No. 670,300. Patented Mar. 19, 1901.

S. SMITH.

GRADING PLOW.

(Application filed May 16, 1900.)

(No Model.)

Fig. 1.

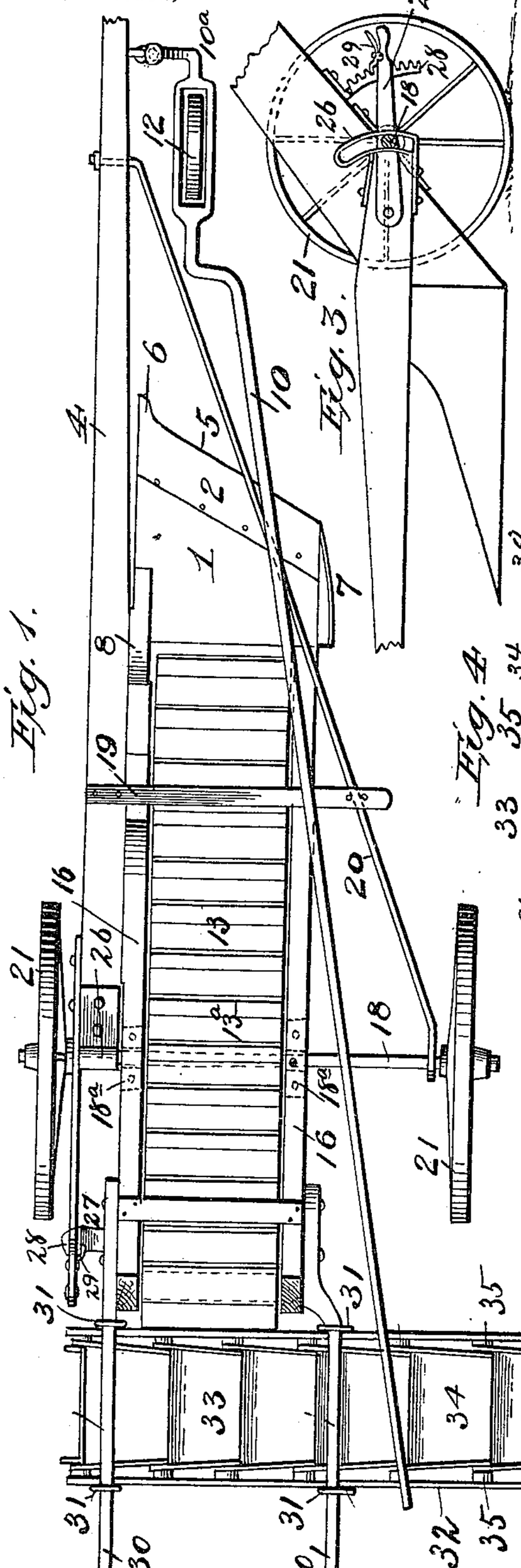

Fig. 3.

Fig. 5.

