No. 701,502. Patented June 3, 1902.

E. A. PECK.

REAPING MACHINE.

(Application filed Apr. 25, 1901.)

(No Model.) 4 Sheets—Sheet 1.

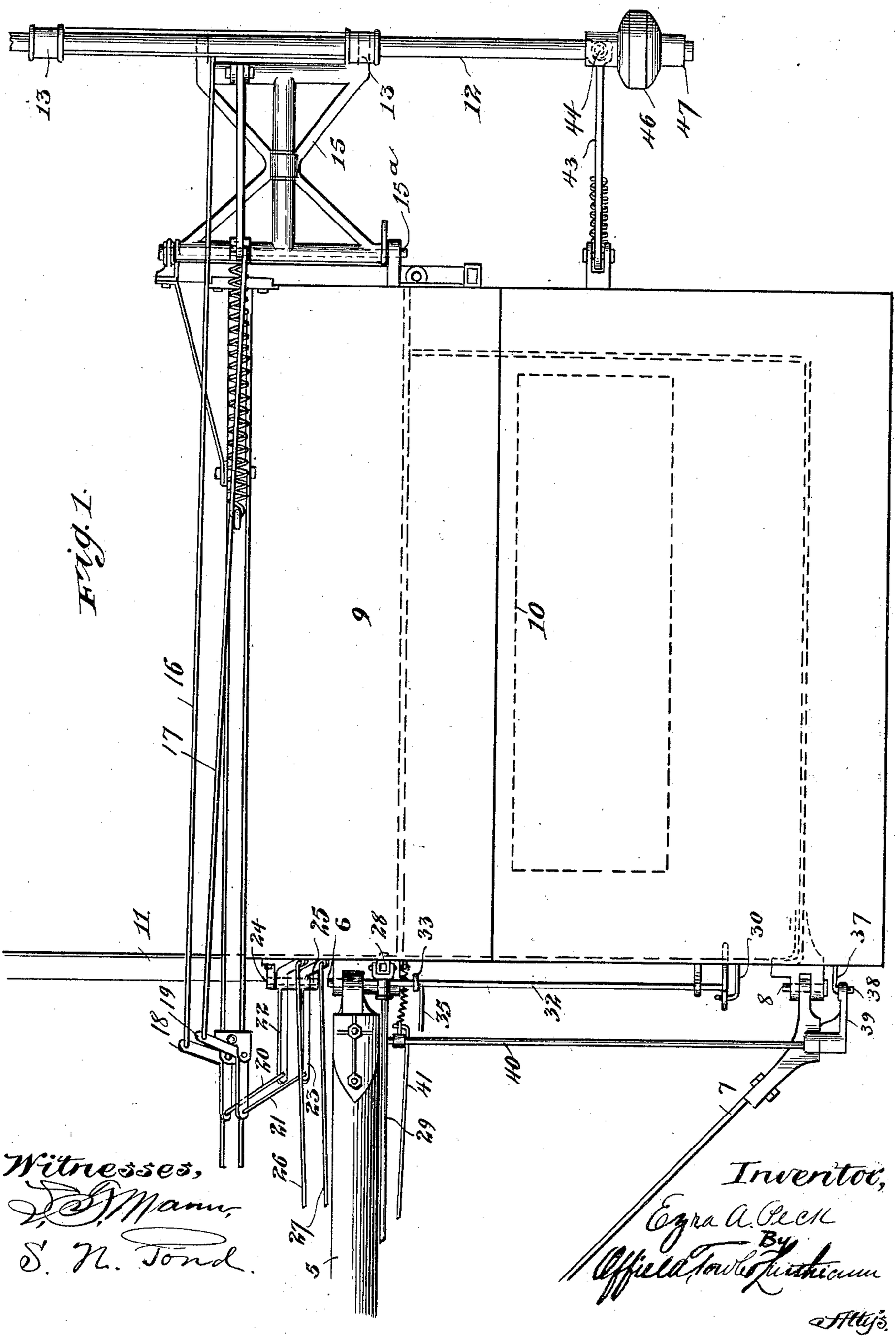

Fig. 1.

