O. C. WELCH.

GRAIN PITCHER.

APPLICATION FILED JULY 6, 1918.

1,294,212.

Patented Feb. 11, 1919.

4 SHEETS—SHEET 1.

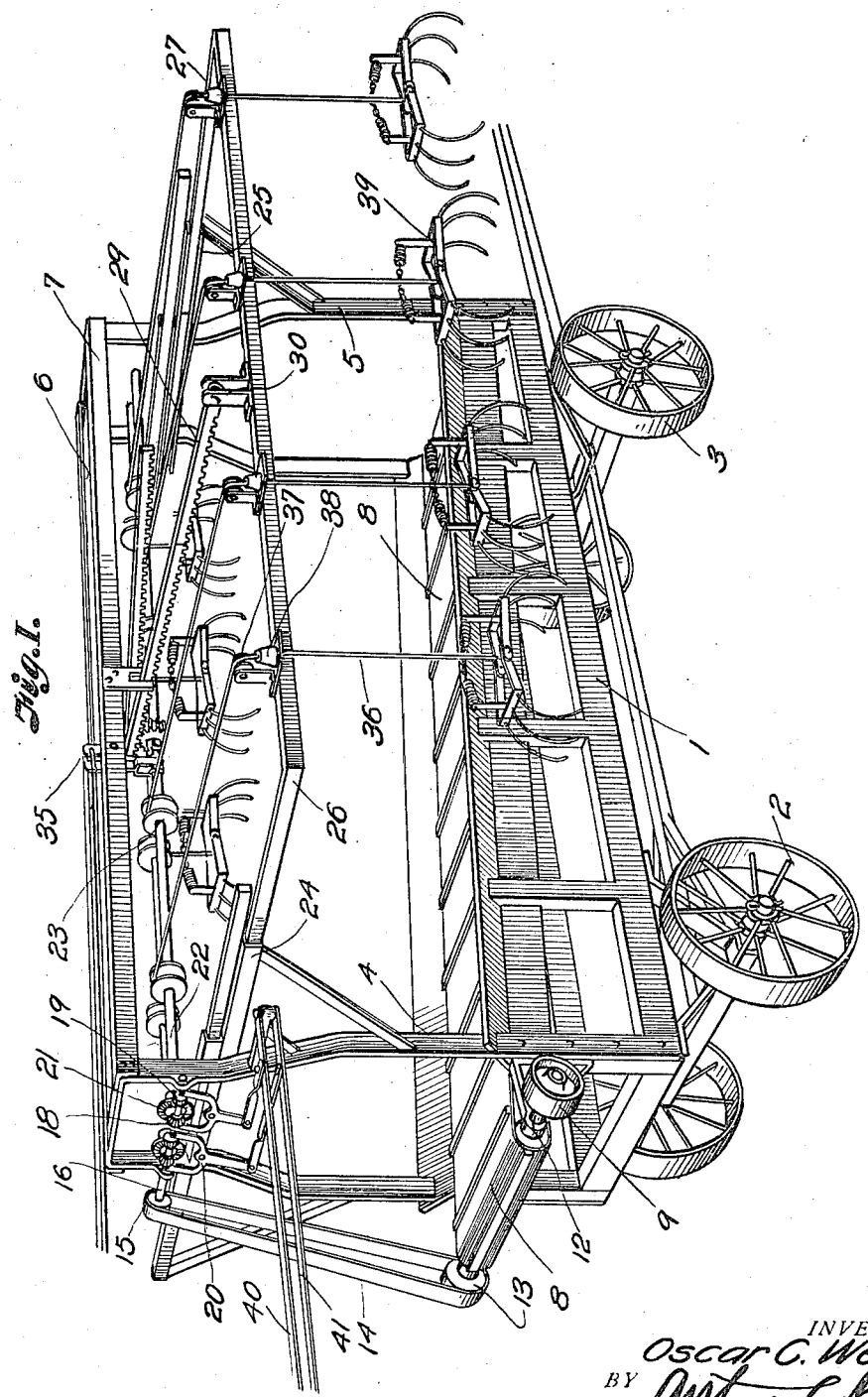


Fig. 1.