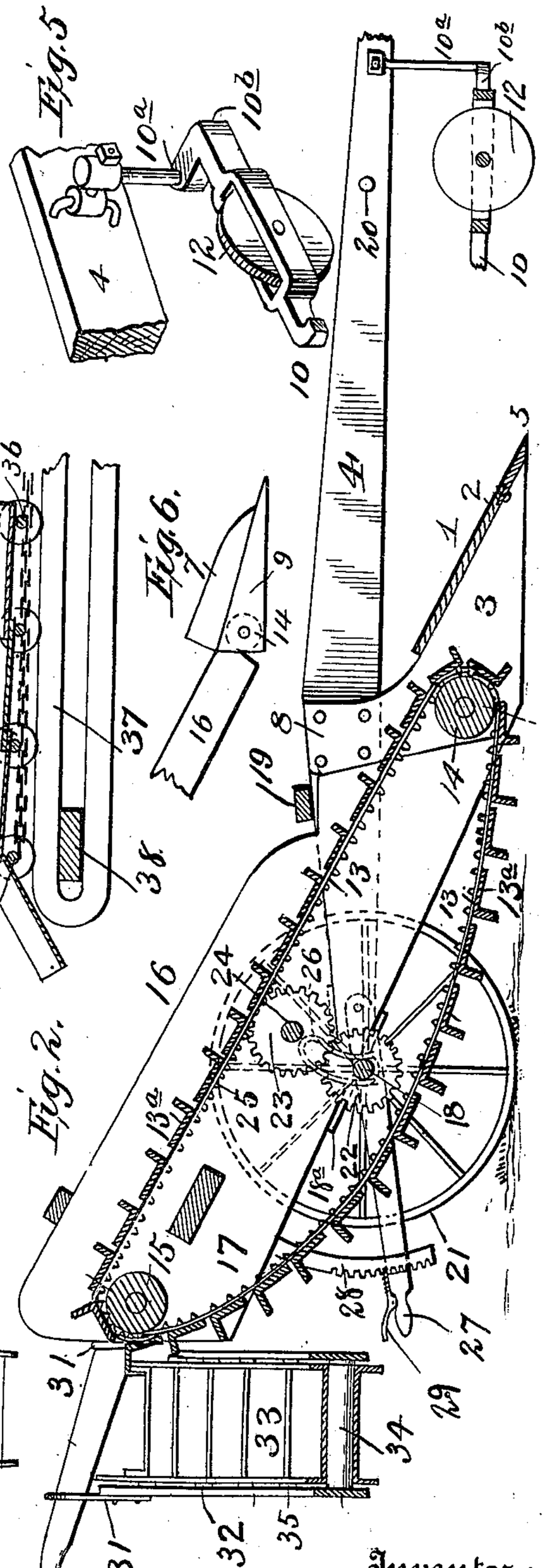

Fig. 4

Fig. 6.

Fig. 2.

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UNITED STATES PATENT OFFICE.

SAMUEL SMITH, OF REDCLOUD, NEBRASKA.

GRADING-PLOW.

SPECIFICATION forming part of Letters Patent No. 670,300, dated March 19, 1901.

Application filed May 16, 1900. Serial No. 16,894. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL SMITH, a citizen of the United States, residing at Redcloud, in the county of Webster and State of Nebraska, have invented new and useful Improvements in Grading-Plows, of which the following is a specification.

My invention relates to grading-plows; and one object of the same is to provide a plow for this purpose which shall be simple in construction and efficient in use and which will convey the dirt which slides up the moldboard to an endless conveyer, which carries the dirt up to an inclined chute and deposits it on a discharge-chute, which carries it out of the track of the plow.

Another object is to provide simple and reliable means for adjusting the depth of furrow and to add a simple device for steering or directing the plow.

I attain these objects by means of the construction shown in the accompanying drawings, in which—

Figure 1 is a plan view of a grading-plow. Fig. 2 is a side elevation thereof with parts broken away. Fig. 3 is a detail of one wheel and the slotted guide. Fig. 4 is a detail of the discharge-chute. Fig. 5 is a detail perspective of a fragment of the rudder and beam. Fig. 6 is a detail of the plow.

Like numerals of reference designate like parts in the different views of the drawings.

My machine consists, essentially, of a plow mounted on a beam, a conveyer which carries the dirt from the plow and which is supported in a chute mounted on two wheels, and a second conveyer, which is mounted transversely the first and serves to carry the dirt out of the track of the plow. These different parts, together with the details pertaining thereto, will be taken up in the order named and all points of novelty fully described.

The numeral 1 designates my plow, which consists of a moldboard 2, rigidly mounted on a landside 3, which is bolted to a plow-beam 4. The moldboard 2 has a diagonal cutting edge 5, which terminates in a point 6, and formed integral therewith is an upturned flange or slice-cutter 7. The landside 3 forms a support for the moldboard 2, which is firmly bolted thereto. An arm 8 is formed integral with this landside 3 and serves as a means for securing it to the plow-beam 4. A landplate 9 is secured to the bottom and side of the moldboard 2 and serves as a guide for the plow.

For guiding the plow in turning corners a rudder is provided, which consists of a lever 10, pivotally secured to the forward end of the plow-beam by a staple and fitted with a steering-wheel 12, journaled therein and constructed to be brought in contact with the ground. The arm or lever 10 is bent at right angles at 10^a and 10^b, and the rear end extends back within reach of the driver. In turning a corner he would grasp the end of the lever and force the wheel 12 down to the ground and manipulate the lever from right to left and back to turn the corner, after which it would be raised and thrown up on top of the machine out of the way, as it is not necessary except in turning.

