No. 645,895. Patented Mar. 20, 1900.

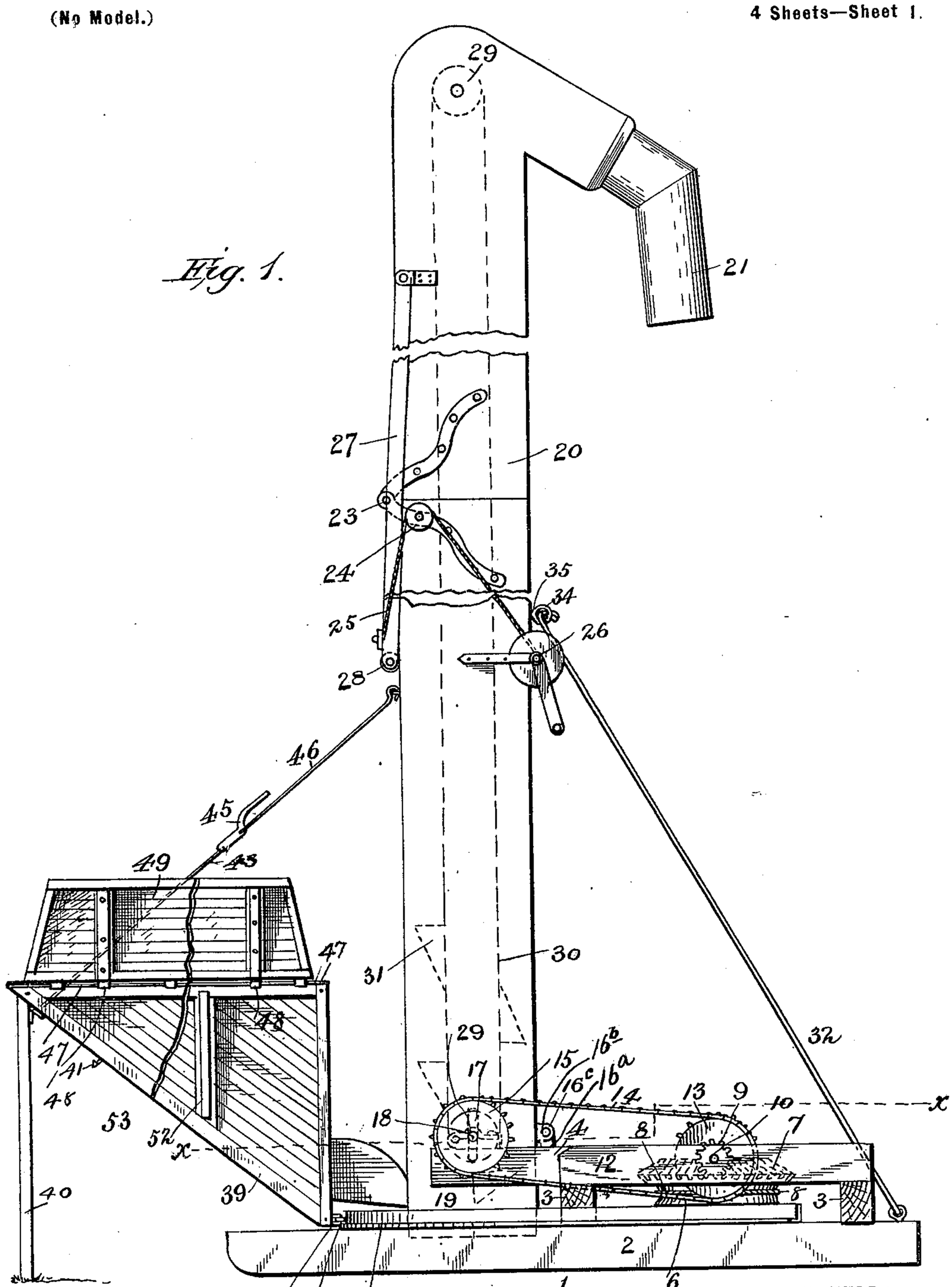
# H. EIELSON.