Witnesses,
D. S. Mann,
S. N. Pond.

Inventor,
Ezra A. Peck
By
Offield, Towle & Linthicum
Atty's.

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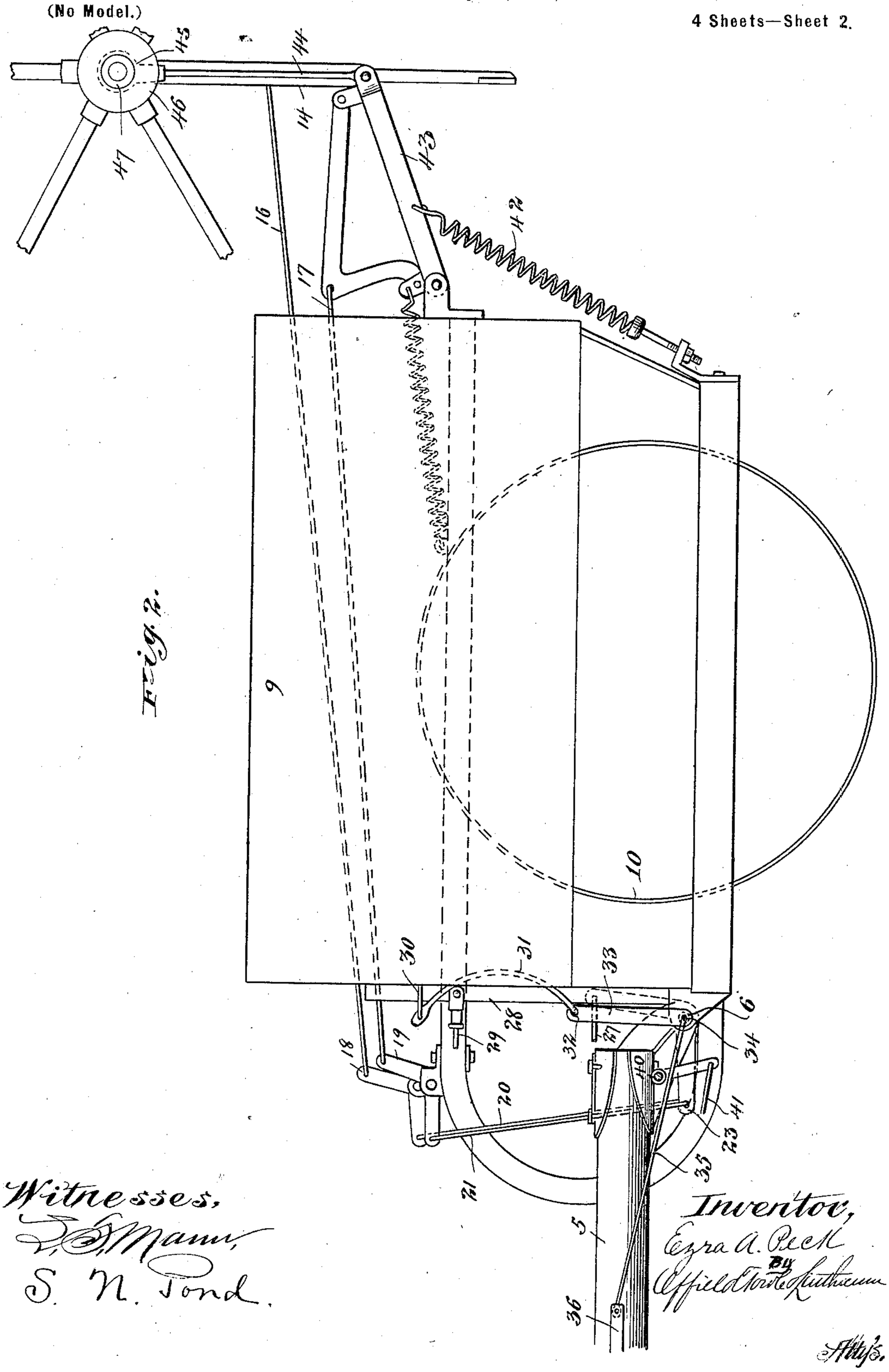

Fig. 2.