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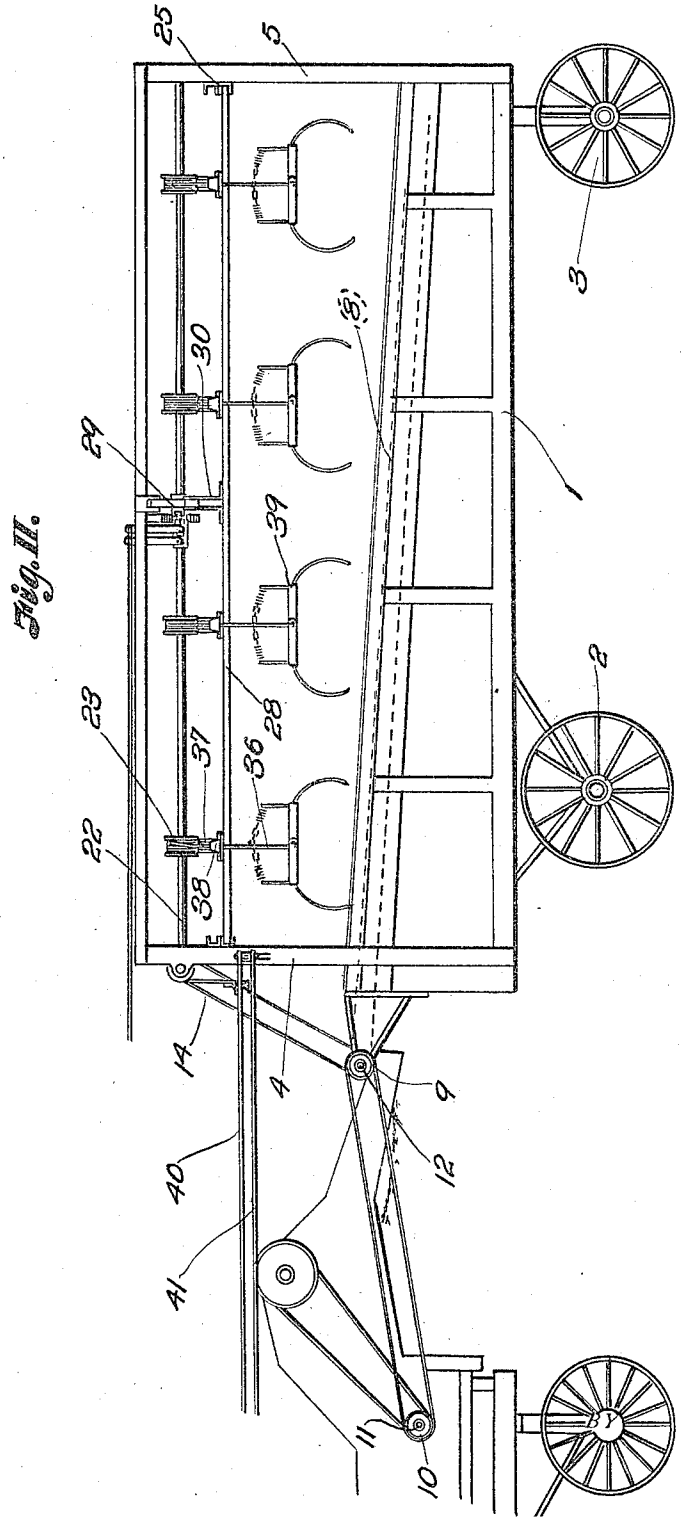


Fig. II.

