

No. 720,214.

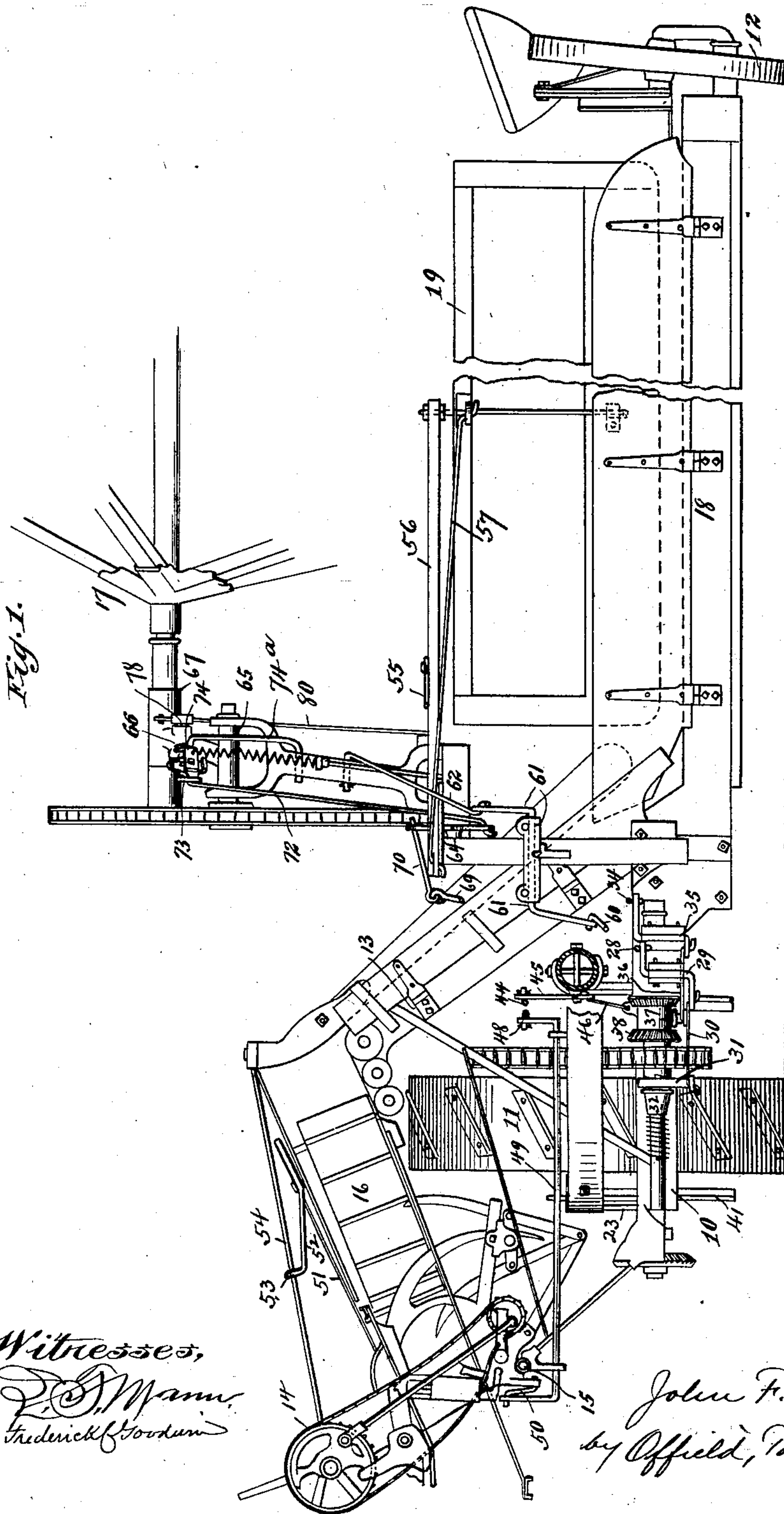
PATENTED FEB. 10, 1903.

J. F. APPLEBY.
HARVESTER.

APPLICATION FILED MAY 15, 1899.

NO MODEL.