Witnesses,
D. S. Mann,
S. N. Pond.

Inventor,
Ezra A. Peck
By Offield Towle Graham & Linthicum
Attys.

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E. A. PECK.

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4 Sheets—Sheet 3.

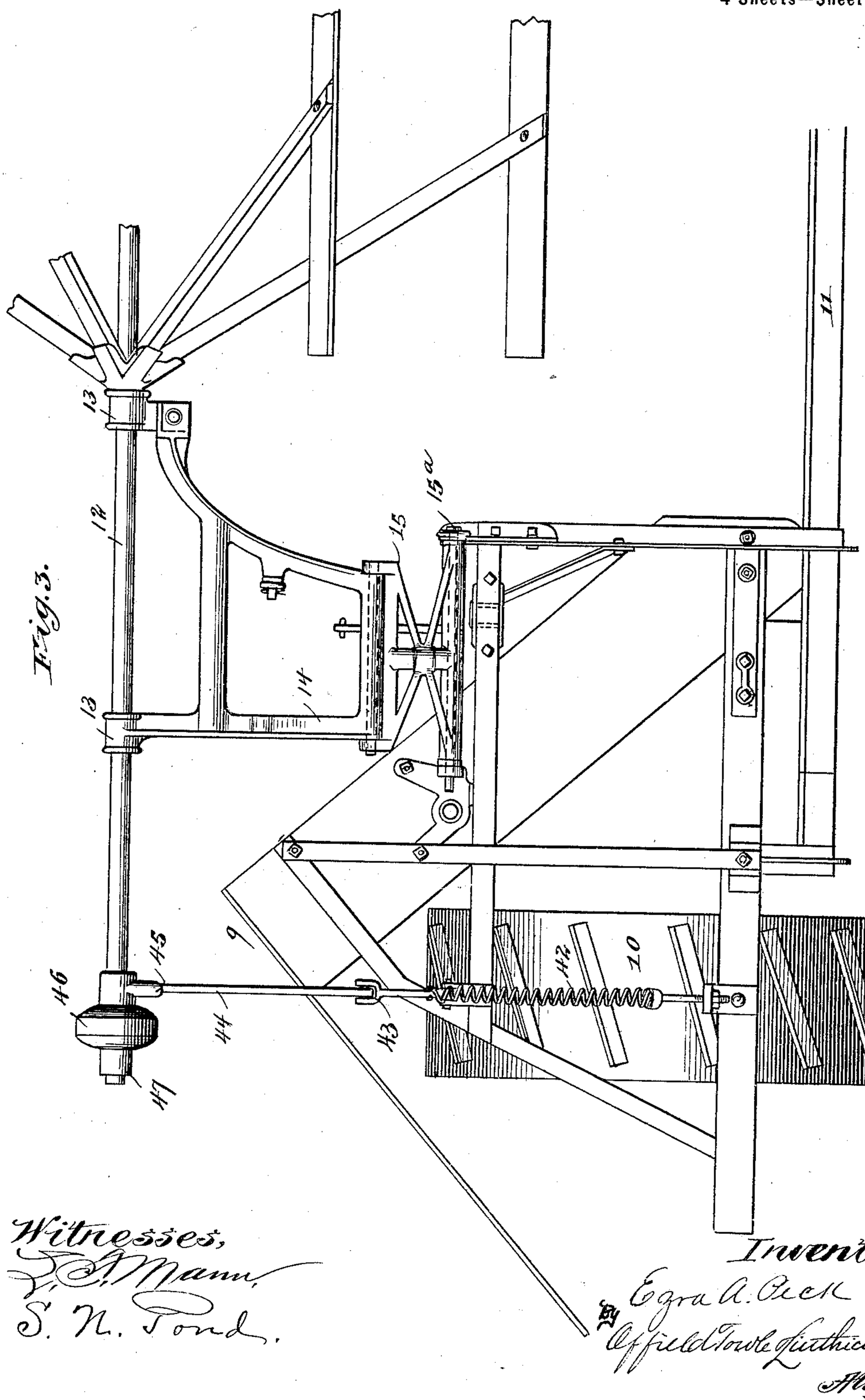

Fig. 3.

