

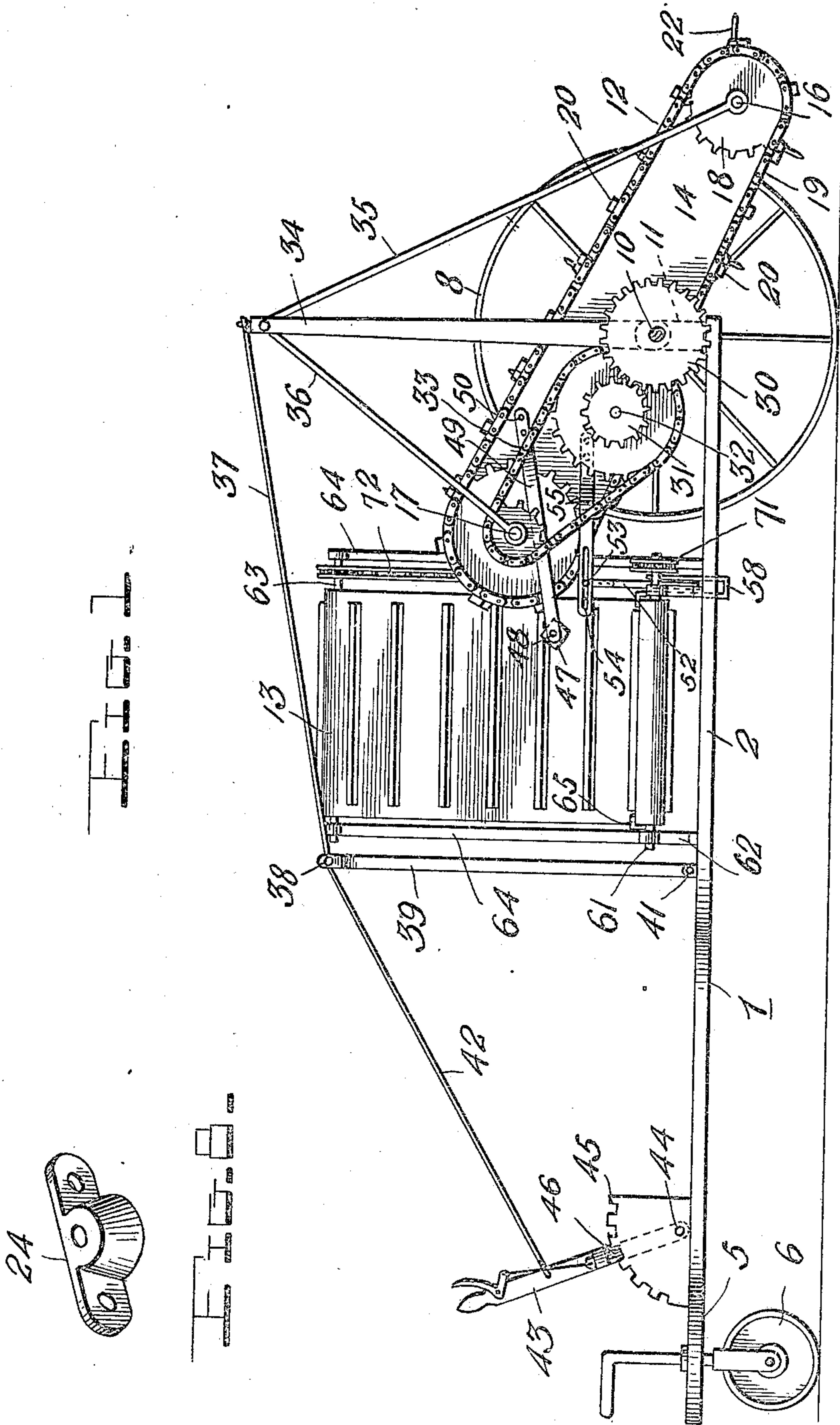
958,090.

F. BURK.  
SHOCK LOADER.

APPLICATION FILED MAY 4, 1909.

Patented May 17, 1910.

