

No. 774,200.

PATENTED NOV. 8, 1904.

J. ROBERTSON.
DITCH PLOW.

APPLICATION FILED SEPT. 3, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1

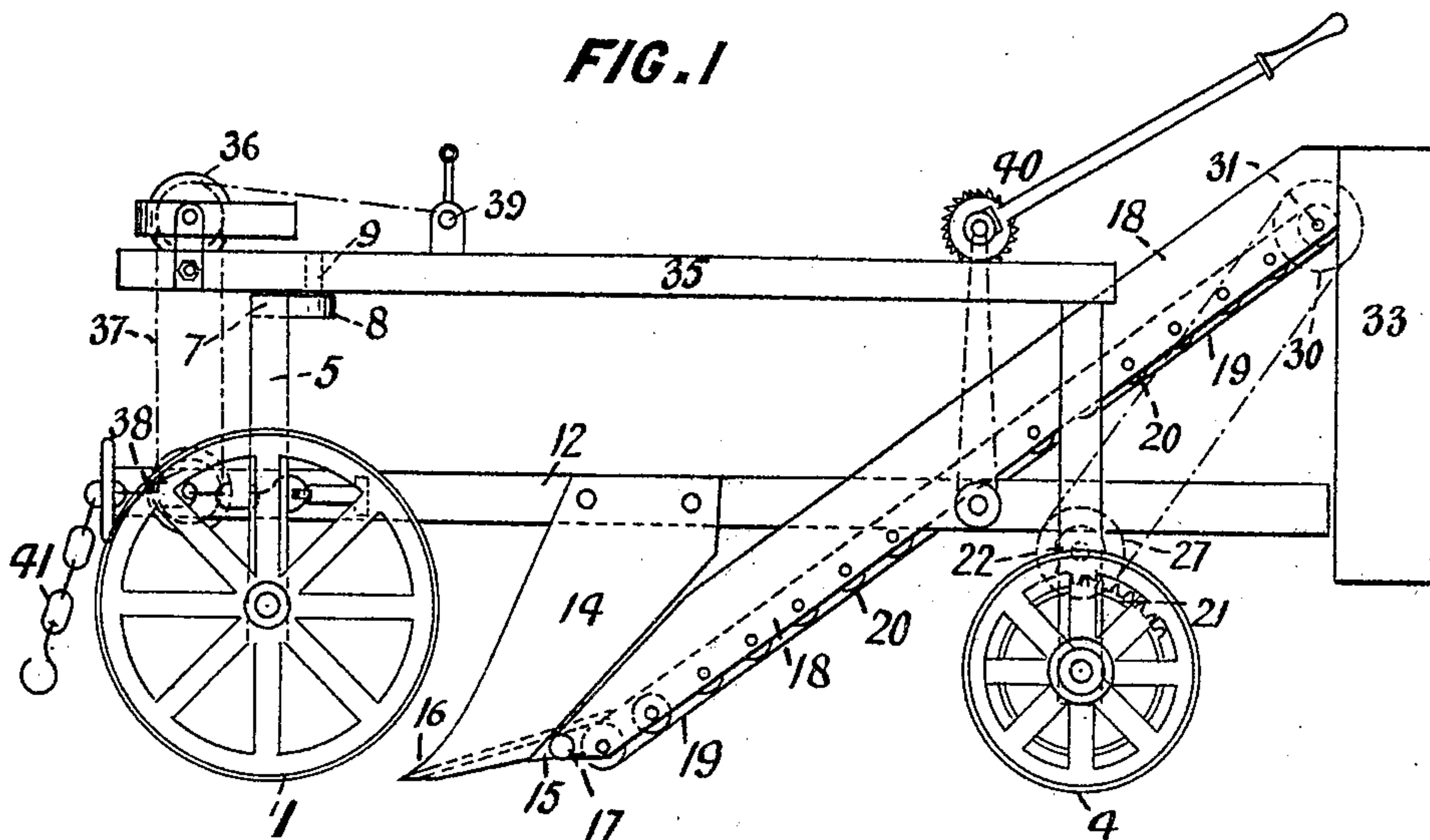
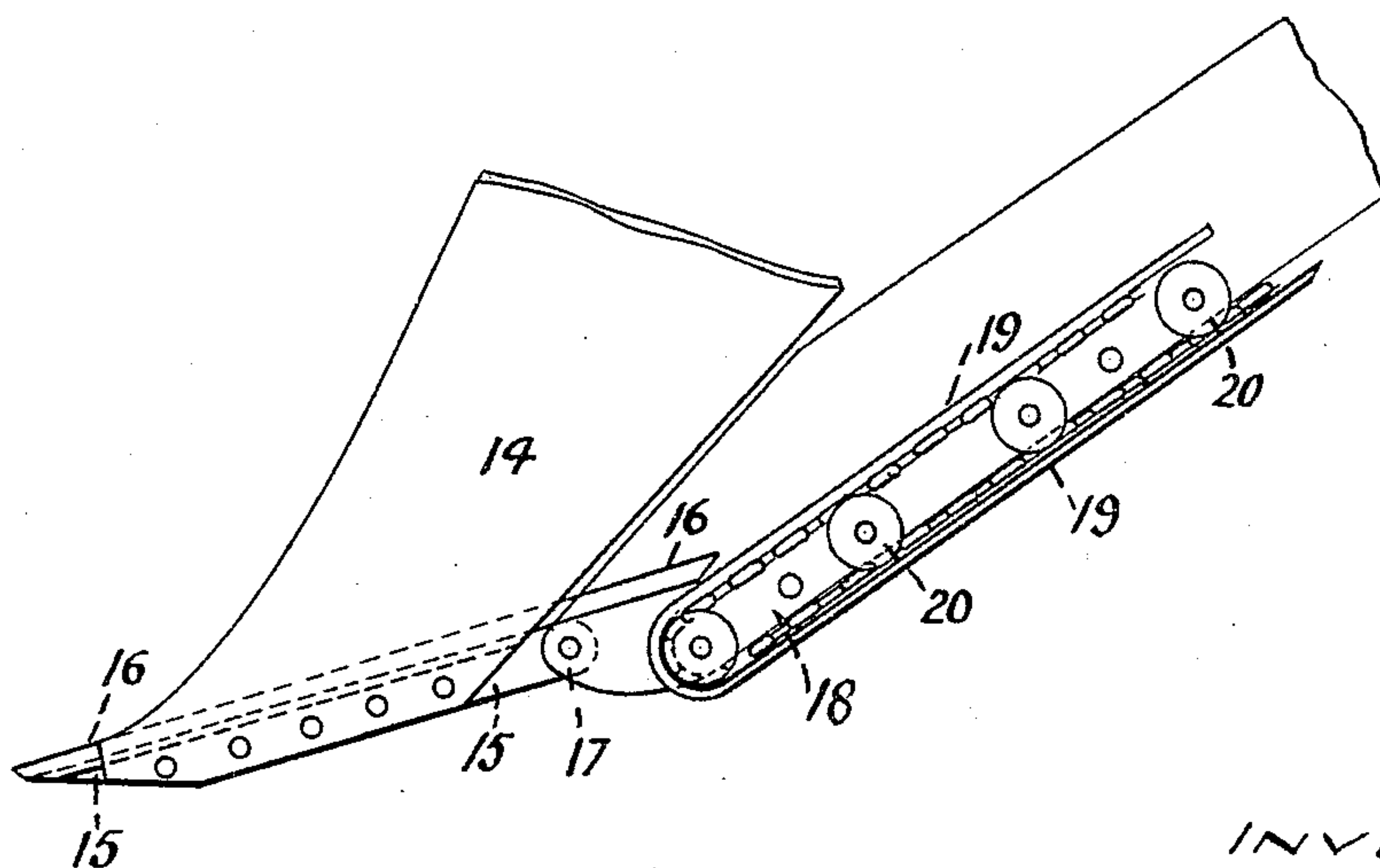


