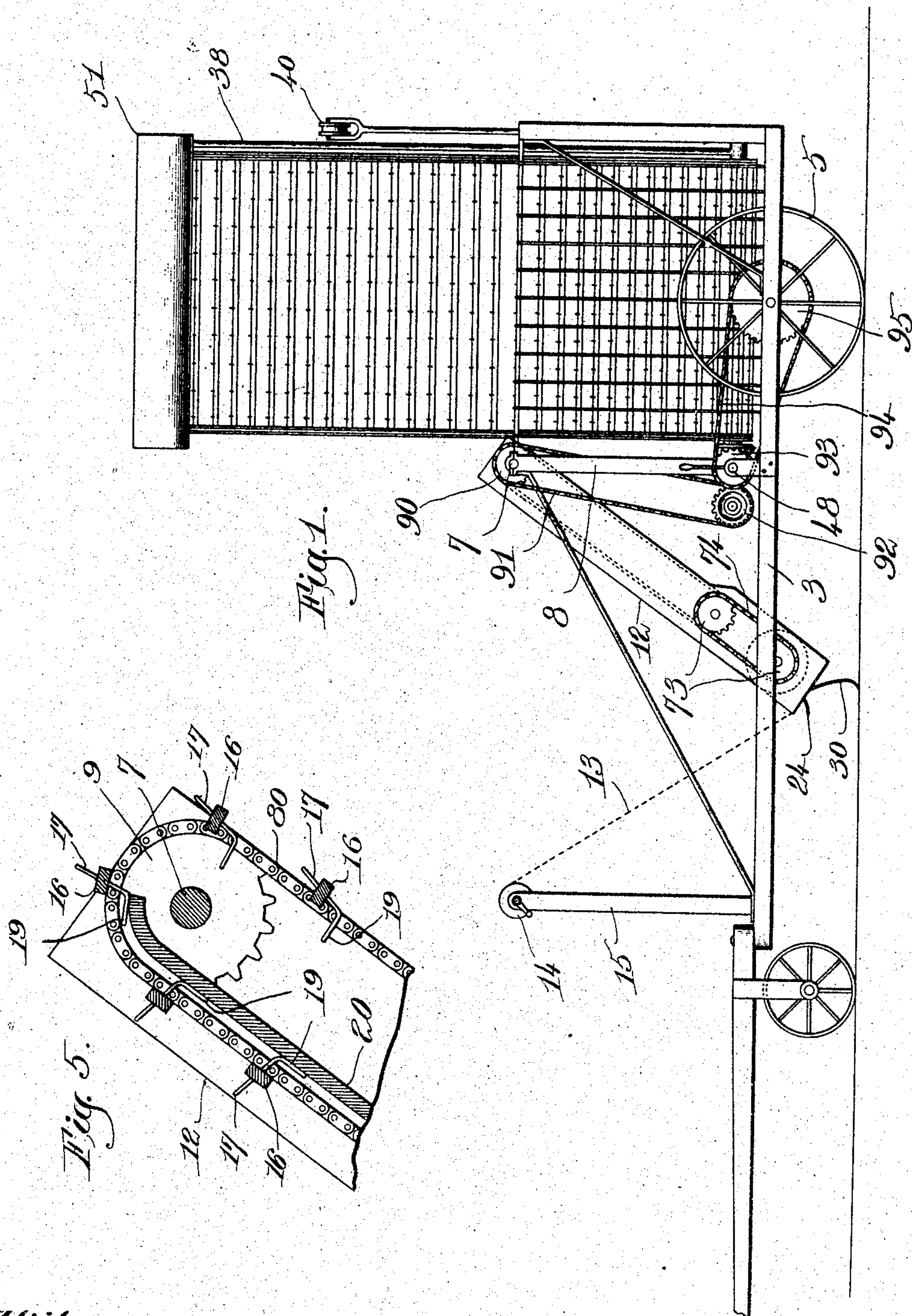


No. 781,212.

PATENTED JAN. 31, 1905.