4 SHEETS—SHEET 1.



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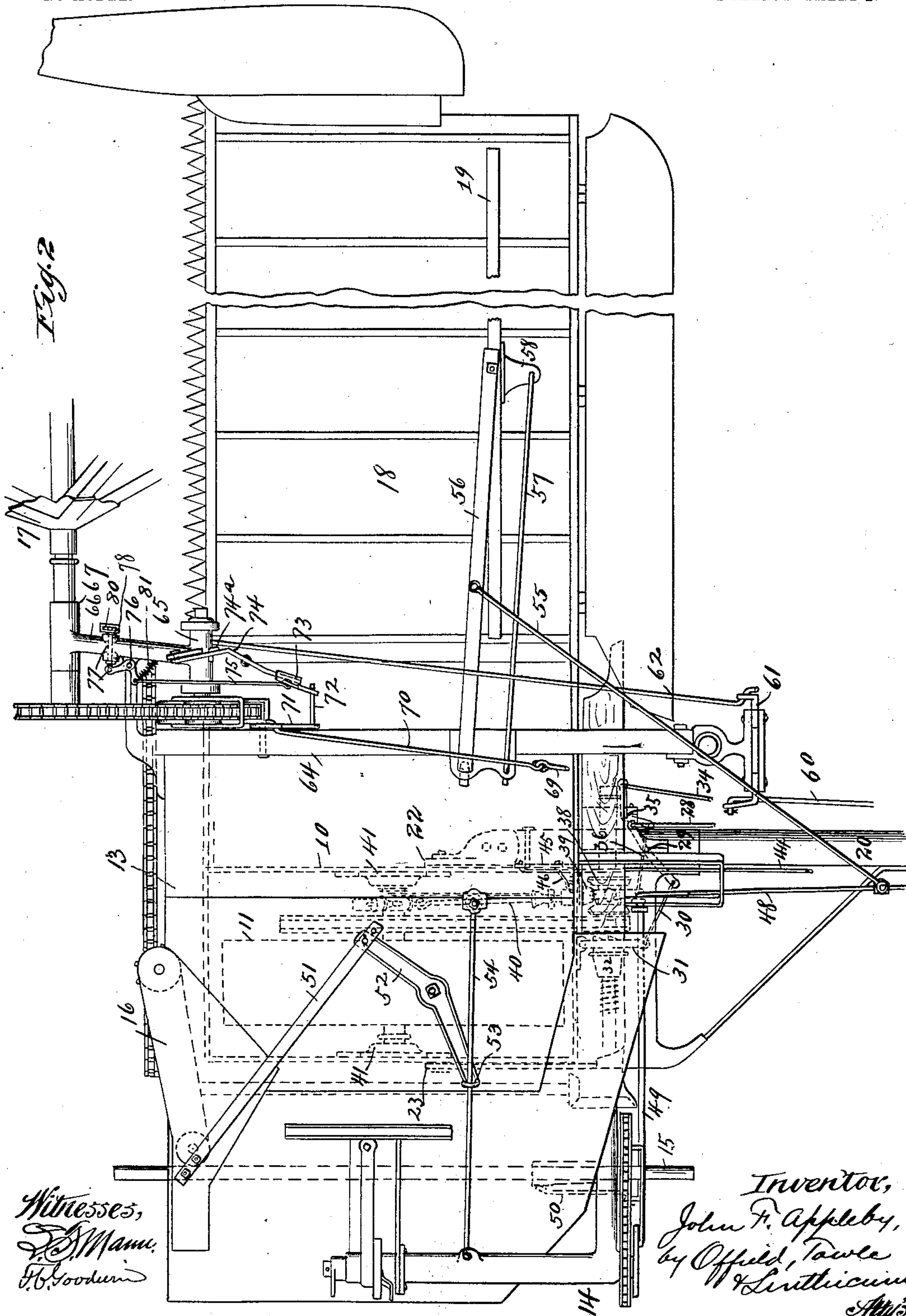
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4 SHEETS—SHEET 2.