Witnesses,
F. A. Mann,
S. N. Pond.

Inventor,
Egra A. Peck
By Attorneys Toulmin & Toulmin

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E. A. PECK.

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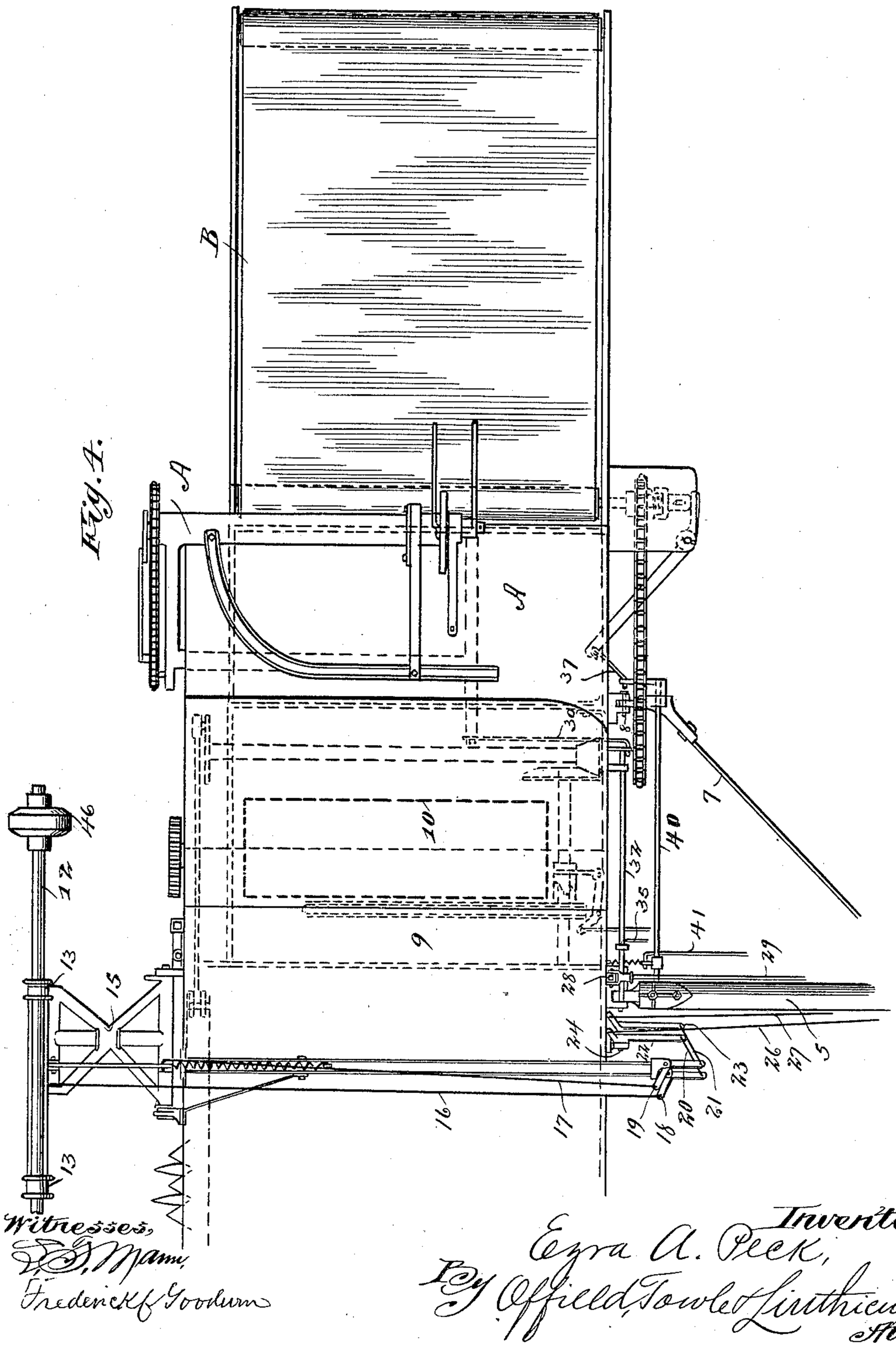
(Application filed Apr. 25, 1901.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 4.