4 SHEETS—SHEET 1.



Inventor

Witnesses

Chas. R. Griesbauer.  
E. M. Ricketts

Frank Burk

By Watson & Coleman  
Attorney

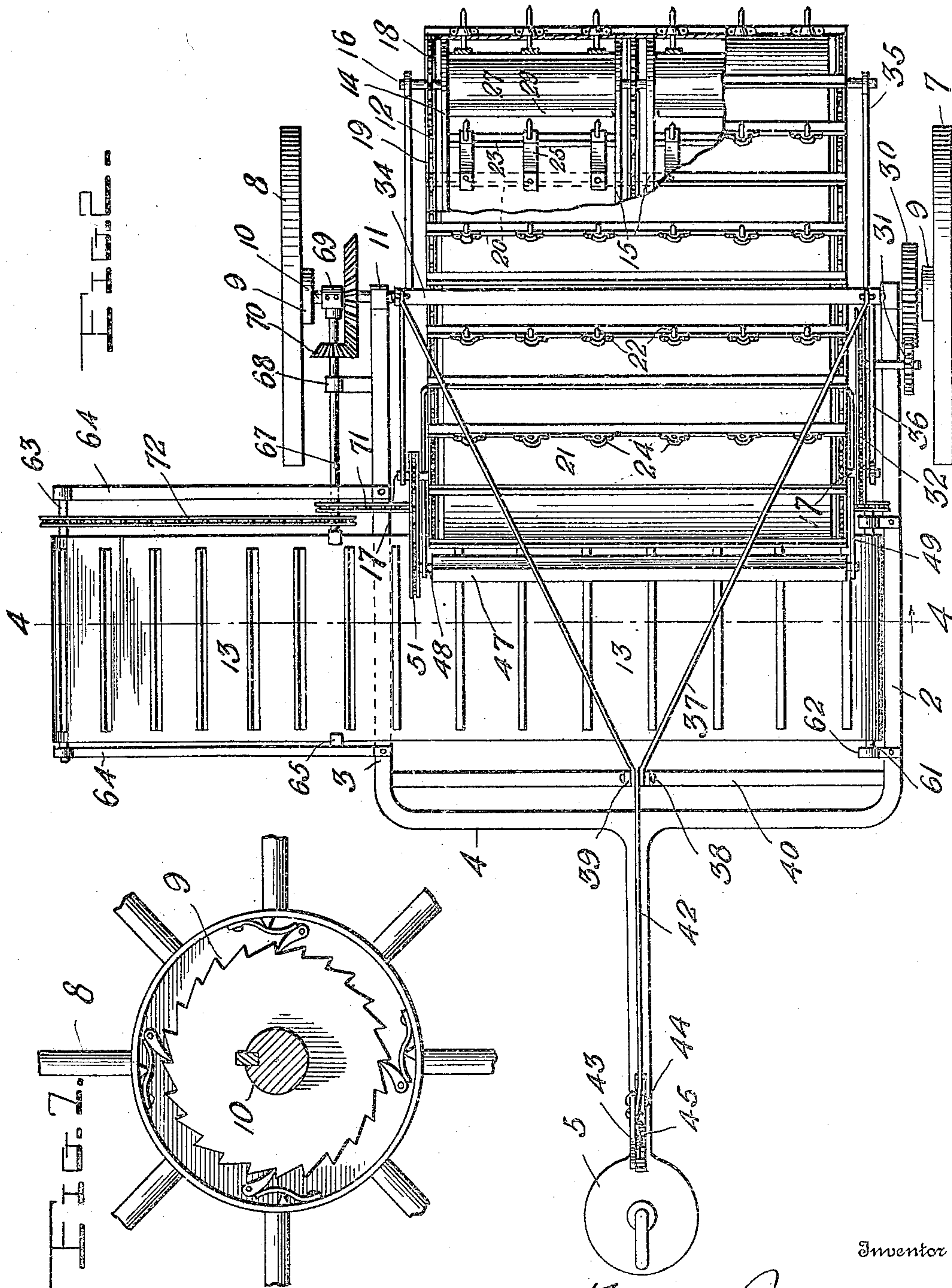
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Chas. L. Griesbauer.  
& M. Ricketts.