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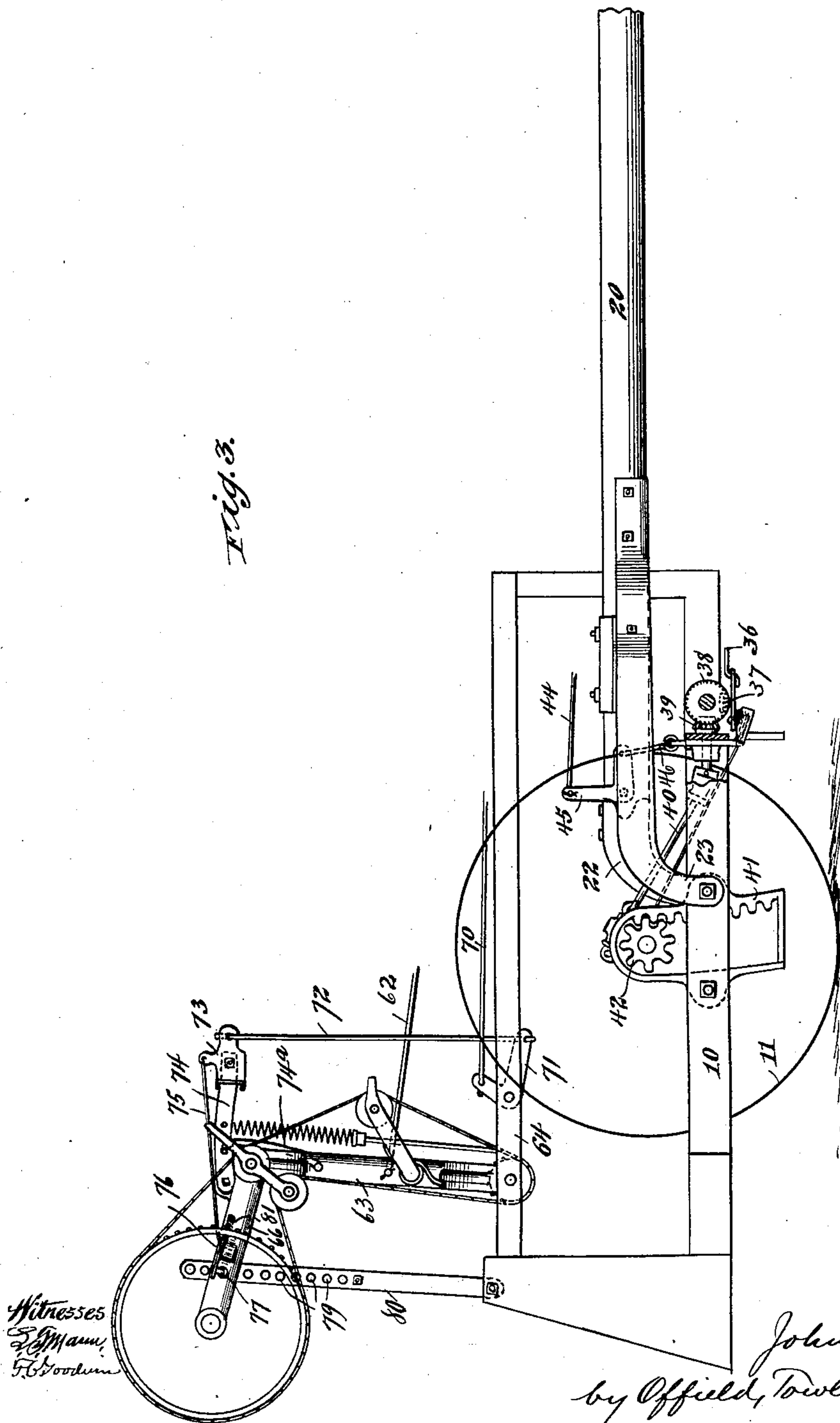
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4 SHEETS—SHEET 3.

Fig. 3.