Witnesses,
D. G. Mann,
Frederick F. Goodwin.

Inventor,
Ezra A. Peck,
By Offield, Towle & Linthicum
Atty's.

UNITED STATES PATENT OFFICE.

EZRA A. PECK, OF PEKIN, ILLINOIS, ASSIGNOR TO ACME HARVESTER COMPANY, OF PEORIA, ILLINOIS, A CORPORATION OF ILLINOIS.

REAPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 701,502, dated June 3, 1902.

Application filed April 25, 1901. Serial No. 57,376. (No model.)

To all whom it may concern:

Be it known that I, EZRA A. PECK, a citizen of the United States, and a resident of Pekin, Tazewell county, Illinois, have invented certain new and useful Improvements in Reaping-Machines, of which the following is a specification.

My invention relates to that type of reaping-machines in which the main frame and platform are mounted to rock around the axis of the main drive or ground wheel and in which the binding mechanism is mounted so as to be shifted to adapt it to long and short grain.

My invention further relates to that class of machines in which a push-pole is employed, the push-pole being hinged to the rear edge of the main platform, an adjusting-rod being connected to a standard rigid with the main frame and extending along the push-pole to the driver's platform, whereby the main frame and parts mounted thereon may be rocked around the axis of the main drive-wheel. The reel is so mounted that it may be adjusted vertically as well as forward and back, and the gearing which drives the sickle, as well as the binder, bundle-carrier, and the reel adjustments, is controlled from the driver's platform. A difficulty has been encountered in the operation of harvesting-machines of this type due to the fact that in making these several adjustments the operative parts are carried out of proper relation to each other. For example, when the main frame, with the platform, is tilted to vary the height of stubble it has resulted that the distance between the reel-slats and the sickle varied to an extent which made a new adjustment of the reel necessary. Again, the connections for shifting the binder and for tripping the bundle-carrier, manipulations necessary to the proper operation of the machine, were all effected by the rocking of the main frame and platform around the drive-wheel axis.

To avoid the several difficulties above pointed out in the operation of a machine of the general type above described, the several connections between the operative parts and the driver's platform are in accordance with my invention jointed and the joints are are so located with reference to the axis of oscillation or hinge-axis of the push-pole and main frame that the relations of the several operative parts of the machine are not disturbed by the raising and lowering of the front edge of the platform to vary the height of the stubble to such an extent as to render separate adjustment of the parts necessary.

I have further improved machinery of this class by providing for counterbalancing the reel. My inventions are particularly applicable to wide-cut machines—say eight feet and over—and it is very desirable in this class of machines to be able to use an overhanging reel or a reel mounted in bearings at one end only. When so mounted the stress upon the bearings and the tendency to sag are very great. I obviate this tendency by extending the reel-shaft through the bearing and applying to the extended end thereof a counterbalance in the form of a weight, a spring, or both.

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

Figure 1 is a plan view of a portion of the machine at the binder end, showing particularly the alinement of the joints of the adjusting devices with the hinge-axis of the push-pole. Fig. 2 is a side elevation of the same. Fig. 3 is a front elevation intended to show particularly the counterbalanced reel; and Fig. 4 is a plan view with parts shown in the preceding views omitted and showing a bundle-carrier, binder, and other parts omitted from the preceding views.