Frank Burk

By Watson & Coleman  
Attorneys

Inventor



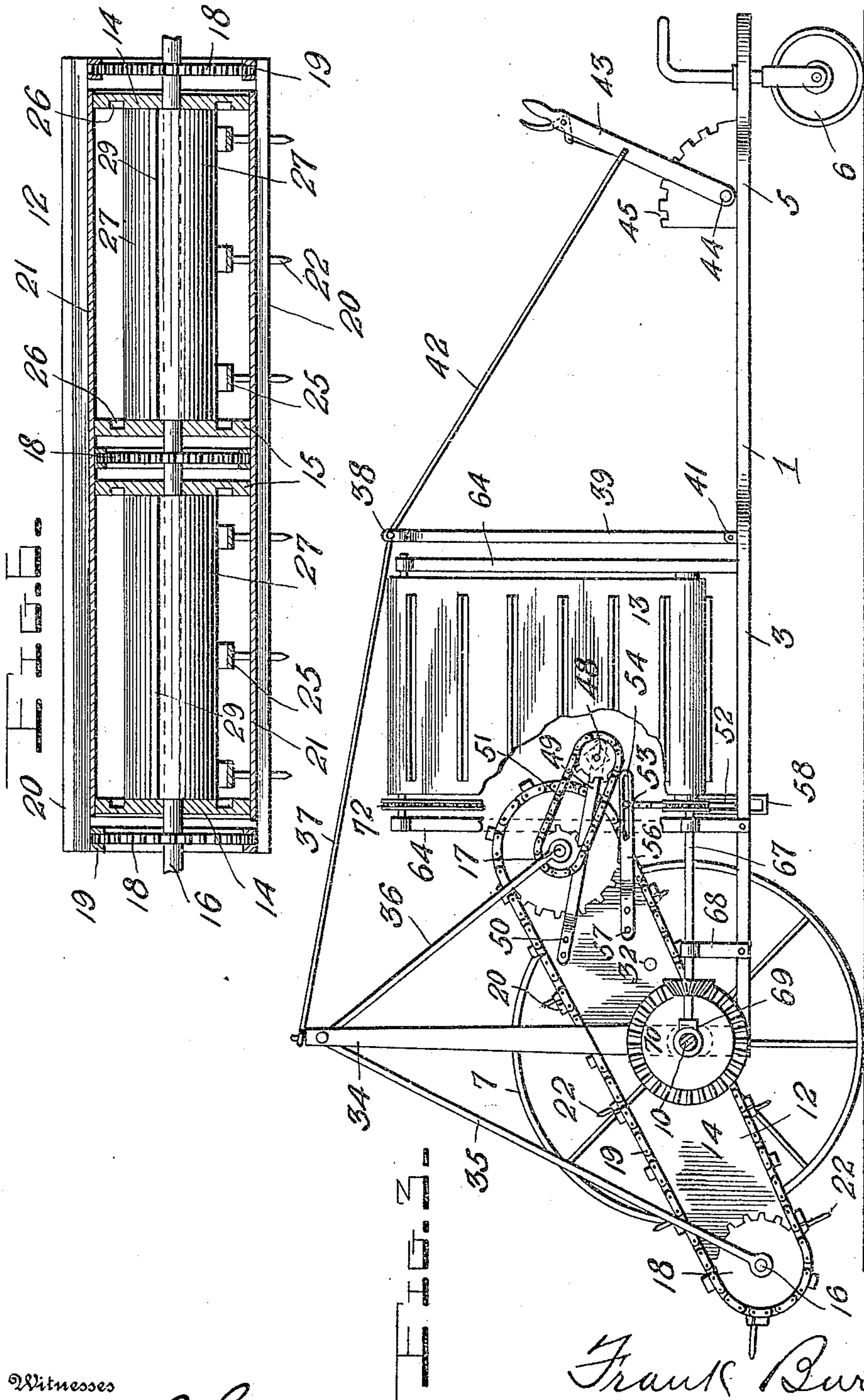
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Frank Burk

Watson E. Coleman  
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Fig. 4.