## GRAIN ELEVATOR.

(Application filed June 19, 1899.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.

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## GRAIN ELEVATOR.

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(No Model.) 4 Sheets—Sheet 2.

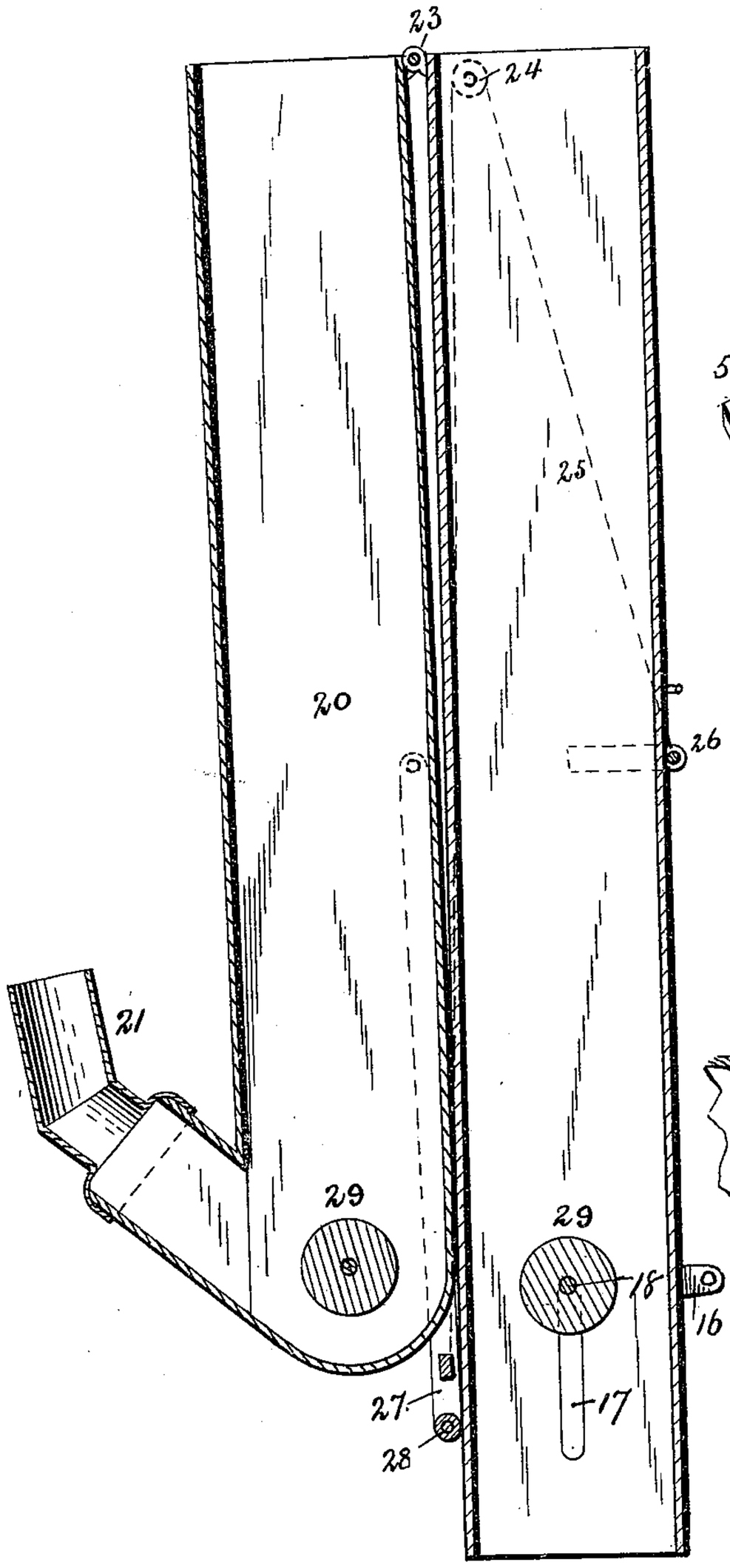


Fig. 2.