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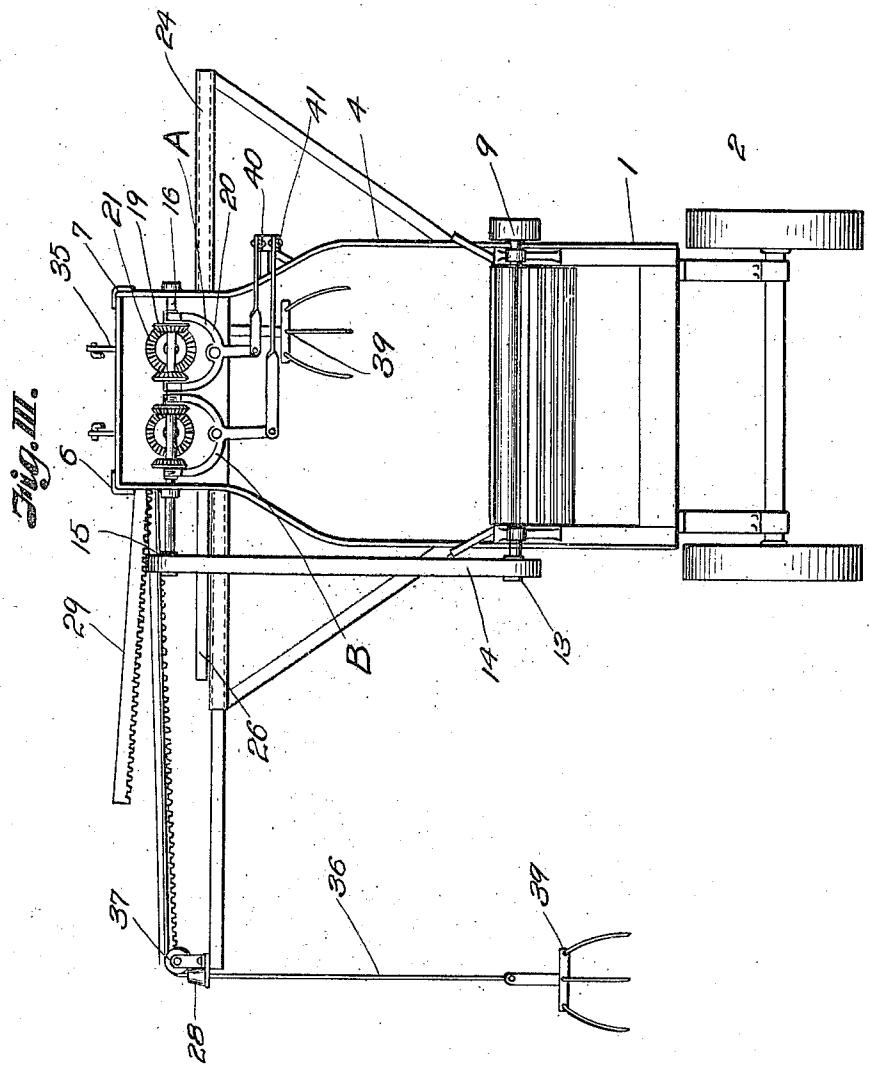


Fig. III.

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4 SHEETS—SHEET 4.

Fig. III.

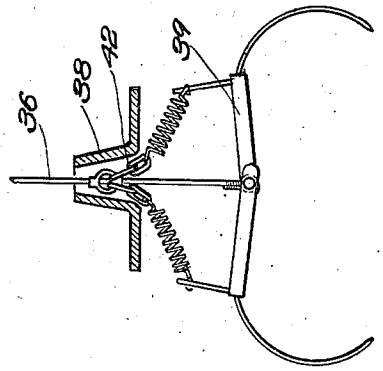


Fig. IV.

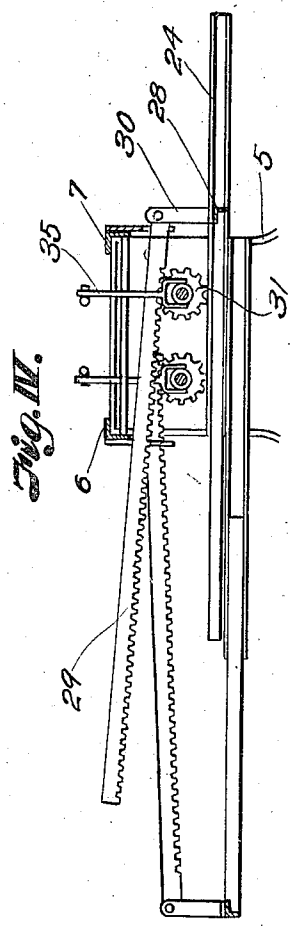


Fig. V.

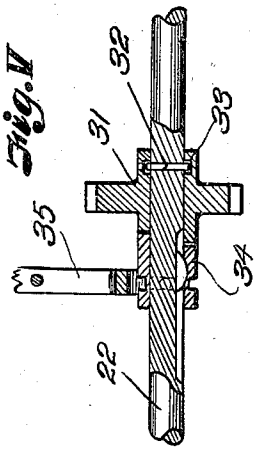
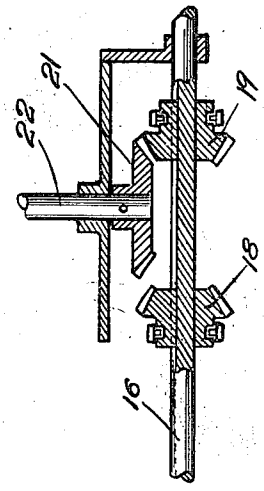


Fig. VI.