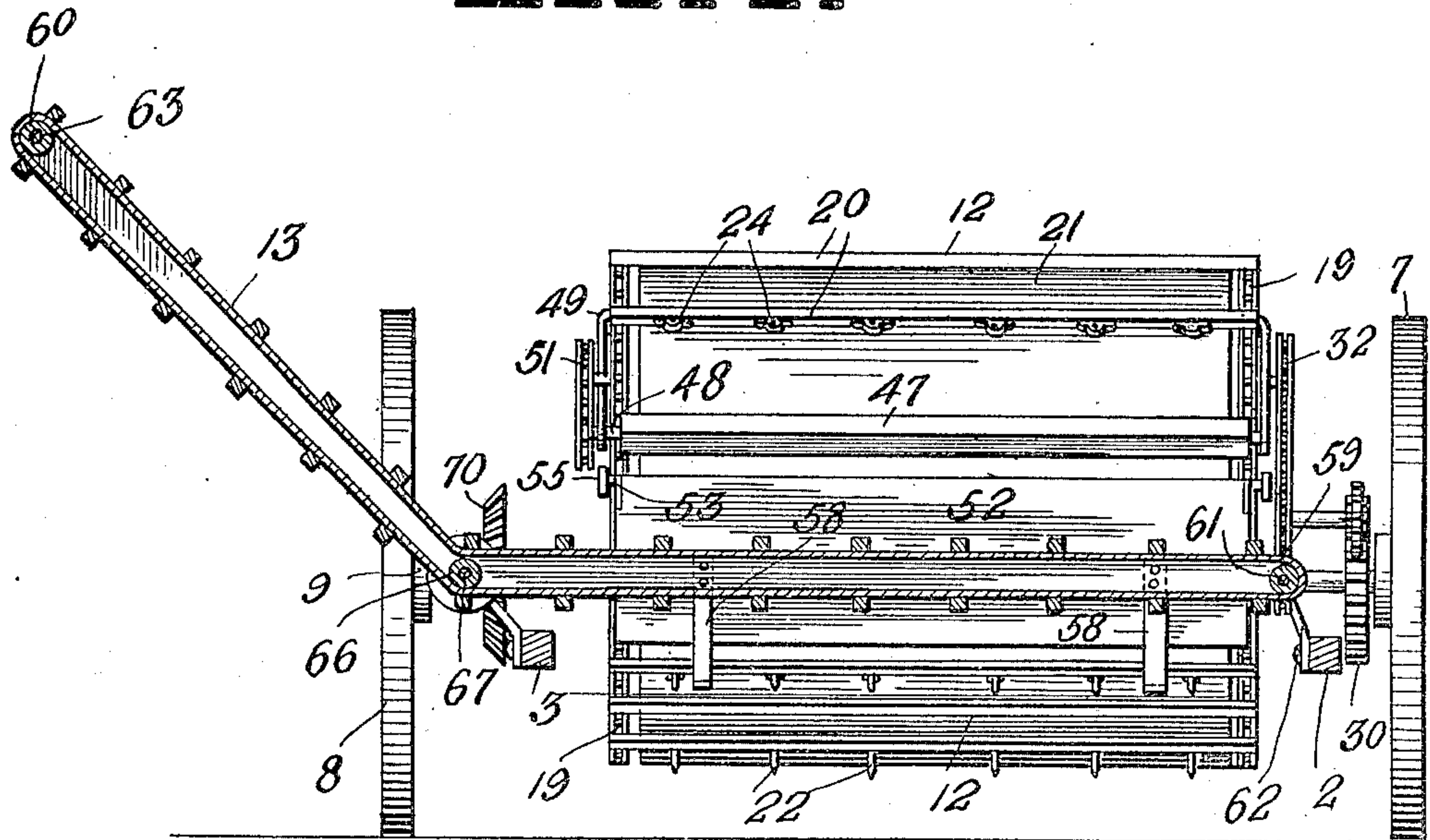
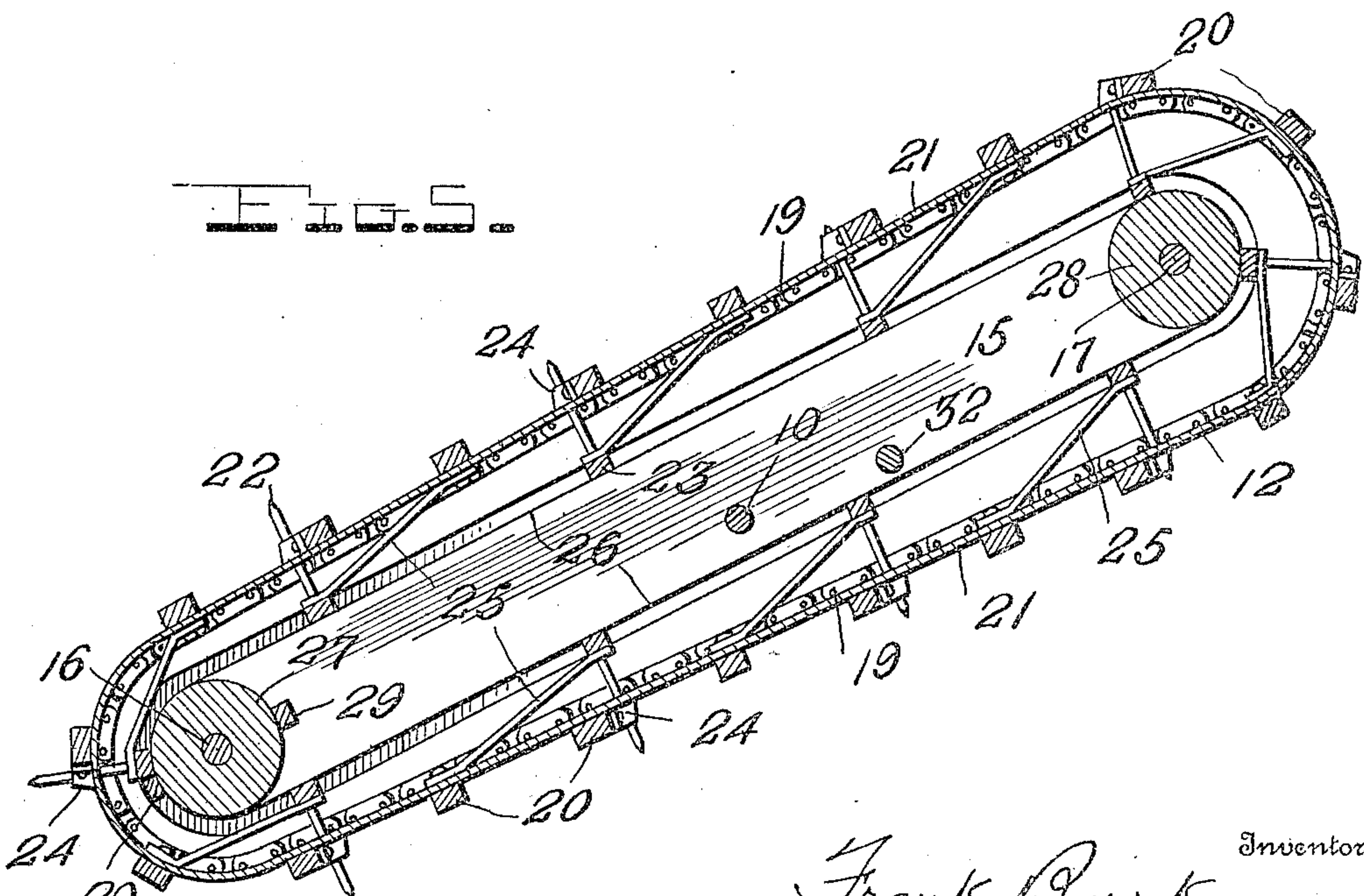