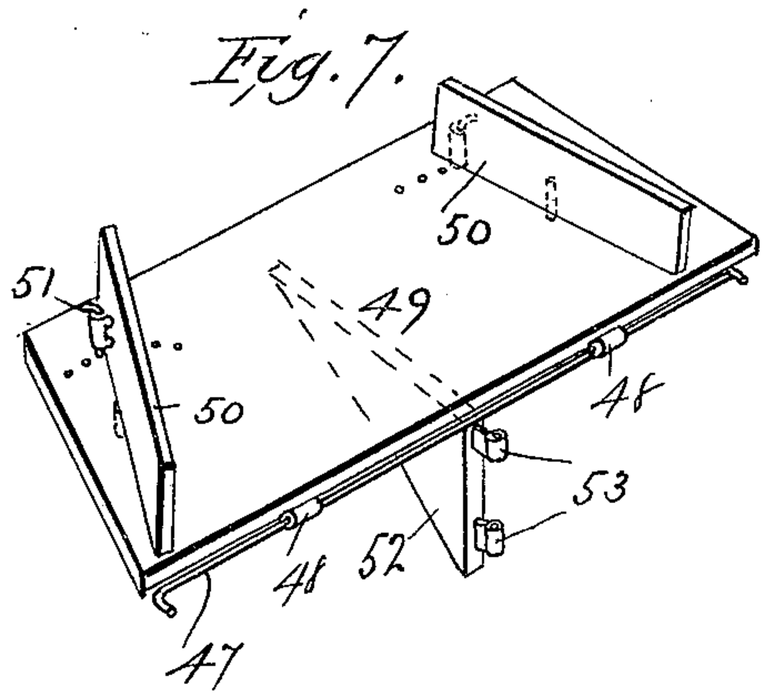


Fig. 7.

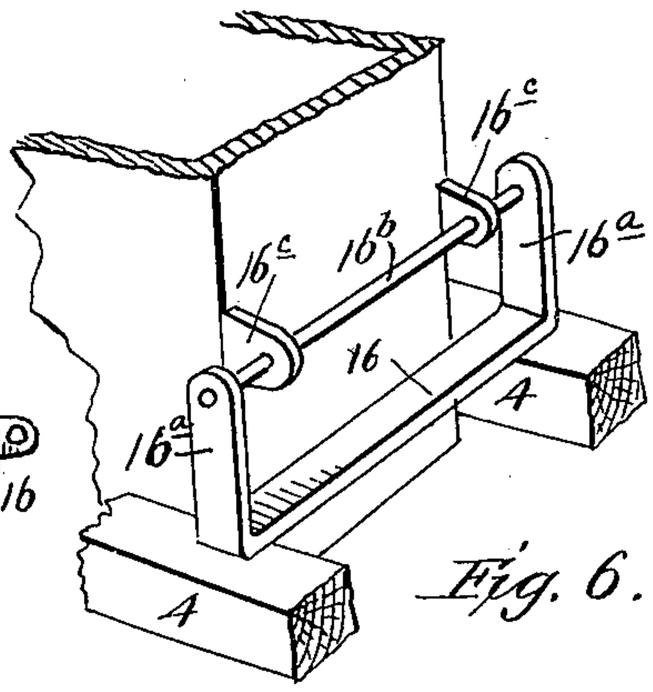


Fig. 6.