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UNITED STATES PATENT OFFICE.

OSCAR C. WELCH, OF BUTLER, MISSOURI.

GRAIN-PITCHER.

1,294,212. Specification of Letters Patent. Patented Feb. 11, 1919.

Application filed July 6, 1918. Serial No. 243,676.

To all whom it may concern:

Be it known that I, OSCAR C. WELCH, a citizen of the United States, residing at Butler, in the county of Bates and State of Missouri, have invented certain new and useful Improvements in Grain-Pitchers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to an automatic grain pitcher for separators, and one of the objects of the invention is to provide means whereby the grain may be transferred from a pile or stack to the conveyer of the separator or threshing machine.

Another object of the invention is to provide means whereby piles of grain may be alternately operated upon from opposite sides of the machine.

It is also the object of my invention to transfer the grain from the ground to the conveyer or threshing machine in such quantities in substantially continuous feed, so that the separator will be most efficiently supplied.

Other objects of the invention will appear hereinafter, it being understood that the changes in form, proportion and details of structure may be made without departing from the spirit of the invention or sacrificing any of its advantages.

In the drawings:

Figure I is a perspective view of a pitcher constructed in accordance with my invention.

Fig. II is a side elevational view of a pitcher connected to a separator.

Fig. III is an end view of the pitcher.

Fig. IV is a detail view of the shifting frame.

Fig. V is a sectional view through the shaft and the frame actuating gear.

Fig. VI is a sectional view through the shifting gear for reversing movement of the shifting frame.

Fig. VII is a detail view of the grain elevating forks.

Referring now to the drawings by numerals of reference:

1 designates the body portion of the pitching machine supported upon pairs of suitable ground wheels 2 and 3. At the respective ends of the body 1 are upstanding yokes 4 and 5 substantially bow shaped and connected at the upper ends by angle irons 6 and 7 whereby a rigid frame is provided.

On the body 1 is a conveyer 8, the endless belt of which is driven by a pulley 9, receiving motion from the pulley 10 on the cylinder shaft 11 of the thresher or separator. The shaft 12 on which the pulley is mounted carries a pulley 13 around which passes a belt 14 communicating motion to a pulley 15 on a transversely arranged shaft 16 mounted in the upstanding frame 4.

The shaft 16 is splined and carries sliding beveled gears 18 and 19 adapted to operate in unison through the medium of gear shifting yokes 20 whereby when one of the gears 18 or 19 is in mesh with the intermediate bevel gear 21, the other will be out of mesh therewith and vice-versa. The intermediate gear 21 is rigid on the shaft 22 which carries the winding spools 23 on which are fork-carrying cables to be described hereinafter.

There are two sets of shifting gears, best shown in Fig. III, the one on the right being designated "A" and the one on the left being designated "B." These gear sets operate duplicate mechanism, one from one side of the machine and one from the other. I will proceed to describe the mechanism for the right hand side of the machine, it being understood that the mechanism on the left hand side is simply a duplicate of this.

Carried by the end yokes 4 and 5 are channel irons 24 and 25 consisting of horizontal guides for the transfer frame shown as consisting of the two end rods 26 and 27 and the longitudinal beam or bar 28. The end rods are adapted to slide in their guides and motion in a transverse direction is imparted to the frame from a rack 29 pivotally connected to the bar 28 at 30, rack bar 29 meshing with a gear 31 on the shaft 22. The gear 31 is best shown in Fig. V as being loose on the shaft 22 so that said shaft 22 may have a rotative movement independent of the gear 31, but the gear 31 is shown as being held against longitudinal movement with respect to the longitudinal shaft 22 by the pin 32 passing through the shaft and engaging a recess 33 in the gear flange.

The gear 31 is adapted to be locked to the

shaft 22 by a clutch member 34 splined on the shaft 22 and having an end clutch face for engagement with a similar clutch face on the gear 31. The clutch member 34 may be operated by a lever mechanism 35 extending over to the separator.