Fig. 5.



Witnesses

Chas. L. Griebauer,  
E. M. Ricketts

Frank Burk

Inventor

Watson & Coleman

Attorney



# UNITED STATES PATENT OFFICE.

FRANK BURK, OF McHENRY, NORTH DAKOTA.

## SHOCK-LOADER.

958,090.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed May 4, 1909. Serial No. 493,895.

*To all whom it may concern:*

Be it known that I, FRANK BURK, a citizen of the United States, residing at McHenry, in the county of Foster and State of North Dakota, have invented certain new and useful Improvements in Shock-Loaders, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in shock loaders.

The principal object of the invention is to provide a simple and practical machine which will pick up shocks, bundles of grain and the like and discharge them into a wagon drawn alongside of the machine.

Further objects of the invention are to provide an improved means for picking up the shocks, an improved means for adjusting the shock lifting means, and an improved means for directing the shocks upon the discharge conveyer or elevator.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the right hand side of the machine with the supporting and drive wheel on the near side removed and the axle in cross section; Fig. 2 is a top plan view with parts broken away and in section; Fig. 3 is a view similar to Fig. 1 of the left hand side of the machine, parts being also broken away; Fig. 4 is a sectional view taken on the plane indicated by the line 4—4 in Fig. 2; Fig. 5 is an enlarged longitudinal section through the conveyer or elevator for picking up the shocks; Fig. 6 is a transverse sectional view through the same; Fig. 7 is a detail view showing the pawl and ratchet connection between the axle and one of the supporting and drive wheels; and Fig. 8 is a detail perspective of one of the guides for the pins or teeth of the shock lifting conveyer.

The invention comprises a main frame 1 which, preferably, consists of side beams 2, 3 united by a cross beam 4, from which latter projects a rearwardly extending beam 5. A caster wheel 6 suitably mounted on the rear portion of the beam 5 supports the rear end of the frame while the front end of the same is supported by two supporting and drive wheels 7, 8. The latter are con-

nected by a pawl and ratchet device 9, such as shown in Fig. 7, to a transverse shaft 10 which forms the axle and which is rotatably mounted in upright bearing posts 11 on the forward ends of the side bars or beams 2, 3.