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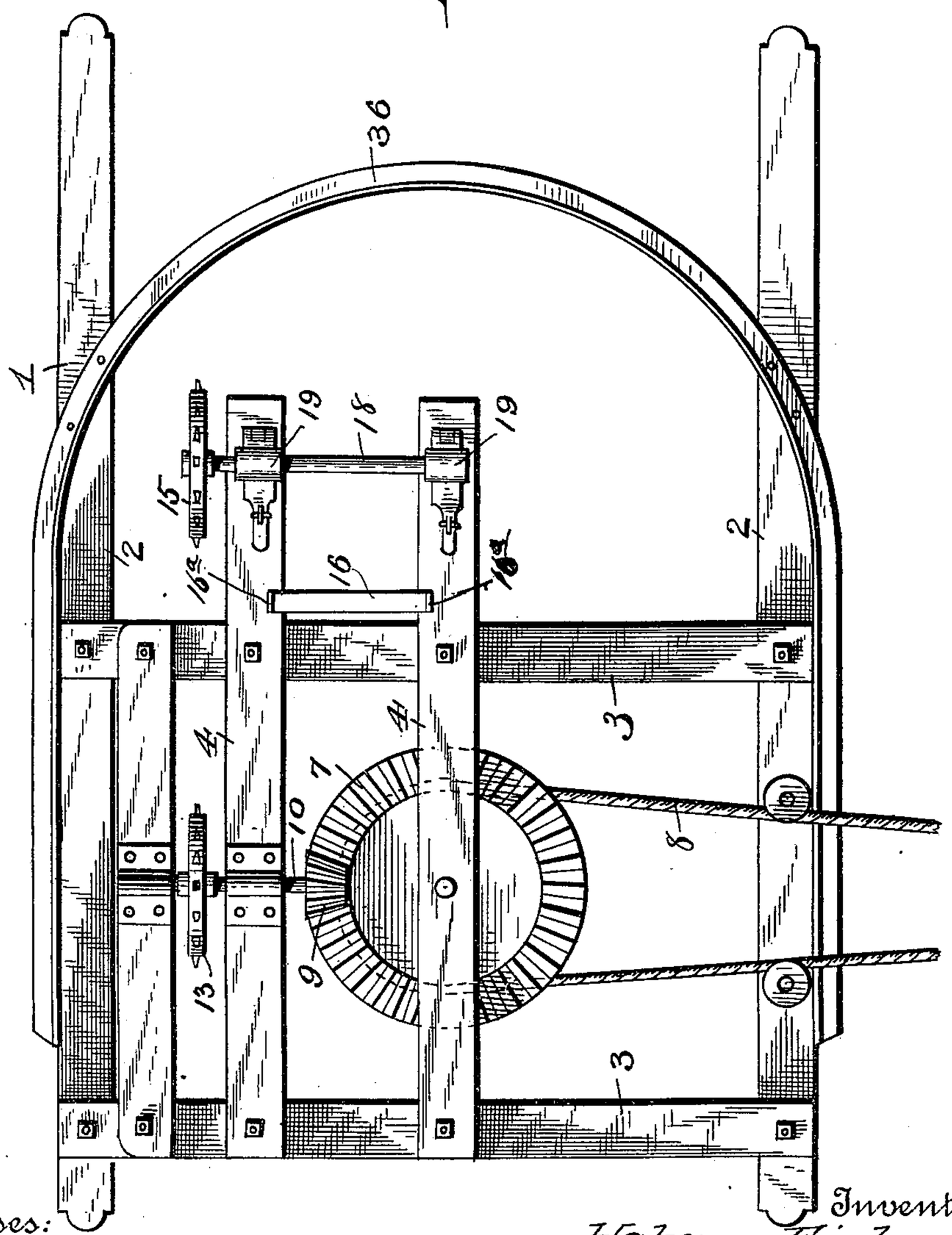
## GRAIN ELEVATOR.

(Application filed June 19, 1899.)

(No Model.) 4 Sheets—Sheet 3.

Fig. 3.

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## GRAIN ELEVATOR.

(Application filed June 19, 1899.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 4.