E. KIRK.  
SHOCK OR BUNDLE LOADER.  
APPLICATION FILED JULY 18, 1904.

3 SHEETS—SHEET 1.



Witnesses.  
Thomas Drummond.  
W. C. Lunsford.

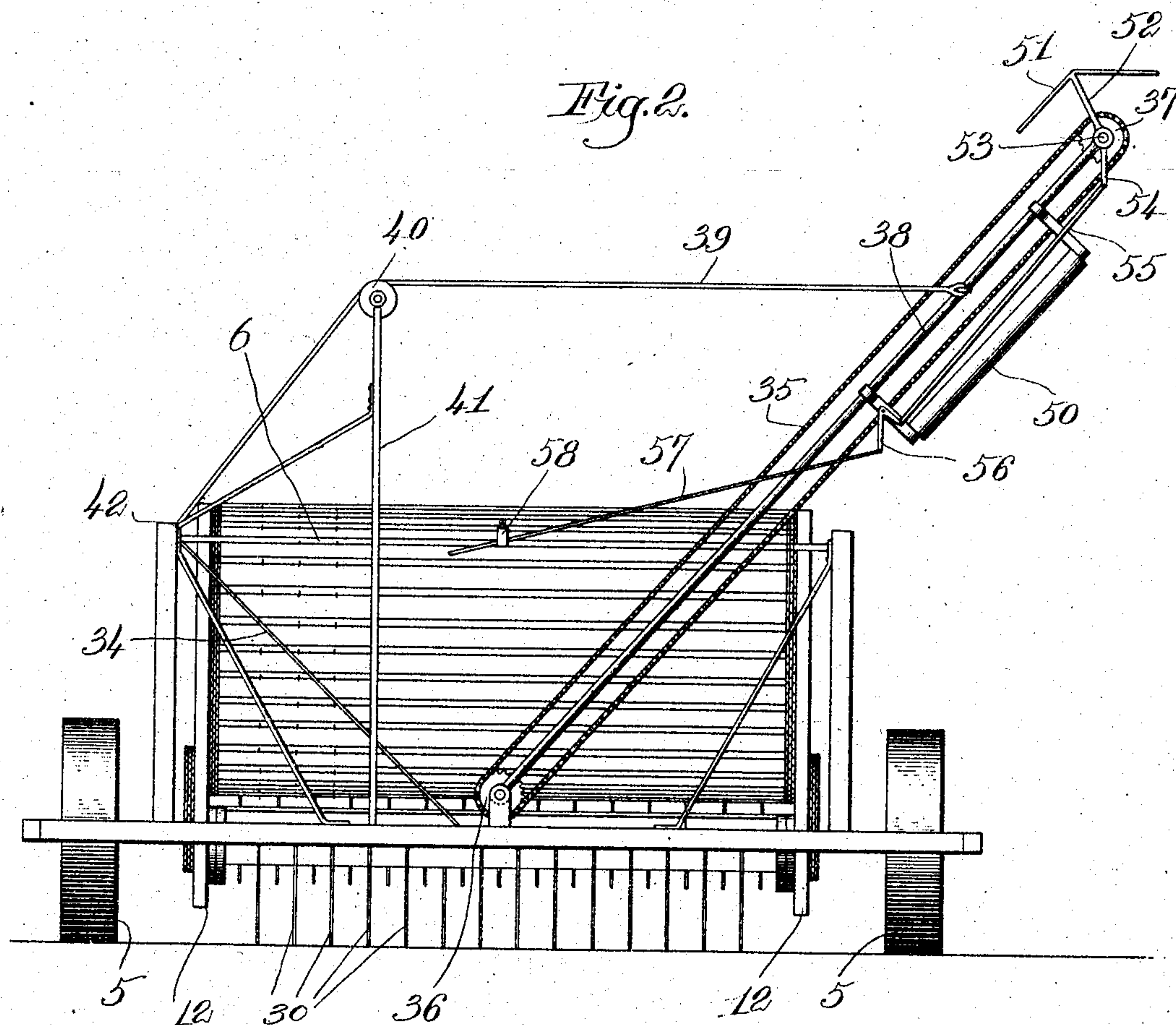
Inventor.  
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3 SHEETS—SHEET 2.