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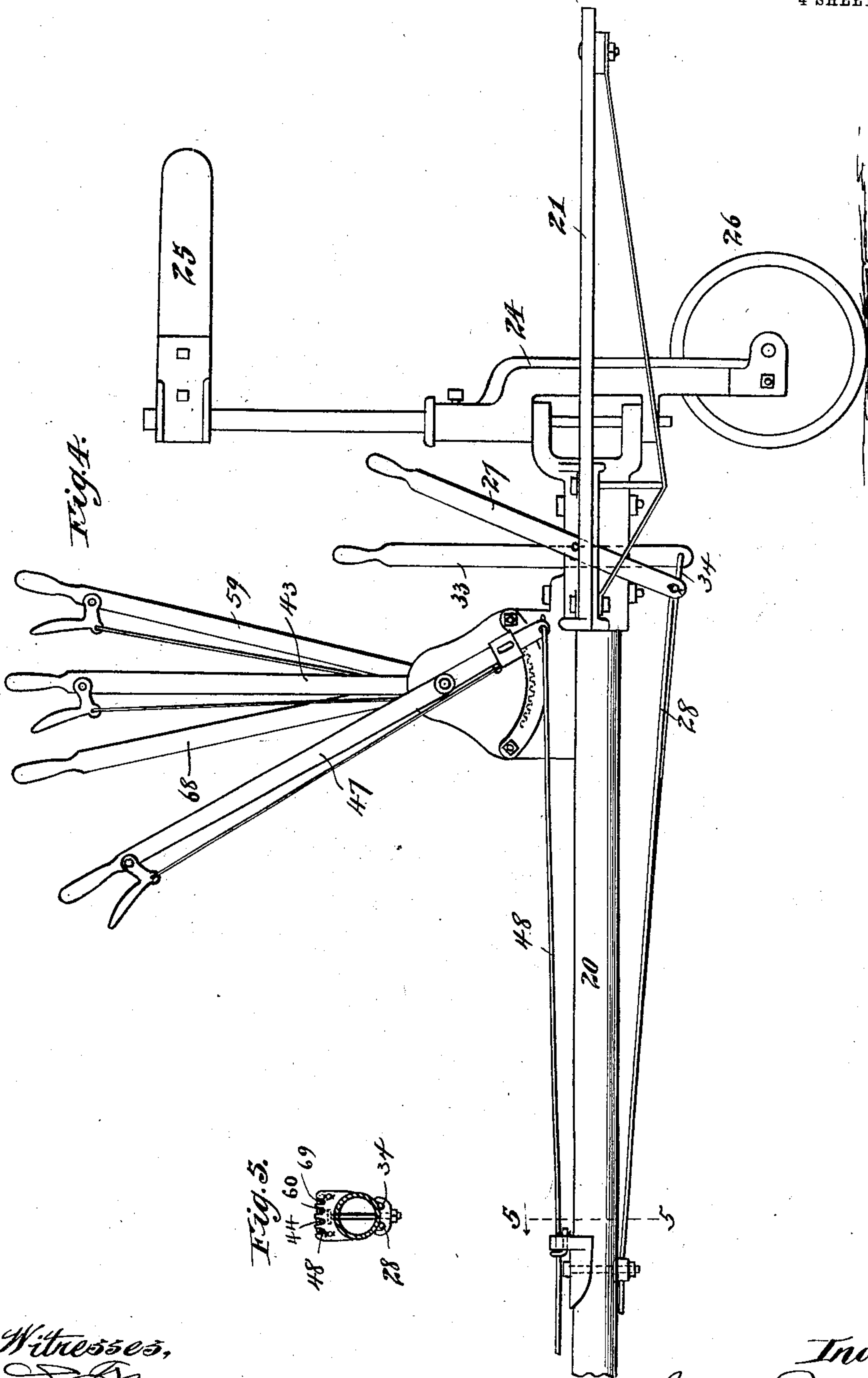
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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HARVESTER.

SPECIFICATION forming part of Letters Patent No. 720,214, dated February 10, 1903.

Application filed May 15, 1899. Serial No. 716,911. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. APPLEBY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Harvesters, of which the following is a specification.

This invention relates to certain improvements in self-binding harvesters of the type wherein the binding mechanism is mounted upon an A-frame balanced over the main ground or driving wheel. Machines of this class have heretofore, so far as I am aware, always been provided with a forwardly-extending tongue or pole, to which the draft-animals are attached.

Self-binding harvesters in which the draft-animals are attached to a push-pole extending rearwardly from the body of the machine are now coming into quite general use, such machines being also constructed to operate as headers—that is, to cut merely the heads from standing grain. Machines of this latter type, in which a push-pole is employed where they have self-binding mechanism, have the binding mechanism and grain-platform arranged in front of the axis of the machine and are usually large machines, cutting twelve feet or more at a swath. There is a demand for a machine intermediate the usual size of self-binder with draft-pole and the large machine of the header type with a push-pole; but machines cutting a swath seven feet or more where the draft-pole is employed create a great deal of side draft, having a tendency to run into the grain.

It is the object of my invention to adapt the push-pole construction to a binder or harvesting-machine of the intermediate size—say cutting a swath of seven or eight feet—and to overcome the objections incident to the draft-pole type of machine arising out of side draft.