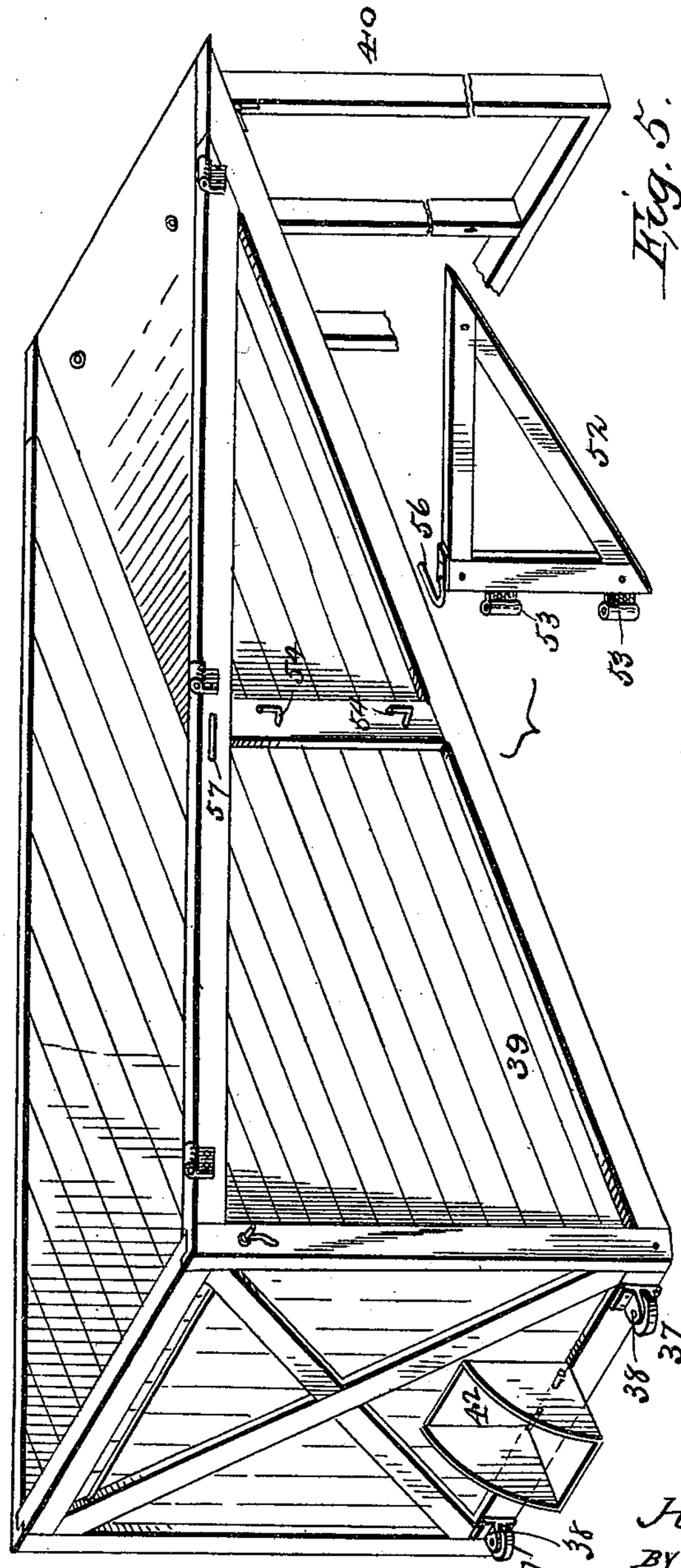
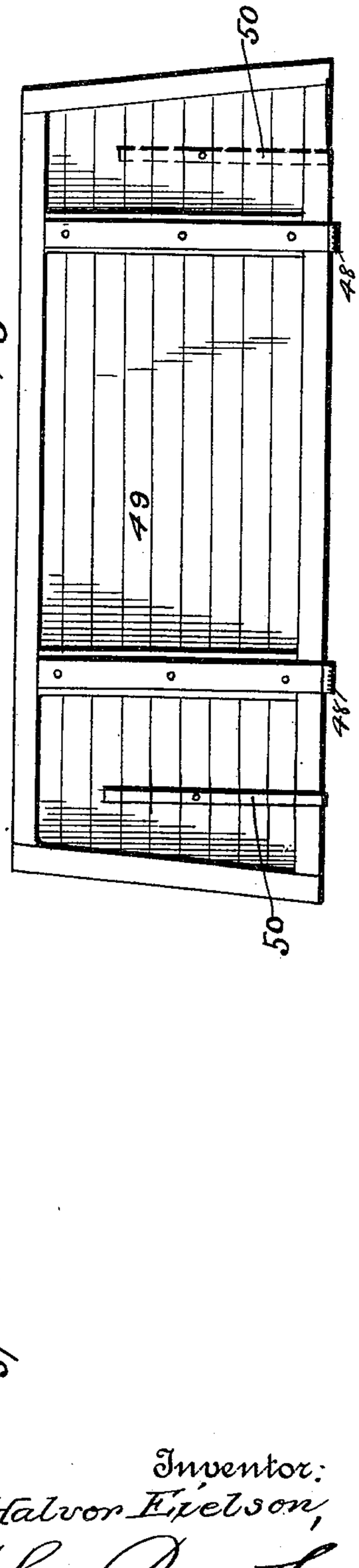