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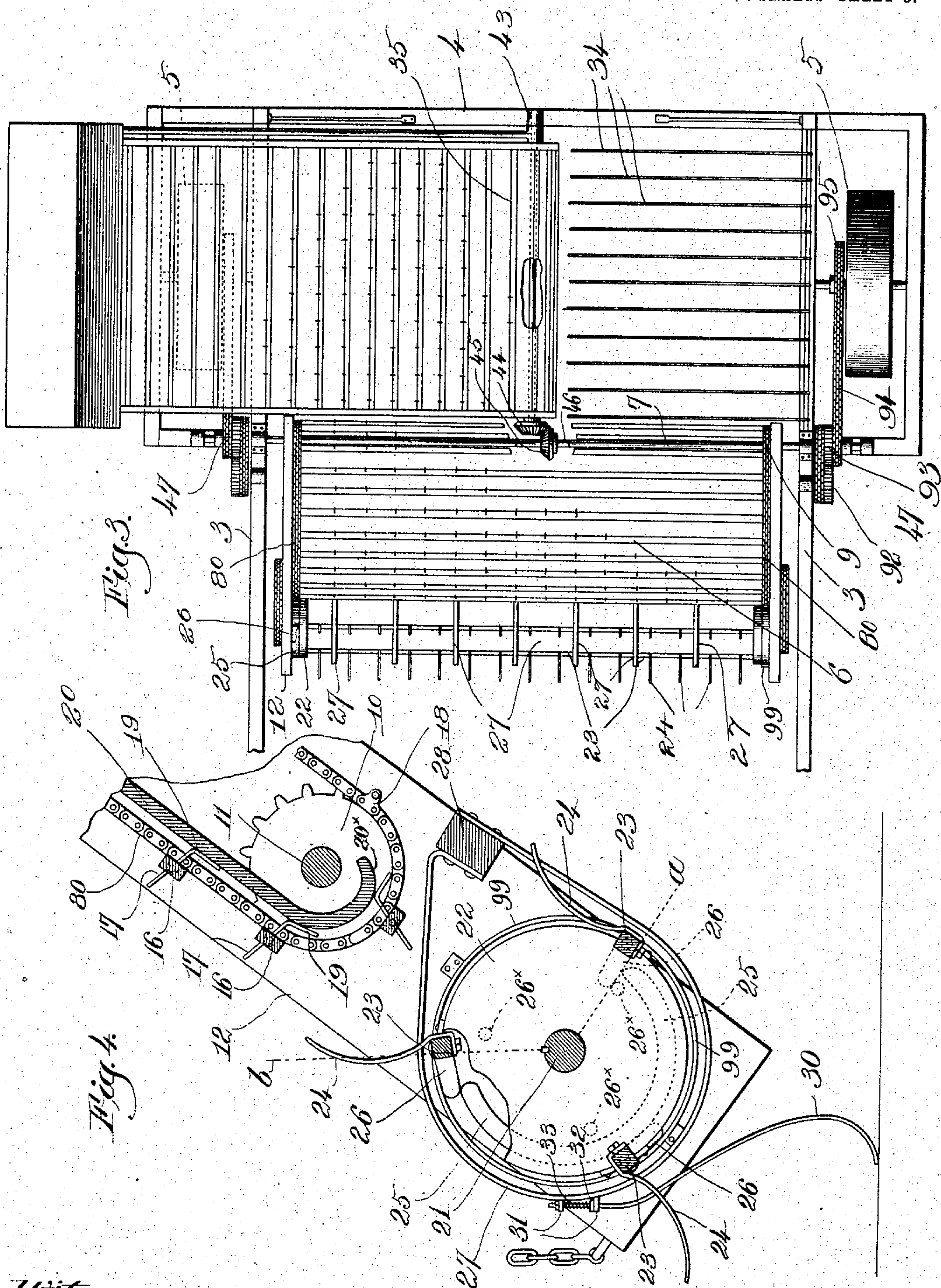
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3 SHEETS—SHEET 3.