The elevator for carrying the sod from the plow comprises an endless belt 13, which is mounted on rollers 14 and 15, and a chute 16, which contains said belt. The roller 14 is supported by the plow and journaled in the landside 3 at one end and in the slice-cutter 7 at the other. The upper roller 15 is journaled in the sides 17 of the chute 16. The belt 13 is provided with a series of L-shaped buckets, which engage and carry the dirt up and automatically dump it. The chute 16 is mounted on an axle 18, which is journaled in boxes 18^a, secured thereto, and the lower end engages a cross-bar 19. This bar is attached to the plow-beam at one end and extends transversely the machine and is oppositely secured to a brace or tie rod 20, which extends from the forward end of the plow-beam to the outer end of the axle and ties the whole frame firmly together. By this arrangement the chute 16 is free to follow the upward or downward movement of the cross-bar 19. The upper end of the chute is heavier than the lower, so that all danger of dragging is avoided. Two wheels 21 are keyed on the shaft or axle 18, and a pinion 22 is keyed thereon centrally thereof. This pinion 22 meshes with a second pinion 23, keyed on a shaft 24, journaled in the sides 17 of the chute. The pinion 23 also meshes with a rack 25, which is secured to the inner or under side of the endless belt 13. This combination of

pinion and rack 25 furnishes means for driving the conveyer.

To enable the angle of the plow to be adjusted, the rear end of the plow-beam 4 is fitted with a guide 26, which fits around the shaft or axle 18. A lever 27 is pivotally joined to the beam 4 and is threaded on the shaft 18. A rack 28 is mounted on one of the sides 17 of the chute and in combination with a catch 29 serves to hold the lever 27 in any position desired. In operating this lever 27 to tilt the plow up the handle is depressed, and as there is no positive connection between the sides 17 of the chute and the plow 1 the plow will be tilted up on the cutting edges of the moldboard, which always rests on the ground. The pinion 23 will not be thrown out of engagement with the rack 25, since the lower end of the chute 16 follows the movement of cross-bar 19 and carries this pinion with it.

A pair of handles 30 are attached to the upper end of the chute 16, and suspended by hooks 31 therefrom is a discharge-chute 32 for carrying the sod out of the track of the plow. This chute 32 bears an endless conveyer 33, which is provided with a series of aprons 34, having roller-bearings 35, keyed on shafts 36. These rollers 35 run on a track 37, supported on cross-pieces 38. This chute 32 is operated by gravity—that is, the sod which is dumped into it from the chute 16 will by its weight actuate the conveyer, as this chute is always set at a steep angle.

The operation of the various parts of my machine has already been given. The operation as a whole can be stated in a few words. In starting the plow it is set at an angle to the ground by means of the lever 27 and the team started. This action will compel the plow to scoop up the soil, and after it has a good hold it can be once more brought into a horizontal position. The dirt from the plow will be forced up the moldboard onto the chute 16, from whence it will be transported to the cross-chute. It will then drop on the cross-chute, actuate it, and be carried out of the way.

Having thus fully described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. In a grading-plow, the combination, substantially as described, of a plow mounted on a beam, a chute abutting said plow and pivotally mounted on a shaft bearing two wheels keyed thereon, an endless conveyer mounted on two rollers one being journaled in the upper end of said chute and the other being journaled in said plow, means for limiting the movement of said chute, and means for connecting said conveyer to said shaft to enable it to be driven thereby.

2. In a grading-plow, the combination, substantially as described, of a shaft bearing traction-wheels keyed thereon, a plow mounted on a rearwardly-extending beam, means for pivotally securing the rear end of said beam to said shaft, a chute abutting said plow and pivotally mounted on said shaft, a conveyer mounted in said chute, and means for connecting said conveyer and said shaft to permit the same to be driven thereby.

3. In a grading-plow the combination, substantially as described, with a plow mounted on a beam, of means for steering said plow which comprises a lever pivotally attached at one end to the forward end of said plow-beam, and a wheel journaled in said lever and constructed to be brought in contact with the ground and to be raised out of contact therewith.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SAMUEL SMITH.

Witnesses:
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