the beams 8. 11 indicates a bolt passing through the socket members 9 and the ends of the beams 8 pivotally connecting the plow head to the frame.

The head of the plow being pivotally connected to the frame as above described, is vertically adjustable to raise or lower it with relation to the ground, and to this end suitable mechanism is provided for raising and lowering the head. This comprises a rack and pinion arranged in suitable standards extending upwardly from the transverse member 3 of the front sled.

12—12 indicate the standards which comprise the parallel side walls 13 and the top 14 connecting said walls at the upper ends. The lower ends of the walls 13 are flanged as at 15, affording means by which the standards are secured to the member 3.

16 indicates a rack bar, bifurcated at its lower end and pivotally connected to its respective member or beam 8. The bar 16 ex-

tends through an aperture 17 in the top 14 of the standard which constitutes a guide for the same. Arranged between the walls 13 and meshing with the rack 16 is a pinion 18, the shaft 19 of which extends through the inner wall 13 of the standard and is provided with a hand-wheel 20. It is obvious that by turning the hand-wheel, the head 6 will be raised or lowered as desired, also that the standards 12 form guides for the beams 8, preventing lateral displacement of the plow head.

21 indicates a platform upon which the operator stands. To hold the head in adjusted position, I provide a band break 22 for each of the hand-wheels operated by a foot lever 23.

The rear runner 5 is pivotally connected to the beam 1 at or near its rear end as before mentioned, and suitable means are provided for turning the runner to guide the plow. To this end, the runner is provided with a vertical post 24 which is sleeved through the beam 1. The upper end of the post 24, above the beam is provided with a segmental gear 25 which meshes with a pinion 26 secured to a vertical shaft 27 of a horizontal hand-wheel 28.

29 indicates a seat supported upon the rear end of the beam 1.

30 indicates the casting bolted to the beam 1 and extending above the gear and pinion 25 and 26, and affording bearings for the shaft 27 and the upper end of the post 24. The gear 25 is provided with a plurality of holes 31 which are engaged by a pin 32 to hold the runner 5 at the proper angle. The pin 32 is raised out of engagement with the gear by a foot lever 33 mounted in a bracket 34. When the lever 33 is released, a spring 35 interposed between an arm 36 on the bracket and a collar 37 on the pin, turns it to normal position to enter one of the holes 31.

38 indicates the draft gear to which the horses are attached. This is arranged at or near the rear end of the beam 1 and is arranged for two horses, one upon each side of the beam. It is obvious that the horses being behind the plow head and the front sled, will be in the path cleared by the plow and will therefore have a better and firmer footing than in those plows in which the horse is arranged in front of the plow head.

Sometimes, when the snow is heavy it is desirable to hitch additional horses to the plow. These cannot be arranged beside the others as such arrangement would bring the additional horses at the point where the snow has been piled up or banked by the plow. Hence they must be arranged behind the others, and to this end, I provide an extension member which is secured to the rear end of the beam 1. This comprises a beam 39 which is secured in alinement with the beam 1 and having its rear end supported by a sled 40. The beams 1 and 39 are connected end to end by a casting 41 secured to the end of the beam 1 by a bolt 42. The casting comprises the side walls 43 which fit the sides of the beam snugly and the top wall 44, and extends beyond the end of the beam 1. The walls 43 are provided with a pair of vertically disposed slots 45 having the forwardly and horizontally disposed extensions 46, and the beam 39 is provided with a corresponding pair of pins or lugs 47 to engage the slots. After the pins are inserted in the slots, a latch 48 pivotally connected to the casting is dropped to engage the pins 47 and hold them in the slot extensions 46. It is evident that in this manner, the extension is firmly and rigidly secured to the main beam 1.

As before stated the rear end of the member 39 is supported by the sled 40, however, a rigid connection cannot be had between the member and the sled as owing to the length of the device, considerable strain would be placed thereon in passing over uneven ground. I therefore provide the sled 40 with a vertical guide 50 between the vertical side walls 51 of which the rear end of the beam 39 is held. The walls 51 are slotted as at 52 and a pin 53 extends through the beam 39 and into the slots 52. The springs 54 arranged above and below the ends of the beam maintain it in normal or central position and permit the beam to rise or fall as it passes over uneven ground. Near the rear end of the beam 39 is arranged the draft gear 55 to which the additional horses are hitched. 56 indicates the driver's seat secured to the sled 40.