In the accompanying drawings let 5 represent the push-hole, which is hinged upon a pivot-bolt 6 and is steadied by the brace 7, one end of which is pivoted at 8 in axial alinement with pivot 6. The main frame 9 is mounted to rock around the axis of the main drive-wheel 10, and this main frame has connected thereto the grain-platform 11, which also rocks with the frame. The binder (indicated at A, Fig. 4) is mounted upon the main frame on the stubble side of the main drive-wheel and is arranged so as to shift back and forward to accommodate the machine to long and short grain. A bundle-carrier B, Fig. 4, is hinged to the main frame at the edge of the binder-deck and so arranged as to receive the bundles from the binder and

discharge them periodically. 12 represents the reel-shaft, mounted in the bearings 13 of the pivoted yoke, which permits of forward and back adjustment of the reel. The yoke 14 is pivoted in turn to a frame 15, the latter being pivoted at 15ª to the uprights of the framework of the machine. The frame 15 permits of the raising and lowering of the reel. The reel, binder, and bundle-carrier being all mounted upon and carried by the main frame of the machine and the latter being adapted to rock around the gear-axle, it follows that when the main frame and platform are rocked all of these parts should follow the movement of the main frame and sustain the same relation thereto. Since, however, these several operative parts must all be connected to the driver's platform to permit of their independent adjustment, I have so arranged the connections that the rocking of the main frame results in a minimum disturbance of said operative parts relatively to each other, which disturbance is so small as to be practically negligible. This will be best understood by reference to Fig. 1, wherein it will be seen that the rods 16 17, which are connected, respectively, to the yoke 14 and frame 15, are pivoted to bell-cranks 18 19, and the latter are connected by the links 20 21 with pivoted bell-cranks 22 23, the pivots 24 25 whereof are in line with the pivots 6 8. The upstanding arms of the bell-cranks 22 23 are connected, respectively, by the rods 26 27 with suitable hand-levers at the driver's platform. (Not shown.) A standard 28, rigid with the platform, is connected by the main tilting rod 29 with the driver's platform, and by means thereof the entire harvester-frame and all of the parts supported thereby may be rocked around the axis of the main drive-wheel. This rocking movement of course changes the relation of the main platform to the push-pole, disposing said parts in various angular relations, dependent upon the extent of the rocking movement; but this rocking movement will affect the relation of the reel to the sickle only to an exceedingly small extent, since the pivotal axes or joints 24 25 of the reel connections are in line with the hinge-axis 6 8 between the push-pole and the platform, thus producing a very slight rocking of the bell-cranks 22 23, which owing to the short arms of the bell-cranks imparts a practically imperceptible movement to the reel and its frame on their respective pivots. Similarly the rod 30, which is intended to be connected to the binder-frame for shifting the same forward and back, is connected to an arm 31, fast on a rock-shaft 32, this rock-shaft being journaled in bearings but a slight distance above the line of the pivots 6 8, and the rock-shaft 32 has a depending arm 33, which latter is pivoted at 34 to a link 35, connected to an operating-rod 36, which extends rearwardly to the driver's platform. The pivotal joint 34 between the arm 33 and link 35 is so located that in one adjustment of the parts it is in exact alinement with the pivots 6 8 and in all other adjustments lies very near the axial line of said pivots. From this it follows that whenever the joint 34 is in line with the pivots 6 8 the rocking of the main frame does not affect the position of the binder relatively to the main frame and the other operative parts, and when the binder is occupying other positions of adjustment the pivotal joint 34 is so slightly out of line with the pivots 6 8 that the rocking of the main frame does not produce any appreciable disturbance of the previous relation of the binder thereto and to the other operative parts. In the same way the rod 37, which is intended to operate the bundle-carrier, is pivotally connected at 38 with the end of a crank-arm 39, fast on a rock-shaft 40, which latter is journaled in bearings lying comparatively near to the axis of the pivots 6 8, and, as in the case of the binder, the joint 38 in the intermediate or normal adjustment of the bundle-carrier lies exactly in alinement with the pivots 6 8, whence it follows that in such adjusted position the angular relation of the push-pole and main frame may be varied without at all affecting the relation of the bundle-carrier to the main frame and other operative parts, while in other adjustments of the bundle-carrier the joint 38 lies so nearly in axial alinement with the pivots 6 8 that no appreciable disturbance of the bundle-carrier results from the rocking of the main frame.