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## UNITED STATES PATENT OFFICE.

ERNEST KIRK, OF NIAGARA, NORTH DAKOTA.

## SHOCK OR BUNDLE LOADER.

SPECIFICATION forming part of Letters Patent No. 781,212, dated January 31, 1905.

Application filed July 18, 1904. Serial No. 216,969.

*To all whom it may concern:*

Be it known that I, ERNEST KIRK, a citizen of the United States, residing at Niagara, county of Grand Forks, and State of North Dakota, have invented an Improvement in Shock or Bundle Loaders, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention aims to provide a novel shock or bundle loader which will positively pick up the various shocks or bundles of grain or other material which is to be loaded and deliver said bundles to the wagon and which will also rake up all loose straw and deliver said loose straw to the wagon. My improved machine, therefore, is adapted to both load the bundles of grain onto the wagon and at the same time gather up all the gleanings. The device comprises a wheel-frame having thereon a front carrier, at the lower end of which is a picker constructed to pick up the individual bundles and deliver them to the carrier, said front carrier operating in turn to deliver the bundles to a side carrier, which carries them up to the load. Associated with the picker are a set of rake-teeth, which rake up all the gleanings or loose straw left after the bundle has been picked up, said rake-teeth being so disposed that the loose straw gathered therein is also picked up by the picker and delivered to the carriers.

Referring to the drawings, wherein one embodiment of my invention is shown, Figure 1 is a side elevation of my improved device. Fig. 2 is a rear elevation thereof. Fig. 3 is a top plan view. Fig. 4 is a section through the picker and lower end of the front carrier, and Fig. 5 is a section through the upper end of the front carrier.

The frame of the machine may have any suitable shape adapted to support the operative parts, and, as herein shown, it comprises two side beams 3 and one or more cross-beams 4. The driving or traction wheels 5 are journaled in suitable bearings carried by the frame, and from them is derived the power for operating the carriers and pickers. The front carrier is designated by 6, and it is hung at its upper end on a cross-shaft 7, car-

ried by suitable standards 8, rising from the frame. Said front carrier is preferably of the endless-conveyer type and may have any suitable or usual construction. As herein shown, it comprises two or more belts or chains 80, which pass over pulleys 9 on the shaft 7 and also over other pulleys 10 on a cross-shaft 11. Said latter shaft 11 is journaled in the side pieces 12 of a carrier-frame, which carrier-frame is hung at its upper end on the shaft 7 and has connected to its lower end a chain 13, passing over a pulley 14 on a standard 15, by means of which chain the lower end of the carrier-frame can be raised or lowered.

The shaft 7 may be driven in any suitable way; but, as herein shown, it has thereon a sprocket-wheel 90, driven by a suitable sprocket-chain 91, which passes over and is in turn driven by a sprocket-wheel fast to a gear 92, which is journaled in suitable bearings on the frame. Said gear 92 meshes with and is driven by another gear 93, which has fast therewith a sprocket-wheel over which a drive-chain 94 passes, said latter chain also passing round a sprocket-wheel 95 on the axle of the traction-wheel 5. I propose to employ this form of driving connection between each traction-wheel and the shaft 7, and therefore will provide some usual form of pawl-and-ratchet mechanism between each traction-wheel and its sprocket-wheel 95, as is commonly done in machines of this class.