Mounted in the forward portion of the main frame is an upwardly and rearwardly inclined endless conveyer or elevator 12 which is of such construction as to pick up the shocks, bundles of grain or the like and deliver them upon a transversely extending endless conveyer or elevator 13, which latter in turn discharges them into a wagon driven alongside of the machine. The elevator 12 is hung from the axle shaft 10 for vertical tilting movement to permit its lower front end to be positioned at different distances from the ground, as will be presently explained. Said elevator 12 preferably consists of a frame having two side plates 14 and two intermediate plates 15, which plates 14, 15 having openings intermediate their ends for the shaft 10 and are united adjacent to their ends by front and rear shafts 16, 17. Upon the center and adjacent to the ends of the shafts 16, 17 are sprocket wheels 18 about which pass three endless sprocket chains 19 united by transverse slats 20, to which latter is secured an apron or band 21 of canvas or other flexible sheet material. To permit the elevator or conveyer 12 to pick up the shocks and then discharge them on the conveyer 13, said elevator 12 is provided with retractable pins or teeth 22. Said pins are carried by cross bars 23 and slide through guides 24 arranged on alternate slats 20 and said cross bars 23 are in turn carried by springs 25 or other yieldable connections which are connected to the slats 20 disposed between those carrying the guides 24.

As illustrated more clearly in Fig. 8 of the drawings, the guides 24 are in the form of castings having central openings to receive the pins 22 and apertured ears by means of which latter they are bolted or otherwise secured to the slats 20.

As illustrated more clearly in Fig. 5 of the drawings, the connections 25 are in the form of leaf springs, each of which has one end secured to one of the cross bars 23 and its other end to one of the slats 20 so that the cross bars 23 may move toward and from the canvas apron or belt 21 and thereby permit the pins 22 to slide through the guides 24. In order that the pins 22 will be projected at



the lower front portion of the elevator or conveyer 12 to effectively pick up the shocks and then be retracted at the upper rear or discharge end of the same, such upper rear end is made of greater thickness than the lower front end and guide grooves 26 are formed in the opposing faces of the plates 14, 15 for the reception of the ends of the cross bars 23, which latter, it will be noted, are drawn around with the elevator. The guide grooves 26 have straight parallel portions and rounded or semi-circular end portions and, owing to the increase in thickness or diameter of the upper end of the elevator, the pins 22 will be caused to be retracted at such end and, consequently, projected at the lower end, as will be readily understood on reference to Fig. 5. To more effectively guide the cross bars 23 at the curved ends of the guide grooves 26, rollers 27, 28 are provided on the shafts 16, 17 between the plates 14, 15. The rollers 27 upon the lower shafts 16 are provided with cross bars or cleats 29 adapted to engage the cross bars 23 and remove strain from the parts at the lower end of the elevator when the projected pins 22 enter the shock and pick up the same.

The elevator or conveyer 12 is driven from the shaft 10, preferably, by fixing to the latter a gear 30 which meshes with a pinion or gear 31 on a transverse shaft 32. This shaft is journaled in bearings in the plates 14, 15 of the frame of the elevator 12 and has one of its ends connected by sprocket chain gearing 33 to the upper shaft 17. By arranging the gearing in this manner, it will be noted that the elevator will be free to tilt vertically to raise or lower its front end.

The vertical adjustment of the elevator 12 is preferably effected by swinging it from the shaft 10 and connecting it to an upright frame consisting of a U-shaped member 34 having side bars pivotally mounted on the shaft 10 and connected by diagonal braces 35, 36; to the shafts 16, 17. The upper cross portion of the U-shaped frame member 34 is connected to two rearwardly diverging links 37, which latter are in turn pivotally connected at 38 to a forwardly and rearwardly swinging upright 39. This upright 39 is pivoted at its lower end to spaced apertured ears 41 on a cross bar 40 which is mounted between the side beams 2 and 3. Also connected to the pivot 38 is a link 42 the rear end of which is connected to a hand lever 43 pivoted at its lower end at 44 concentric with a segmental locking rack 45 for a retractable pawl 46 arranged on said hand lever. It will be seen that when the pawl or dog 46 is retracted and the lever 43 moved in a forward or rearward direction, the upright 39 and frame member 34 will be moved in a similar direction and the elevator or conveyer 12 will be thereby tilted to raise or lower its front end.