In carrying out my invention I construct a harvesting-machine with its binding mechanism and grain-platform arranged, respectively, above and in line with the axis of the main ground-wheel and apply thereto a push-pole connected to the framework of the machine at such point as to overcome effectually all side draft. I also provide numerous adjustments of the operating parts of the ma-

chine—as, for example, tilting mechanism for the grain-platform, gear-shifting mechanism for throwing the sickle into and out of gear, gear-shifting mechanism for raising and lowering the machine from the power exerted by the draft-animals, mechanism for shifting the binder, butter, and grain-board to adapt the machine to long or short grain, and mechanism for raising and lowering the reel and for moving it forward and back. Some of these adjusting mechanisms are novel in their construction and mode of operation as applied to harvesting-machines generally, and all of them are new in their combination and arrangement as applied to this type of machine.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a rear elevation, sectional through the push-pole and adjusting-rods extending therealong, parts broken away and others omitted. Fig. 2 is a plan view of substantially the same parts shown in Fig. 1. Fig. 3 is a side elevation showing particularly the main frame, the reel-frame, and adjusting mechanism connected therewith. Fig. 4 is a side elevation of the rear or platform end of the push-pole, showing the operating-levers and the rods extending forwardly therefrom; and Fig. 5 is a cross-sectional detail of the push-pole on the line 5 5 of Fig. 4, showing the disposition of the operating-rods with reference to the pole.

In the drawings, let 10 represent the main frame, mounted upon the ground-wheel 11 at the binder end and having the small ground-wheel 12 at the grain end.

13 represents the A-frame, carrying the binder mechanism, said frame being mounted over the ground-wheel 11.

14 represents the binder proper, which is mounted to slide upon the binder-frame, its bearing being upon the pipe 15.

16 represents the butter, and 17 the reel, 18 the grain-platform, and 19 a swinging grain-board. The grain-platform, which is connected with the main frame, the binder-head, the butter, the reel, and the grain-board are all adjustable to varying conditions, and all of them can be controlled from the driver's station, which is a platform on the rear end

of the push-pole 20. The push-pole is connected by curved terminal portions 22 and 23 to the main frame on the grain side of the main or ground wheel in such position that it balances the resistance to the forward motion of the machine and obviates side draft. I am enabled to accomplish this in a machine of this type by employing a push-pole, as the latter is connected to the rear side of the main frame and can be located considerably at one side of the main ground-wheel. The driver's platform is marked 21 and has the steering-wheel frame 24, with a tiller-board 25, which is usually manipulated by the knees of the driver and controls the steering-wheel 26. Several levers are provided in front of the driver's platform for controlling the various adjustable parts of the machine.

I will first describe the means for throwing the machine into and out of gear. Said means comprise a lever 27, having the connecting-rod 28, the cranked rock-shaft 29, link 30, and gear-shifter 31, shifting one member 32 of the clutch mechanism. (Not necessary to be particularly described.)

The mechanism for raising and lowering the main frame comprises the lever 33, having the connecting-rod 34, the cranked rock-shaft 35, link 36, and a shifter 37, which operates a double bevel-gear 38 and is adapted to engage a bevel-pinion 39, so as to drive the same in one direction or the other, depending upon the direction of the shifting movement of the gear 38. The pinion 39 is mounted in the frame 10 and drives the rod 40, which by means of worm-gearing (not necessary to be described) operates through the racks 41 and pinions 42 to raise and lower the machine by power derived through the main driving-wheel 11. This construction as to the particular form of gearing is fully described in my Letters Patent No. 601,866, issued April 5, 1898.

The grain-platform is tilted or rocked around the line of the axis of the main drive-wheel through the instrumentality of a lever 43 and connecting-rod 44 and bell-crank 45, pivoted on the push-pole and link 46, connecting one arm of the bell-crank to a lug on the main frame 10, the connection being in the rear of the pivotal axis of the frame, so that the swinging of the lever 43 will rock the frame upon said pivotal axis.

The binder is shifted laterally relatively to the grain-platform, and the butter and grain-board are swung to correspond with the binder-head movement by means of the lever 47, having the connecting-rod 48, connected to a cranked rock-shaft 49, one arm of which is connected by a link 50 to the binder-head frame. The butter 16 has an arm 51, pivotally connected to a walking-beam 52, pivoted to the top of the A-frame and having one end provided with an eye 53, through which passes a rod 54, pivoted at one end to the A-frame and at the other end to the binder-frame. Obviously the movement of the binder back

and forth will correspondingly move one end of the butter, the opposite end of which is pivoted at a fixed point. From the operating-rod 48 a rod 55 extends to an arm or lever 56, which is pivotally connected to the framework of the machine at one end and at the other to the grain-board 19. A parallel bar 57 is also pivoted to the framework of the machine and to a lug 58 on the back of the grain-board. The reciprocation of the rod 48 moves the grain-board 19 forward and back, and the latter will be kept parallel to the sickle by means of the parallel bars or levers 56 57.