Secured to the chains or belts 80 are a plurality of slats or lags 16, having carrier-teeth 17 therein, by means of which the bundles are carried upwardly. I prefer to journal the lags 16 in bearings or boxes 18, carried by belts, so that said lags may turn, and each tooth 17 is set into a lag and is made with the foot portion 19, which is adapted to rest on the floor 20 of the carrier, as seen in Figs. 4 and 5. This floor 20 extends the length of the carrier-frame and serves to hold the teeth 17 in their operative position when said teeth are in the upper run of the carrier. As the lags pass over the pulleys 9 the feet 19 pass off from the end of the floor 20, as best seen in Fig. 5, thereby allowing the lag to turn in its bearings. This is of decided advantage,



because as the bundles are thrown over the upper end of the carrier the teeth 17 are free to turn into such position that they will be readily withdrawn from the bundles, thus avoiding the danger of having the teeth catch in the straw of the bundle at this point. Situated at the lower end of the carrier, and preferably carried by the carrier-frame, is a picker adapted to pick up the bundles and deliver them to the carrier. The form of picker herein shown comprises a picker-shaft 21, journaled in the lower end of the side pieces 12 of the carrier-frame and having on each end thereof heads 22, in which heads are journaled other or tooth-carrying shafts 23. The shaft 21 is driven from the shaft 11, and for this purpose each shaft has thereon a sprocket-wheel 73, which sprocket-wheels are connected by a sprocket-chain 74, said sprocket-wheels and sprocket-chain preferably being located outside of one of the side pieces 12. Said tooth-carrying shafts 23 extend the full length of the picker, and each has thereon a plurality of picker-teeth 24. Fast on one of the side pieces 12 of the carrier-frame is a cam 25, (see dotted lines, Fig. 4,) which coöperates with the crank end 26 of each tooth-carrying shaft 23 to throw the picker-teeth into and out of operative position. Said cam 25 is so arranged that the crank portions of each shaft engage it as said shaft reaches about the position *a* in Fig. 4, whereupon the picker-teeth on said shaft are thrown outwardly into a position nearly radial to the heads 22, said teeth being positively held in such position by the engagement of the crank portion 26 with the cam, as will be obvious. As such tooth-carrying shaft 23 reaches about the position *b* its crank portion passes off from the cam 25, thereby allowing the teeth to swing backwardly and to be withdrawn from the bundles. Said picker-teeth during their revolution about the shaft 21 are forced out and pick up the bundles or sheaves of wheat or other grain and carry said bundles upwardly and deliver them to the carrier, as will be obvious. The cam 25 is so arranged that the picker-teeth will be withdrawn from the bundles just as they are delivered from the picker to the carrier. With this construction there is no danger of the picker-teeth becoming entangled in the straw of the bundle in such a way that said bundle will be carried around with the picker-shaft.

27 designates stripping members which are in the nature of bands encircling the picker and secured at their ends to a cross-piece 28, extending between the side pieces 12. Said stripping members assist in stripping the bundles from the picker-teeth as said bundles are delivered to the carrier.

While the form of picker I have herein employed operates to successfully pick up the bundles, it will not gather up the loose straw

or gleanings, and to accomplish this I have provided a plurality of rake-teeth 30, which are supported in any suitable way, preferably by the stripping members 27, as shown best in Fig. 4. Said rake-teeth are so arranged that the picker-teeth play between them, and in practice I propose to so arrange the carrier-frame that the rake-teeth will drag along on the ground, thus raking and gathering up all loose straw.

In the practical operation of the device the picker-teeth pick up the bundles and deliver them to the carrier, as above described, and as the machine moves onwardly the loose straw is raked up by the teeth 30, and as it is gathered in them the picker-teeth pick such loose straw out of the rake-teeth and carry it over to the carrier.

I prefer to yieldingly support the rake-teeth 30 so that they will accommodate themselves to any unevenness in the ground, and for this purpose I have shown the stem of each tooth as slidably mounted in lugs 31 and as having a collar 32 thereon, against which a suitable spring 33 bears. The spring 33 permits each tooth to yield somewhat. Any other suitable way of yieldingly supporting the rake-teeth 30 may be employed without departing from my invention.