For the purpose of insuring the discharge of the shocks or bundles from the elevated rear end of the elevator 12 onto the conveyer or elevator 13, a rotary beater 47 is preferably provided at rear end of the elevator 12. Said beater is here shown in the form of a flat faced bar arranged on a transverse shaft 48 journaled in the rear ends of bearing brackets 49, the front ends of which latter are offset and secured at 50 to the outer faces of the side plates 14 of the frame of the elevator 12. One end of the shaft 48 is connected by a sprocket chain gearing 51 to the upper shaft 17 of the elevator 12, whereby the movement of the latter will be imparted to the beater, as will be readily understood on reference to Figs. 1 and 3 of the drawings.

To prevent any grain from being blown by a strong wind under the discharge end of the elevator 12 and off of the conveyer or elevator 13, an adjustable guard or shield 52 is provided. This guard is preferably in the form of a board arranged transversely beneath the upper discharge end of the elevator 12 and having at its upper corners pivots 53 which rotate and slide in longitudinal slots 54 formed in the rear ends of hanger straps 55, which latter have their offset front ends secured, as indicated at 57, to the plates 14. Owing to the construction just described, it will be seen that the guard board 52 is carried by the frame of the elevator 12 and vertically movable with the same; and in order to guide said guard board in its sliding movement and prevent it from swinging, its lower end is mounted in U-shaped guide brackets 58 carried by the frame of the conveyer 13, as shown more clearly in Fig. 1 of the drawings.

The transverse or rear conveyer 13 has a horizontal portion disposed immediately in rear of the elevator or conveyer 12 and an upwardly and outwardly inclined side portion which elevates the shocks or bundles and discharges them onto a wagon or other vehicle. Said conveyer 13 is preferably in the form of a slatted belt of canvas or the like passed around two driving rollers 59, 60. The roller 59 is fixed to a transverse shaft 61 journaled in bearings 62 on the side beam 2, while the roller 60 is fixed to a transverse shaft 63 journaled in bearings in the side bars 64 of an upwardly and outwardly inclined frame connected to the side beam 3. The intermediate portion of the conveyer 13 has its upper stretch passing under suitable guides 65 while its lower stretch passes over a transverse roller 66 fixed to a forwardly and rearwardly extending shaft 67. The front end of this shaft is journaled in bearings 68, 69, the latter of which is arranged on the axle or shaft 10, and said front end of the shaft 67 is connected by beveled gearing 70 to the shaft 10 so that



the movement of the latter will be imparted to the shaft 67. The movement of the shaft 67 is imparted by means of sprocket chain gearing 71, 72 to the shafts 61, 63 of the rollers 59, 60, respectively. It will be seen, therefore, that the conveyer 13 will be driven from the shaft or axle 10 and that both of its ends will be driven.

In operation, the machine may be propelled by a motor or draft animals may be attached to suitable draft connections on the rear beam 5 so that such animals will push the machine forwardly. As it is propelled in a forward direction, motion will be imparted to the two elevators by the gearing above described and the elevator 12 will pick up the shocks or bundles of grain and drop the same upon the conveyer or elevator 13, which latter in turn will discharge them into a wagon or other vehicle driven alongside of the machine. By means of the lever 43, the front elevator 12 may be raised or lowered and secured in any adjusted position according to the size and condition of the shocks or bundles to be picked up.

While the preferred embodiment of the invention has been shown and described in detail, it will be understood that various changes in the form, proportion and arrangement of parts and in the details of construction may be resorted to within the spirit and scope of the invention.

Having thus described the invention what is claimed is:

1. In a machine of the character described; the combination of a wheel supported main frame, an upwardly and rearwardly inclined elevator frame, the latter including connected side plates pivoted intermediate their ends, an endless elevator upon the last mentioned frame, means for vertically adjusting the lower front end of the elevator frame, a transverse conveyer arranged upon the main frame beneath the discharge end of the elevator, an upright guard frame hung from and movable with the rear portions of the side plates of the elevator frame, rearwardly projecting brackets upon the side plates of the elevator frame, a horizontally disposed rectangular beater bar journaled in said brackets and arranged in rear of the elevator and said guard frame, means for actuating the conveyer, elevator and beater bar.