Fig. 5.

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# UNITED STATES PATENT OFFICE.

HALVOR EIELSON, OF HATTON, NORTH DAKOTA, ASSIGNOR OF THREE-FOURTHS TO MARTIN D. JOHNSON AND GEORGE JURGENS, OF SAME PLACE.

## GRAIN-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 645,895, dated March 20, 1900.

Application filed June 19, 1899. Serial No. 721,091. (No model.)

*To all whom it may concern:*

Be it known that I, HALVOR EIELSON, a citizen of the United States, residing at Hatton, in the county of Traill and State of North Dakota, have invented new and useful Improvements in Grain-Elevators, of which the following is a specification.

My invention relates to elevators for elevating and depositing grain from wagons to barns, storehouses, cars, and other places; and its object is to provide an improved construction of the same which may be folded up into compact form, when not in use, for transportation or storage.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is an elevation showing the machine as when in use. Fig. 2 is a central longitudinal section of the hinged elevator legs or sections, the upper one of which is folded or lowered. Fig. 3 is a horizontal section on the line *x x*, Fig. 1. Fig. 4 is a detail view of the hopper. Fig. 5 is a similar view of the hinged leaf of the hopper. Fig. 6 is a detached perspective view of the support or bracket for the leaf at the grain-receiving side of the machine. Fig. 7 is a detail perspective view of the folding leaf and adjustable boards.

In the said drawings the reference-numeral 1 designates the base of the elevator, comprising the side beams 2, connected together by transverse beams 3. Secured to these transverse beams are two parallel longitudinal beams 4, which support the elevator legs or sections. Journaled to a vertical stud-shaft secured to one of these beams 4 is a pulley 6, to which is secured a bevel-gear 7. A rope or cable 8 passes around this pulley and is driven by any suitable power. Meshing with said gear is a bevel-pinion 9, secured to a shaft 10, journaled in bearings secured to the other beam 4 and to a similar beam 12. This shaft is provided with a sprocket-wheel 13, around which passes a sprocket-chain 14, connected with a sprocket-wheel 15 on one end of a shaft, hereinafter described, by which the elevating-belt and buckets are operated.

Secured to the beams 4 is a transverse bar 16, to which is hinged or pivotally connected the lower section or leg of the elevator. Said bar is provided at each end with an upwardly-extending lug $16^a$, having a hole (not shown) therein, through which passes a rod $16^b$, which also passes through holes in lugs $16^c$ at the lower end of the said lower section. This section or leg is approximately rectangular in cross-section and near the lower ends is formed with two opposite slots 17, through which projects a horizontal shaft 18, one end of which carries the sprocket-wheel 15, and by means of which slots said shaft is permitted to have movement when the elevator sections or legs are folded one upon the other. This shaft is journaled in hinged boxes 19, secured to the said beams 4 outside the elevator section or leg, so that when the upper section, hereinafter described, is to be folded the shaft can be disengaged from the boxes.

The numeral 20 designates the upper section or leg, provided at the upper end with a curved downwardly-extending spout 21. This section is connected with the lower section by means of hinged brackets 23, provided with pulleys 24, around which pass ropes 25, one end of which is secured to a windlass 26, attached to the lower section, while the other end is secured to levers 27, pivoted to the upper section intermediate the end thereof. The free ends of these levers are connected by a roller 28, which rides upon the lower section in folding and unfolding or raising the upper section.