FIG. 2



WITNESSES

H. M. Kuehn
John A. Perewé

INVENTOR
James Robertson
BY *Richardson & Co.*

ATTORNEYS

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2 SHEETS—SHEET 2.

FIG. 3

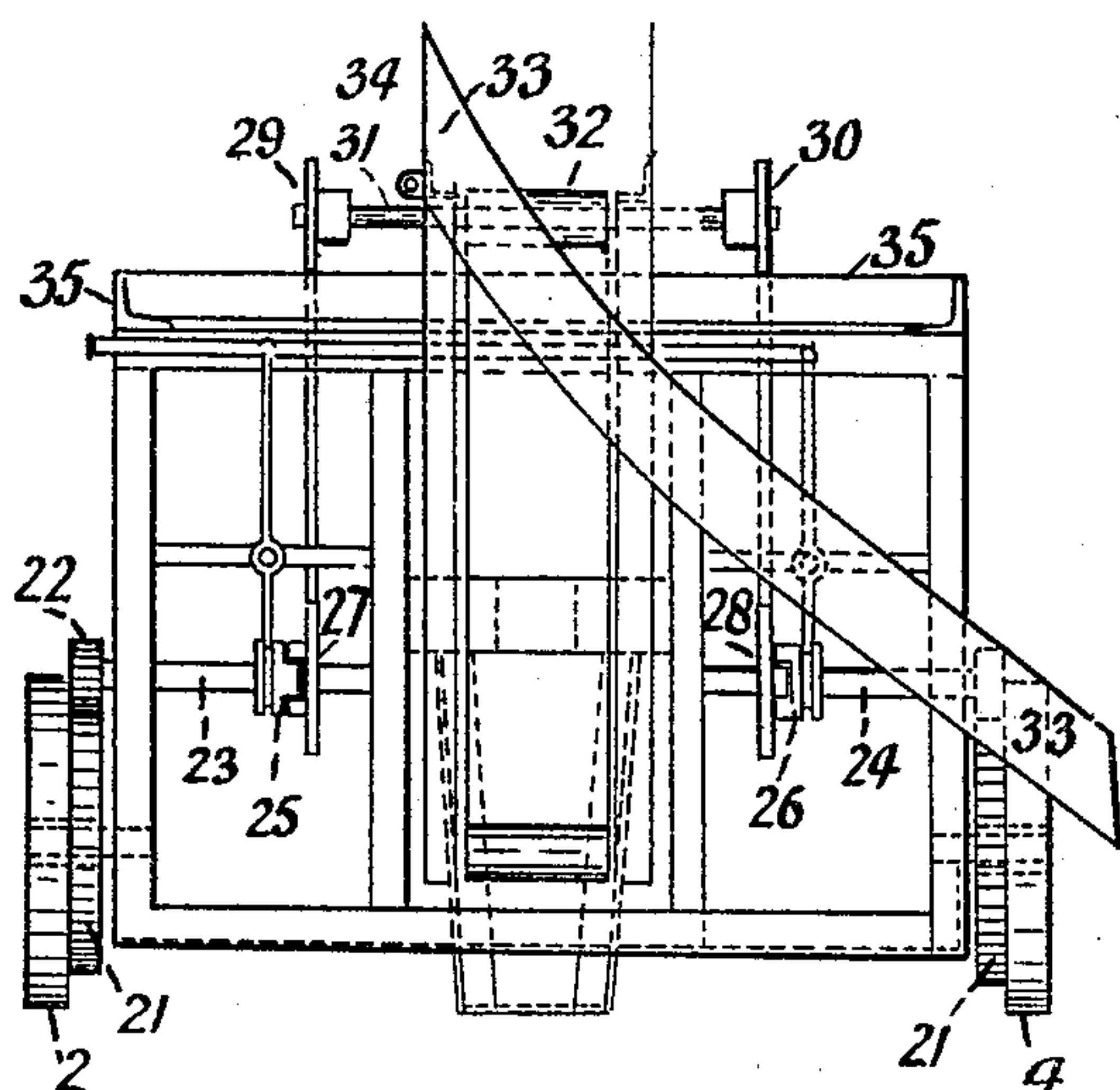