As the bundles are thrown over the top of the front carrier they drop onto either an incline 34 or onto the lower end of a side carrier 35. Said side carrier is an endless conveyor of any suitable type running over a roll or pulley 36, journaled on suitable bearings on the frame, and another roll or pulley 37 at the upper end of a swinging frame 38. 39 designates a connection secured at one end to said frame and passing over a direction-pulley 40, carried by a suitable standard and leading to a securing device 42, by means of which connection the angle of inclination of the side carrier may be varied. The side carrier 35 is driven by means of a suitable shaft 43, having a gear 44 thereon meshing with another gear 45 on a cross-shaft 46, said cross-shaft having on its ends the gears 93, by means of which the front carrier is driven.

48 designates a suitable clutch for connecting the shaft 46 to the gear 93, this clutch serving to throw the machine into and out of gear.

50 designates a chafing-roll carried by the frame 38 of the side carrier.

At the upper end of the side carrier I prefer to use a hood or deflector 51, which serves to guide the material elevated onto the load and also prevents the loose straw from being blown off from the top of the side carrier, and thus becoming scattered. Said hood is preferably mounted on arms 52, which are pivoted on the shaft 53 at the upper end of the carrier, one of said arms 52 having an extension 54, to which is connected one end of a link 55, the other end being connected to a



bell-crank 56, which is operated by any suitable connection 57. By means of this construction the position of the hood can be shifted as required, and when in position said hood is held from movement by means of a suitable clamping device 58, which engages the connection 57.

Although I have illustrated herein one form of my invention, I wish it understood that various changes may be made in the details of the construction without departing from the invention.

As shown in Fig. 4, the lower end of the floor 20 is curved around and toward the shaft 11, as at 20<sup>x</sup>, in order to effect a more gradual turning of the carrier-teeth 17 into proper operating position, the latter being attained in a better manner by a gradual steady movement instead of a quick jump or jerk.

When the crank portions 26 of the tooth-carrying shafts 23 pass beyond the upper end of the cam 25, they might tend to drop inward too far away from the path of the cam, and to prevent this I have placed lugs or projections 26<sup>x</sup> on the inner face of the picker-head 22 (see dotted lines, Fig. 4) to serve as stops, and thereby limit such movement of the crank portions.

The back of the cam 25 is cut away to avoid interference with the stops as the picker-head rotates.

Movement of the crank portions outward away from the cam will be limited by an annular band or curb 99 outside of and concentric with the cam, such band or curb being omitted in Fig. 3 to show one of the crank portions 26.

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

1. In a bundle-loader, a wheeled frame, a suspended carrier-frame mounted thereon, means to adjust the carrier-frame about its point of suspension, an endless carrier on said carrier-frame, a rotary picker sustained by

the carrier-frame at its lower end and arranged to pick up bundles or shocks and deliver them to the carrier, said picker comprising a picker-shaft having heads thereon, shafts journaled in said heads, picker-teeth carried by said latter shafts, means to turn said shafts on their axes as the picker-shaft rotates, means operatively connecting the picker-shaft with the endless carrier whereby the former is rotated by the latter, and rake-teeth supported by the carrier-frame at its lower end and arranged to gather up loose straw.

2. In a bundle-loader, a wheeled frame, a suspended carrier-frame mounted thereon, an endless front carrier on said carrier-frame, a rotary picker supported by the carrier-frame and situated beneath the carrier, said picker operating to pick up bundles and deliver them to the carrier, rake-teeth also carried by the carrier-frame and operating to gather up loose straw, an inclined side carrier to receive bundles from the front carrier, said side carrier being pivoted at its lower end, and an adjustable hood or shield at the upper end of said side carrier.

3. In a bundle-loader, a wheeled frame having uprights as 8 rising therefrom, a shaft journaled in the upper end of said uprights, a carrier-frame supported by said shaft and adjustable thereabout, an endless carrier mounted on said frame and operated from said shaft, a picker sustained by the carrier-frame at its lower end and adapted to pick up the bundles and deliver them to the carrier, means for driving the picker from the carrier, and rake-teeth supported by said carrier-frame at its lower end and adapted to gather up loose straw.

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

ERNEST KIRK.

Witnesses:

GEO. B. KIRK, Jr.,  
WM. McMAHON.