2. In a machine of the character described, a main frame having spaced forwardly projecting side beams united by a rear connecting beam, and a rearwardly extending central beam projecting from the center of said connecting beam, a caster wheel carried by said rearwardly projecting central beam, a transverse shaft journaled upon the forward ends of the spaced side beams, supporting and driving wheels upon said shaft, a transverse conveyer arranged

upon the main frame, a downwardly and forwardly inclined elevator frame having side plates pivoted intermediate their ends upon said shaft, an endless elevator upon the last mentioned frame, an inverted U-shaped member having depending arms pivoted to said shaft, braces between said U-shaped member and the side plates of the elevator frame, an upright pivoted at its lower end upon the main frame, a link connecting the upper end of the upright to the U-shaped member, a hand lever pivoted upon the rearwardly projecting central beam of the main frame, a link connecting said hand lever to the top of said upright, and means for driving the conveyer and elevator from said supporting and driving wheels, and a pawl and rack locking means for said hand lever.

3. In a machine of the character described, the combination of a wheel supported main frame, an upwardly and rearwardly inclined elevator, means for vertically adjusting the lower front end of the same, a transverse conveyer arranged beneath the discharge end of the elevator, a vertically adjustable guard hung from the elevated rear portion of the elevator, means for guiding said guard and means for driving said elevator and conveyer.

4. In a machine of the character described, the combination of a wheel supported main frame, a vertically swinging elevator frame, an endless elevator on the last mentioned frame, means for driving said elevator, a discharge conveyer arranged beneath the discharge end of the elevator, means for driving said conveyer, slotted supporting arms upon the elevator frame, a vertically disposed guard member having at its upper end pivots to rotate and slide in said slotted arms, upright guides to receive the lower end of said guard, and means for adjusting said elevator frame.

5. In a machine of the character described, a main frame having spaced forwardly projecting side beams united by a rear connecting beam, and a rearwardly extending central beam projecting from the center of said connecting beam, a caster wheel carried by said rearwardly extending central beam, a transverse shaft journaled upon the forward ends of the spaced side beams, supporting and driving wheels upon said shaft, a transverse conveyer arranged upon the main frame, a downwardly and forwardly inclined elevator frame having side plates pivoted intermediate their ends upon said shaft, and an endless elevator upon the last mentioned frame, an inverted U-shaped member having depending arms pivoted to said shaft, braces between said U-shaped member and the side plates of the elevator frame, a vertically adjustable guard board hung from the rear portions of the



side plates of the elevator frame, means upon the main frame for guiding said guard board, a rotary beater bar hung from the side plates of the elevator frame and disposed in rear of the elevator, means for driving the beater bar from the elevator, means for driving said elevator and conveyer from the supporting drive wheels, an upright pivoted at its lower end to the main frame, a link connecting the top of said elevator to said U-shaped member, a hand lever pivoted upon the rearwardly projecting beam of the main frame, a link connecting said hand lever to the top of said upright, and a locking means for said hand lever.

6. In a machine of the character described, the combination of a wheel supported main frame, an elevator frame having opposing plates provided with guides, shafts journaled in said plates, cylinder rollers upon said shafts, sprocket wheels upon said shafts, sprocket chains engaged with said wheels, cross slats uniting said chains, an elevator apron united to said slats, guides upon certain of said slats, cross bars slidably engaged with the guides in said side plates, links connecting said cross bars to the elevator apron, cleats upon one of said rollers to engage said cross bars and means for driving one of said shafts.

7. In a machine of the character described, the combination of a wheel supported main frame, an elevator frame there-

on and having opposing plates formed with guide grooves, shafts journaled in said plates, rollers upon said shafts, sprocket wheels upon said shafts, sprocket chains engaged with said wheels, cross slats uniting said chains, an elevator apron united to said slats, guides upon certain of said slats, cross bars slidably engaged with the guide grooves in said side plates, resilient links connecting said cross bars to the elevator apron and means for driving one of said shafts.

8. In a machine of the character described, the combination of a wheel supported main frame, an elevator frame thereon and having opposing plates formed with guide grooves, shafts journaled in said plates, rollers upon said shafts, sprocket wheels upon said shafts, sprocket chains engaged with said wheels, cross slats uniting said chains, an elevator apron united to said slats, guides upon certain of said slats, cross bars slidably engaged with the guide grooves in said side plates, resilient links connecting said cross bars to the elevator apron, cleats upon one of said rollers to engage said cross bars and means for driving one of said shafts.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

FRANK BURK.

Witnesses:

W. H. NIEMEYER,  
A. E. RAEBEL.