FIG. 4

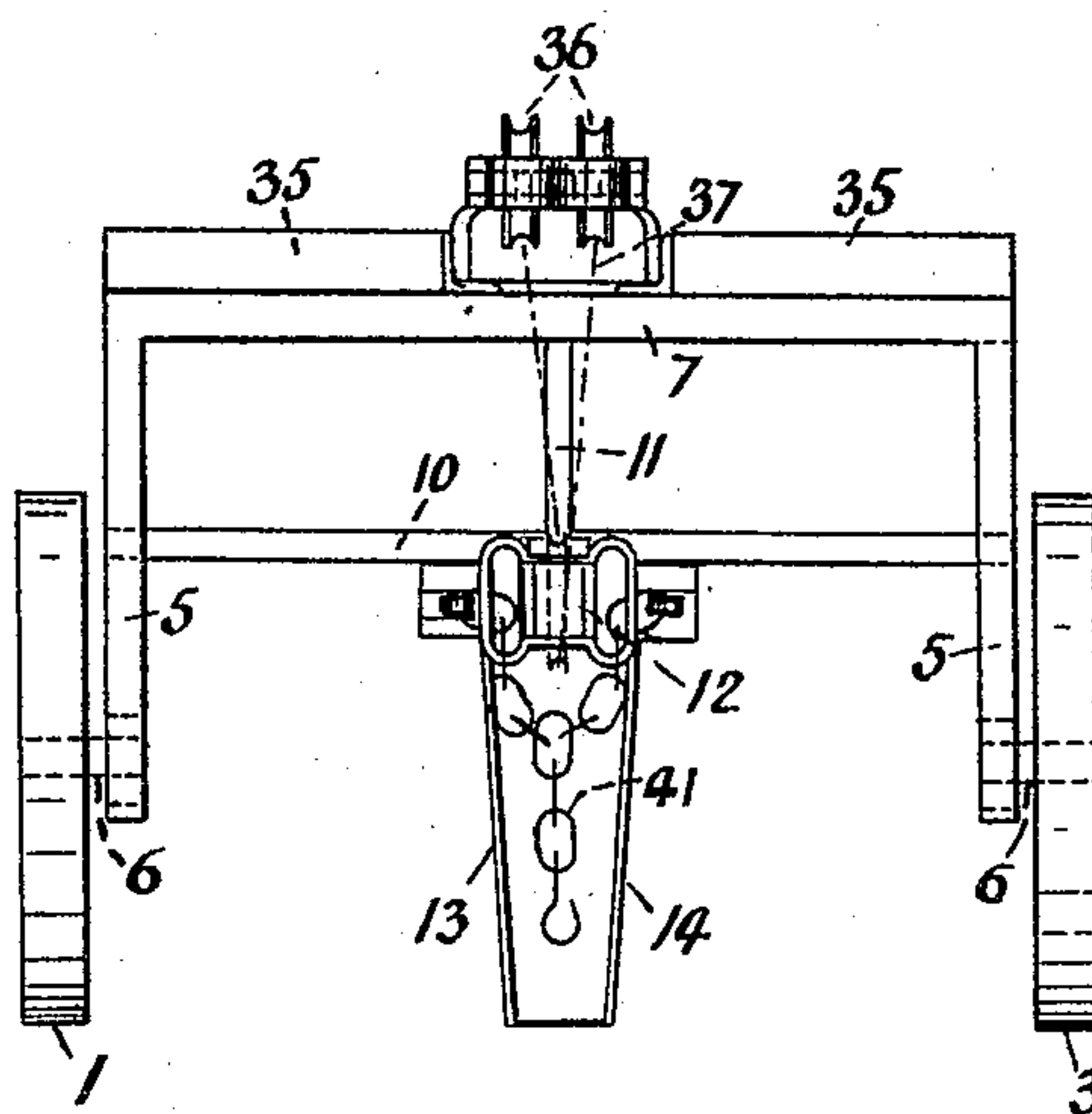
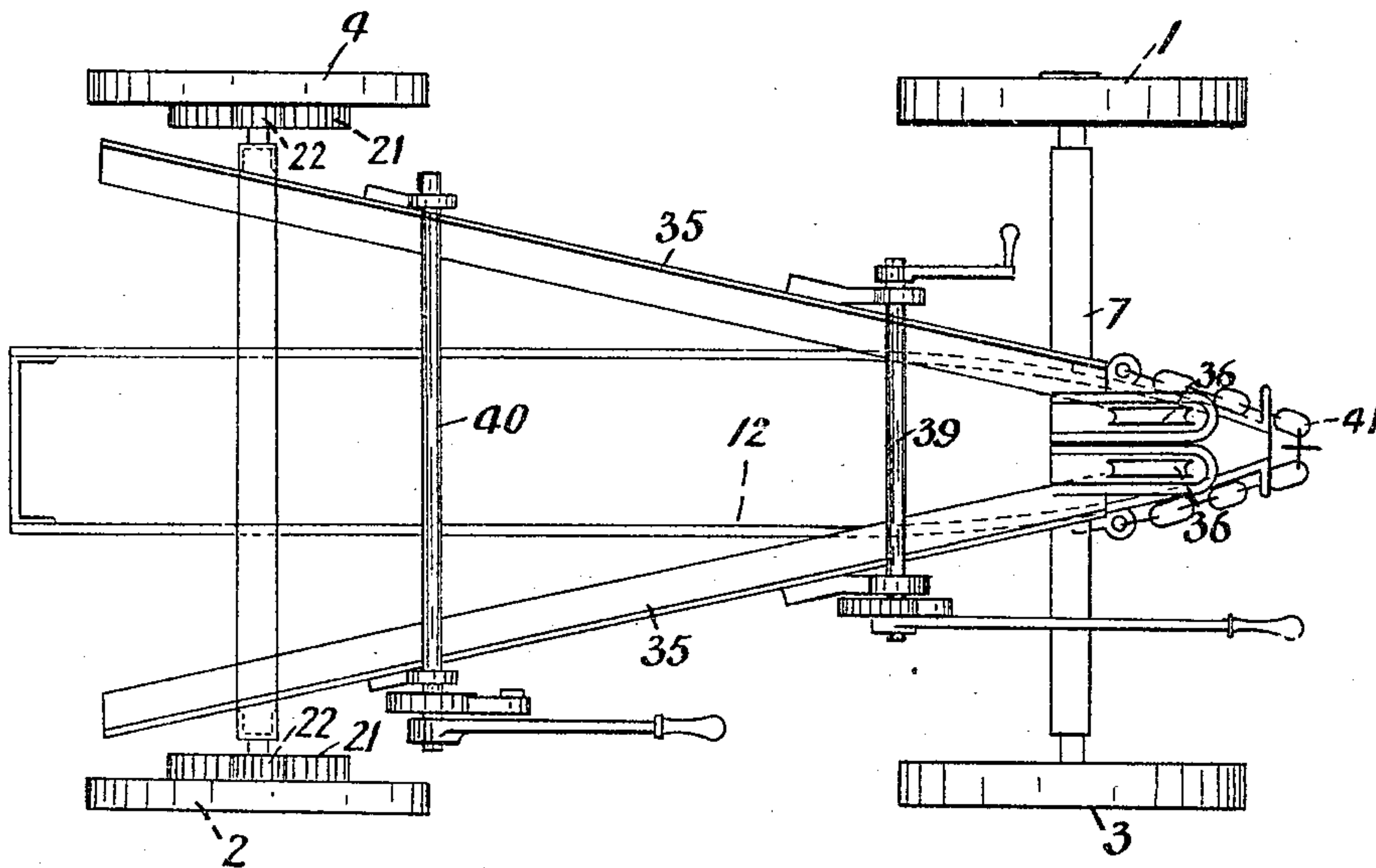