The numeral 29 designates rollers at the upper and lower ends of the upper and lower sections, respectively, over which passes an endless belt 30, provided with buckets 31, by which the grain is elevated. The lower roller is secured to the shaft 18, while the upper roller is journaled to the sides of the upper section. Pivoted to said base are two brace-rods 32, which converge at their upper ends and are pivotally connected with a hook 34, which is adapted to engage with hooks 35, secured to the lower section or leg and by means of which said section is held in position when elevated. The numeral 36 designates a curved track secured to the frame 1 in front of the elevator-sections, upon which are adapted to

travel wheels 37, pivoted to lugs 38, secured to a detachable hopper 39. The bottom of this hopper is inclined and at the outer end is provided with a hinged support 40, which can be folded up on said bottom when not in use and be held in such position by means of a catch 41. This hopper can be folded inwardly when not in use and is provided with a central spout at the lower end, provided with a hinged door 42. Secured to the hopper-bottom near the outer end is a rope or rod 43, with which is connected a lever 45, with which is pivotally connected a rod 46, provided with a hook at the upper end engaging with a staple secured to the lower section or leg. The object of this lever and connections is to lift the outer end of the hopper and its hinged support when the hopper is to swing out of the way of a wagon containing the grain, so that the wagon can be brought into close proximity with the elevator. Secured to one side of said hopper at the upper end is a longitudinal rod 47, Fig. 1, upon which slide hinges 48, which are secured to a folding leaf 49, provided at each end with adjustable boards 50, which are held in their adjusted positions by hand-bolts 51, Fig. 7. By loosening these bolts, which serve as pivots for the said boards, the latter can be turned so that the outer ends may be expanded more or less, so that the inner ends will converge. The object of this is to accommodate the same to different widths of wagon-bodies. The numeral 52 designates a support for said leaf provided with hinge-leaves 53, which are detachably connected with pintles 54, secured to the hopper. This support at one end is provided with a hook 56, which engages a slot 57 in the hopper to hold it in position when turned out to support the leaf.

The operation will be readily understood. When the elevator-sections are raised or elevated for use, the hopper is turned to one side, its wheel moving on the track secured to the frame 1, so as to allow the wagon containing the grain to be brought into close proximity to the elevator, after which it is turned toward the wagon, so that the leaf will rest under the rear or tail end of the wagon. The endless belt is then set in motion by any suitable power, and the grain escaping from the hopper to the lower end of the lower section will be caught by the buckets and elevated to the delivery-spout at the upper end of the upper section, which will deposit it in a barn or car, as desired. The upper section or leg is raised or folded by means of the windlass. In raising the same the windlass is turned, which will wind the lifting-ropes thereon, causing the roller at the lower ends of the levers, pivoted to the upper section, to ride up the side of the lower section, and thus raise said upper section. A reverse movement will fold the upper section. When thus folded, the lower section can be lowered so that the two sections will occupy, approximately, horizontal positions. The hopper can be detached and placed on said sections, the whole resting on the base 1 in a compact form.

Having thus fully described my invention, what I claim is—

1. In a folding elevator, the combination with the base, the lower section or leg hinged thereto, the upper section or leg, the brackets secured to the adjoining ends of said sections and hinged to each other, the pulleys carried by said brackets, the ropes passing thereabout, the windlass on the lower section and the levers pivoted to the upper section and to the free ends of which the other ends of said ropes are secured, of the endless elevator-belt, the buckets and means for operating said belt, substantially as described.

2. In a grain-elevator of the character described, the combination with an elevator, of the hopper provided with horizontal rods at one side, the hinge movable thereon, the leaf to which said hinges are secured, the adjustable boards pivoted to said leaf and the hinged support connected with the hopper, substantially as specified.

3. In a grain-elevator of the character described, the combination with an elevator, of the curved track, the hopper provided with wheels working on said track, the rope connected with said hopper, the lever connected therewith, the rod pivotally connected with said lever and with the lower section or leg and the hinged support for said hopper, substantially as specified.

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

HALVOR EIELSON.

Witnesses:
ED. M. JENSON,
ISAAC OLSON.