The reel-shaft 12 extends stubbleward from its bearing 13, and its extended end has a counterbalance applied thereto. As shown, this counterbalance consists of a weight 46, passed over the end of the reel-shaft 12 and held thereto by a collar 47 and spring 42, connected to the main frame and to the pivoted link 43, which is hinged to a rod 44, the latter being secured in a sleeve 45 on the reel-shaft. These parts are pivoted together and in alinement with the jointed reel-supporting frame and move therewith and are controlled thereby, and as a result the spring has a constant tendency to pull down on the extended end of the reel-shaft and to counterbalance the weight of the reel itself.

I claim—

1. In a harvester, the combination with a main drive-wheel and a frame adapted to rock around the drive-wheel axis, of a push-pole hinged to the rear edge of the frame, a reel pivoted upon the frame, and a jointed connection for adjusting the reel from the driver's platform, said connection having an axis of oscillation located in line with the hinge-axis of the push-pole and the main frame and a pivotal joint located closely adjacent said hinge-axis, substantially as and for the purpose described.

2. In a harvester, the combination with a main drive-wheel and a frame adapted to rock around the drive-wheel axis, of a push-pole hinged to the rear edge of the frame, a reel

adjustable vertically and forward and back connected to said frame, and jointed connections for effecting the adjustments of the reel, said connections each having an axis of oscillation which is located in line with the hinge-axis of the push-pole and the main frame and a pivotal joint closely adjacent said hinge-axis, substantially as and for the purpose described.

3. In a harvester, the combination with a main drive-wheel and a frame adapted to rock around the drive-wheel axis, of a push-pole hinged to the rear edge of the frame, a binder adjustably carried on said frame, and a jointed connection extending to the driver's platform for adjusting the binder, said connection having an axis of oscillation located closely adjacent the hinge-axis of the push-pole and the main frame and a pivotal joint which in one adjustment of the binder lies in the said hinge-axis, substantially as and for the purpose set forth.

4. In a harvester, the combination with a main drive-wheel, of a main frame mounted to rock around the axis of the drive-wheel, a push-pole hinged to the rear edge of the main frame, a standard rigid with the main frame, an adjusting-rod connected to the standard and extending to the driver's platform, a reel adapted to be adjusted vertically as well as forward and back, rods extending along the push-pole for adjusting the reel, bell-cranks pivoted in line with the hinge-axis of the push-pole, bell-cranks pivoted above said hinge-axis and connections between the upper and lower bell-cranks, and between the upper bell-cranks and the reel, substantially as and for the purpose described.

5. In a harvester of the class described, the combination with a main drive-wheel and a main frame mounted to rock around the axis of the main drive-wheel, of a push-pole hinged to the rear edge of the main frame, a bundle-carrier hinged to the main frame, and operating means for tripping the bundle-carrier, said means comprising a system of jointed connections, the latter having an axis of oscillation located closely adjacent the hinge-axis of the push-pole and the main frame and a pivotal joint which in one adjustment of the bundle-carrier lies in axial alinement with said hinge-axis, substantially as and for the purpose set forth.

6. In a harvester of the type described, in combination, an overhanging reel, a reel-shaft, a jointed yoke supporting the reel-shaft and whereby the reel may be adjusted vertically and forward and back, and said shaft being extended stubbleward beyond the supporting-bearings, a jointed connection between the extended end of the reel-shaft and the harvester-frame, and a spring attached to one member of the connection and adapted to exert a counterbalancing effect on the reel, substantially as described.

7. In a harvester of the type described, in combination, a reel mounted so as to be adjusted vertically and forward and back, a reel-shaft supported in bearings at the stubble end only, the supported end of said shaft being extended beyond its bearings and a counterbalance applied to said extended end, substantially as described.

EZRA A. PECK.

Witnesses:
C. C. LINTHICUM,
E. L. DIETRICH.