The means for shifting the reel forward and back comprises the shift-lever 59 at the driver's platform, having the connecting-rod 60, connected to a crank rock-shaft 61, having a link 62, passing through a yoke-standard 63, pivoted at its lower end on the reel-support bar 64 and embracing the tubular head 65 of a tubular reel-carrying arm 66, having a tubular head 67 for the reel-shaft. The swinging of the lever 59 will swing the reel forward and back to bring it closer to or farther from the sickle. In order to adapt the machine to cut short or lodged grain, the reel preferably has a vertical adjustment, so that it may be raised and lowered. This movement is secured by means of the lever 68, having a connecting-rod 69, with a jointed extension 70 at its forward end connected to one leg of a bell-crank 71, mounted on the support-bar 64. From the other leg of the bell-crank a link 72 extends upwardly and is connected to a block 73, pivoted upon the arm 74, the latter being pivoted at its forward end to the reel-carrying bar 66 in front of the pivot of the latter. A link 74^a connects the arm 74 with the standard. The block 73 has flanges embracing the arm 74 and has a certain amount of play thereon. From a lug on the block 73 a rod 75 extends forward to a bell-crank 76, pivoted at its bend and having its opposite arm connected to a locking-bolt 77, which slides through an aperture in a keeper 78 and is adapted to enter one of the series of holes 79 in the standard 80, the lower end of the standard being pivoted on the framework of the machine. The locking-bolt is normally held in engagement with one of the apertures of the standard by means of the spring 81, which backs up the bell-crank. Assuming that it is desired to raise the reel above the position shown in the drawings and that it is locked, the lever 68 will be thrust forward, drawing the rod 70 backward, rocking the bell-crank 71 and pulling down on the link 72 and rocking the pivoted block 73. The initial movement of the pivoted block will operate, through the rod 75 and bell-crank 76, to withdraw the locking-bolt, and the continued movement of the pivoted block will cause its flanges to engage the arm 74 and thus raise the reel. The locking of the reel at the end of the movement is effected by a quick reverse movement of the lever to a lim-

ited extent. If it be desired to lower the reel, the lever is again moved forward to release the locking mechanism, and then the weight of the reel will cause it to descend, the lever yielding or moving back at a rate corresponding to the rate of movement of the reel, and when the latter has reached the desired position the operator gives an accelerated movement to the lever, which causes the locking-bolt to engage the next aperture reached in its travel.

Obviously many variations may be made in the structural details of the mechanisms hereinabove described, and some of the devices may be used in machines where less than the whole or any combination of the several features are employed. I do not, therefore, limit my invention to the precise details shown and described.

I claim—

1. In a self-binding harvester, the combination with the main frame and the main ground-wheel mounted therein, of a grain-platform and binder-supporting frame so mounted as to rock about the line of the axis of said main ground-wheel, said binder-supporting frame being disposed over and above said main ground-wheel, a push-pole pivotally connected to said main frame in rear of the axis of the main ground-wheel and at one side of the latter and extending rearwardly and provided with a driver's platform, means extending from the driver's platform for rocking the main frame upon its pivotal axis, and other means also extending from the driver's platform for controlling the gearing of the machine, substantially as described.

2. In a self-binding harvester, the combination with the main frame carrying reel mechanism and the main ground-wheel mounted in said main frame, of a grain-platform and binder-supporting frame so mounted as to rock about the line of the axis of said main ground-wheel, said binder-supporting frame being disposed over and above said main ground-wheel, a push-pole pivotally connected to the main frame in rear of its axis of oscillation and at one side of the main ground-wheel and extending rearwardly therefrom and provided with a driver's platform, and means extending from the driver's platform to the main frame, its gearing, the binder and the reel for adjusting the several parts, substantially as described.

3. In a self-binding harvester, the combination with the main ground-wheel, of a grain-platform and binding mechanism arranged to rock about the line of the axis thereof, a binder slidably mounted on the binder-supporting frame, a butter pivotally mounted at one end on said frame and pivotally connected at its opposite end to the binder, an adjustable grain-board suspended over the grain-platform upon parallel bars, an adjusting-rod extending from the driver's platform to the sliding binder, and a link connecting said rod and the parallel moving bars whereby the binder, butter and grain-board may be adjusted simultaneously, as described.

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