Wound on the spools 23 are the cables 36, there being a number of cables equal to the number of forks on the slings. Each cable is shown as passing over an idler 37 and through a releasing socket 38 (see Fig. VII) and has its free end engaged with a fork or sling 39 of well known construction. When it is desired to operate the machine, one of the rods 40 or 41 connected to the yokes 20 may be given a longitudinal movement with the result that either the gear 18 or gear 19 will come in mesh with the gear 21. It will be assumed that the gear 19 is in mesh with gear 21 and that shaft 16 is being driven through the belt and pulley connection with the separator. The clutch 34 may be operated to lock shaft 32 to gear 31 (see Fig. V) so if shaft 22 is rotated clock-wise the shifting frame will be extended outwardly because the gears mesh with racks 29 and because rods 26 slide in horizontal guides, as shown. At the same time that the frame is moved outwardly, the cables 36 are unwound from the spools 23 and the forks are moved into engagement with the grain. When they have reached the point desired, the gears 18 and 19 are shifted so as to cause the spools 23 to wind the cables 36, the weight of the grain causing the forks to close thereupon so that the grain will be raised above the level of the conveyer 8. The reverse movement imparted to shaft 22 will cause the shifting frame to move inwardly until the forks are over the conveyer 8. At this time the chains 42 of the forks will have moved up into the release sockets 38 so that the forks will be sprung apart in a manner well known in devices of this class and the grain will be deposited or dropped upon the conveyer 8, whence it will be carried to the conveyer of the separator.

It is recognized that the pile of grain may vary in width and it may be necessary to arrest the outward movement of the frame while permitting the cables 36 to continue to play out. When this is desirable, the lever mechanism 35 may be operated to release the gear 31 from rigid engagement with the shaft 22 so that further outward movement of the frame will be prevented, but the cables will continue to play out so that the tines of the forks may embed themselves into the grain. On the reverse movement the cables 36 will be permitted to begin winding on the spools 23 before the gears 31 are clutched to the shaft 22 so as to provide for the difference in time between the shifting of the frame and the winding on the spools when the frames are not extended.

Where two sets of frames are employed, those on the "A" side of the machine will be extended outwardly while those on the "B" side of the machine are being retracted or drawn to the center of the conveyer 8. These frames will operate alternately outwardly and inwardly, so that the feed of the grain to the conveyer 8 will be substantially continuous.

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

1. A grain pitcher comprising a frame, a transversely slidable grain-supporting frame carried by the first named frame and having a longitudinal side bar, grain forks, cables running over the side bar and fork release sockets on the side bar through which the cables run, means for alternately moving the slidable frame in opposite directions, and means for winding and unwinding the cables.

2. A grain pitcher comprising a supporting frame, transversely slidable frames carried by the supporting frame, grain forks carried by the sliding frames, and having winding cables connected thereto, and means for winding the cables and sliding the frames in one direction and unwinding the cables and sliding the frames in an opposite direction.

3. In a grain pitcher, horizontally shiftable frames, winding shafts adjacent to said frames, means for operating the said winding shafts, grain forks having cables passing over said frames and connected to said winding shafts and means for shifting the frames when the winding shafts are rotated.

4. In a grain pitcher, horizontally shiftable frames, winding shafts adjacent to said frames, means for operating the said winding shafts, grain forks having cables passing over said frames and connected to said winding shafts, means for shifting the frames when the winding shafts are rotated and reversing clutches between said operating means and the winding shafts.

5. A grain pitcher comprising a base, a frame on said base consisting of up-standing yokes and longitudinal connecting bars, guides on said yokes, laterally shifting frames in said guides, longitudinal shafts carried by the yokes, a rack and pinion connections between said frames and said shaft, cables connected to said shafts and passing over the edges of the shifting frames and grain forks on the free ends of said cables.

6. In a grain pitcher, a supporting frame, shiftable grain fork carrying frames on the supporting frame, drive shafts, pinions on said drive shafts, racks connected to the shifting frames for engagement with the pinions and means for permitting the drive

shafts to operate without operating the pinions, said means being effective to connect the pinions and drive shafts together.

7. A grain pitcher comprising a supporting frame, shiftable laterally movable frames carried by the supporting frame, a winding shaft, grain forks having flexible connection with said winding shaft, said flexible connection extending over the edges of the shiftable frames and means on the shiftable frames for opening said grain forks to release the grain.

8. In a grain pitcher, a base, a longitudinally movable endless carrier supported by said base, laterally shifting frames supported above the carrier, grain forks, flexible supporting means for said forks extending over the edges of the shiftable frames and means for opening the forks when said forks assume certain relative positions with respect to the frames.

In testimony whereof I affix my signature.

OSCAR C. WELCH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."