Sometimes it may be desirable to provide a snow plow having an adjustable plow head in order to cut a path of greater or less width, and in Fig. 8 I have illustrated the front end of such a plow, it being understood that the rear end is similar to the form shown in Figs. 1 and 2. Referring now to Fig. 8 it will be seen that the plow head comprises a solid front casting 57 and the side wings 58 hingedly connected thereto. In this modification the beams 8 do not extend directly to the plow head but only a short distance in front of the standards 12. The beams then turn inwardly as at 59 to the center of the device and are provided with an extension 60 to the end of which the casting 57 is secured. It is obvious that the plow head may be adjusted vertically in the same manner as described hereinbefore. 61—61 indicate a pair of rack bars connected at one end to the respective wings 58 and slidably mounted in a boxing 62 arranged at the center of the device. A pinion 63 on a vertically disposed shaft 64 meshes with the racks 61 and the upper end of the shaft 64 is provided with a hand-wheel 65. It is obvious that by turning the hand-wheel the wings 58 will be

swung inwardly or outwardly as desired. A ratchet 66 on the shaft and a pawl 67 holds the wings in adjusted position. The bearings for the bars 61 in the casing 62 are sufficient to prevent lateral movement or swinging of the bars, hence a sliding connection 68 is provided between the bars and the wings.

In Figs. 9, 10 and 11 I have illustrated a modification wherein the device is arranged as a one horse plow. In this form a pair of parallel beams 70 extend from the front sled to the rear of the device where they are supported upon a rear sled, the latter comprising a pair of runners 71 connected by a transverse member 72. The sled is pivotally connected to a bolster 73 which is hingedly connected as at 74 to one of the longitudinal members 70 and detachably connected by a pin or bolt 75 to the rear end of the other longitudinal member. By unfastening the connection 75 the rear sled may be swung out of the way to permit a horse to enter between the longitudinal members after which, it is turned back into position and fastened. 76 indicates the draft gear to which the horse is hitched. The rear sled is provided with a steering gear in all respects similar to that with which the runner 5 is equipped as shown clearly in Figs. 9 and 10. The plow head 6 is supported upon a pair of longitudinal beams 77 arranged directly above the beams 70 and pivotally connected thereto at their rear ends, the beams 70 being provided with castings 78 having sockets 79 to receive the end 80 of the beams 77. The front sled is provided with mechanism for raising and lowering the plow head which is identical with that illustrated in Figs. 1 and 2 of the drawings and described hereinbefore.

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

1. A snow plow comprising a frame mounted upon runners, in combination with a plow head arranged in front of said frame and runners, draft gear arranged at the rear end of said frame and means for vertically adjusting each side of said plow head independently, substantially as described.

2. A snow plow comprising a frame mounted upon runners, in combination with a plow head arranged in front of said frame and runners, and pivotally connected to said frame, means for hitching a horse behind said head and means for adjusting each side of said head vertically and independently, substantially as described.

3. A snow plow comprising a frame mounted upon runners in combination with a pair of diagonally disposed beams pivoted to said frame and extending forwardly therefrom a plow head fixed upon the forward ends of said beams and means connected with each of said beams for adjusting the same vertically and each independently of the other, substantially as described.

4. A snow plow comprising a frame mounted upon runners, in combination with a plow head arranged in front of said frame and runners, and supported upon a longitudinal beam, said beam being pivotally connected to said frame, a vertically disposed rack bar connected to said beam, a pinion meshing with said rack bar and means for operating said pinion to raise and lower said plow head, substantially as described.

5. In a snow plow a frame mounted upon runners, in combination with a plow head arranged in front of said frame and runners, draft gear secured to said frame near the rear end thereof, a socket member on the end of said frame, an extension member for the frame detachably and rigidly secured in said socket and extending rearwardly therefrom and draft gear arranged at the rear end of said extension member, substantially as described.

6. In a snow plow, a frame mounted upon runners, said frame including a beam extending rearwardly from said runners, in combination with a plow head arranged in front of frame and runners, draft gear secured to said beam near the rear end thereof, a socket member on the rear end of said beam, an extension member for the frame detachably secured thereto, said extension member comprising a horizontal beam and draft gear arranged at the rear end thereof, the forward end of said extension beam being provided with pins and adapted to rest in said socket member, said socket member being slotted to receive said pins and means on said socket member for locking said pins in said slots, substantially as described.

7. A snow plow comprising a front sled, a longitudinal frame member rigidly fixed thereto and extending rearwardly therefrom and a single rear runner having a vertical post pivotally mounted to the rear end of said frame member, in combination with a plow head fixed in front of said sled, draft members attached to said frame member forwardly of said rear runner, a seat arranged upon the rear end of the frame member, a segment fixed to said post and having a series of circumferentially arranged perforations a pinion meshing with said segment, a hand wheel for operating said pinion and segment and a pin for engaging said perforations, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM J. McFARLAND.

Witnesses:
NANCY O. HELM,
HELEN F. LILLIS.