FIG. 5



WITNESSES

Wm. Kuehne
John A. Perennial

INVENTOR

James Robertson
By Richardson

ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES ROBERTSON, OF MAHENO, NEW ZEALAND.

DITCH-PLOW.

SPECIFICATION forming part of Letters Patent No. 774,200, dated November 8, 1904.

Application filed September 3, 1903. Serial No. 171,825. (No model.)

To all whom it may concern:

Be it known that I, JAMES ROBERTSON, plowman, of Maraeweka Station, Maheno, Otago, New Zealand, have invented certain new and useful Improvements in Ditch-Plows, of which the following is a specification.

This invention relates to plows of the class used for forming ditches for irrigation, drainage, and the like purposes and furrows.

A leading feature is the providing of an elevator and chute for removing the excavated material.

Other features are the arrangement whereby the draft is from a main beam to which the knives are secured and a top frame or beam supported by wheels and carrying the main beam, with winding mechanism on said top beam in front and at the rear for the purpose of raising and lowering the main beam as desired.

The invention consists of these features and of the combination and arrangement of parts, all hereinafter described, and pointed out in the claims.

In the accompanying drawings the same numbers of reference indicate the same or similar parts.

Figure 1 is an elevation of the ditch-plow. Fig. 2 is an enlarged view of the lower part of the knives and elevator. Fig. 3 is a rear view of the ditch-plow. Fig. 4 is a front view of the ditch-plow. Fig. 5 is a plan view of the ditch-plow.

The frame of the machine is mounted on four wheels 1 2 3 4. The front wheels 1 and 3 run on axles 6, each wheel having a separate axle. The tie-bar 7 of the front frame has a bearing 8 secured to it, through which a pin 9 passes. A cross-bar 10, the ends of which are adapted to slide in the uprights of the frame 5, is provided with a hole in its center through which a steadying-pin 11, secured to the main beam 12, passes. The knives 13 14 are secured to the main beam 12 and are strengthened at their lower ends by means of an angle-iron frame 15, which forms a support for the plow-sole 16, which is secured by rivets or any other suitable means. At the rear end 17 of the plow-sole 16 an elevator 18 is pivoted, inclining upward to the rear of the

machine. It consists of an endless belt 19, of any suitable material, passing along a series of rollers 20, and is driven by an ordinary sprocket-wheel and chain by means of spur-wheels 21 21, secured to the rear wheels 2 and 4 of the machine. The spur-wheels drive the spur-pinions 22 22. The spindles 23 24, to which the pinions are keyed, are provided with clutches 25 26 for the purpose of putting the elevator 18 in or out of gear. Sprocket-wheels 27 28 are secured to those portions of the clutches 25 26 that are keyed to the spindles 23 24 and are connected by means of a chain to the sprocket-wheels 29 30, secured to the spindle 31, to which the top roller 32 of the elevator 18 is attached. A chute 33 is pivoted to the top end of the elevator 18 at 34. There is a top frame 35 for the purpose of securing the rear and front frames together. The main beam 12 is supported at the front end by pulley-blocks 36 and chain 37. The pulley-blocks are secured to the top frame 35. The lower end of the chain 37 passes under another pulley, which is secured to the main beam 12. The said chain returns over one of the pulleys 36 and is secured to the winding apparatus 39. A similar apparatus for raising and lowering the back end of the main beam 12 is provided at 40. The draft being directly onto the main beam by means of the coupling-chain 41 gives an effective and steady action to the knives and sole, from which the material rises up onto the elevator by reason of the forward movement of the plow, and the material clinging sufficiently to the moving surface of the elevator by friction is raised and tipped into the chute, whence it is discharged to one side by reason of the curved shape of the elevator. By using wire-netting as the surface of the elevator potatoes and the like may be elevated from furrows dug by the plow.

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

1. A ditch-plow comprising substantially inverted-U-shaped frames, wheels carried by the ends thereof, a horizontal frame secured to the top of said frames, a lower frame between the forks of the inverted-U-shaped frame, a cross-bar guided in the inverted-U-

shaped frame, having a hole therein, a pin secured to the lower frame and entering said hole, adjustable means for supporting said lower frame from the upper frame, drafting
5 means secured to said lower frame, knives carried by said lower frame, an elevator and driving means therefor, substantially as described.

2. A ditch-plow comprising substantially
10 inverted-U-shaped frames, wheels carried by the end thereof, a horizontal upper frame carried on the top of said frames, a lower frame between the forks of the inverted-U-shaped frames, drafting means carried thereby; pul-
15 leys carried by said upper and lower frames,

chains passing over said pulleys whereby the lower frame is supported from the upper frame, means for adjusting said chains to lower or raise the lower frame, knives carried by said lower frame, an elevator extending from the knives rearwardly and upwardly and driving means between the upper end of the elevator and the wheels, substantially as described.

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

JAMES ROBERTSON.

Witnesses:

A. J. PARK,
J. R. PARK.