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J. PETERSEN & A. THORSON.

HARVESTERS.

No. 183,700. Patented Oct. 24, 1876.

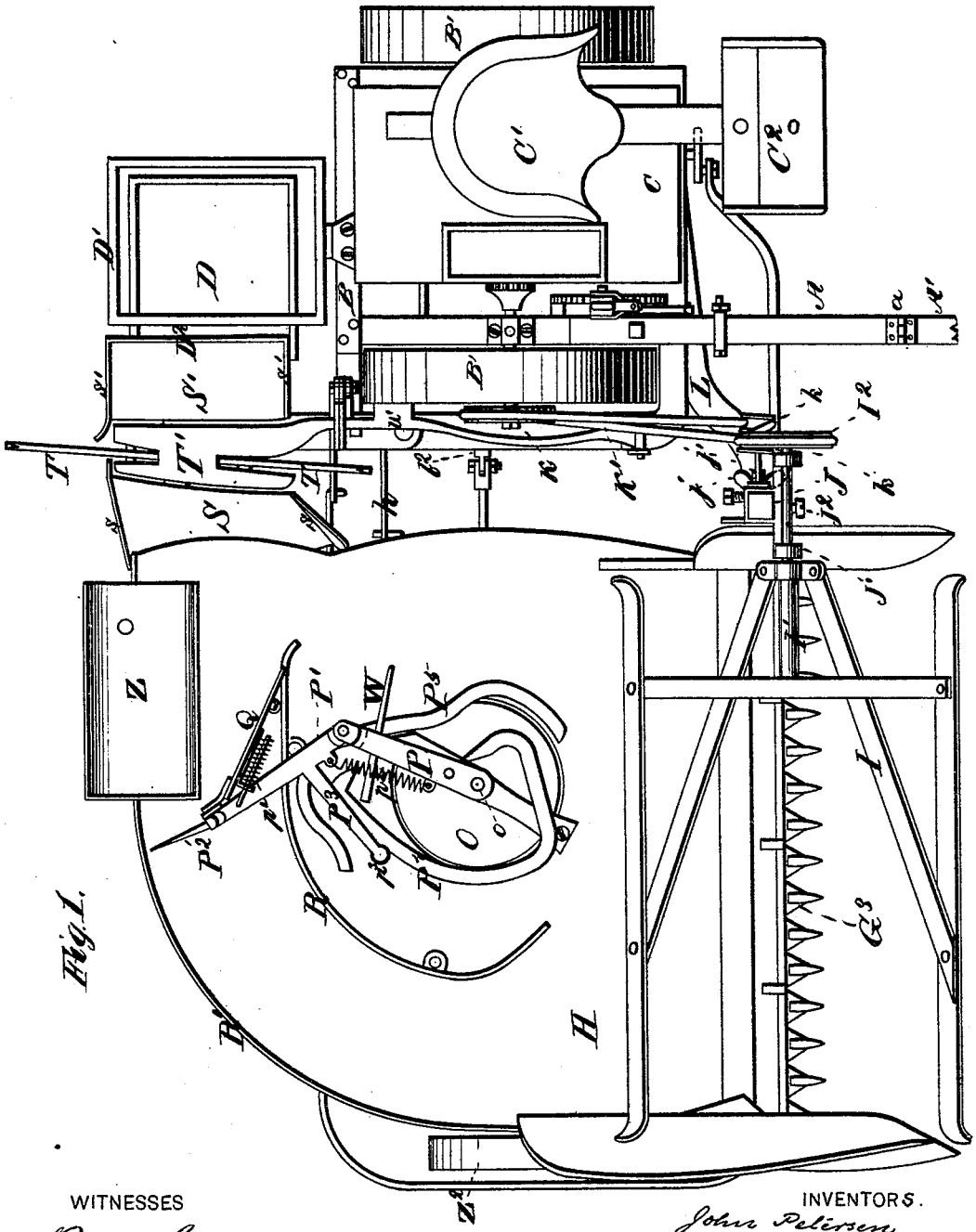

Fig. 1.

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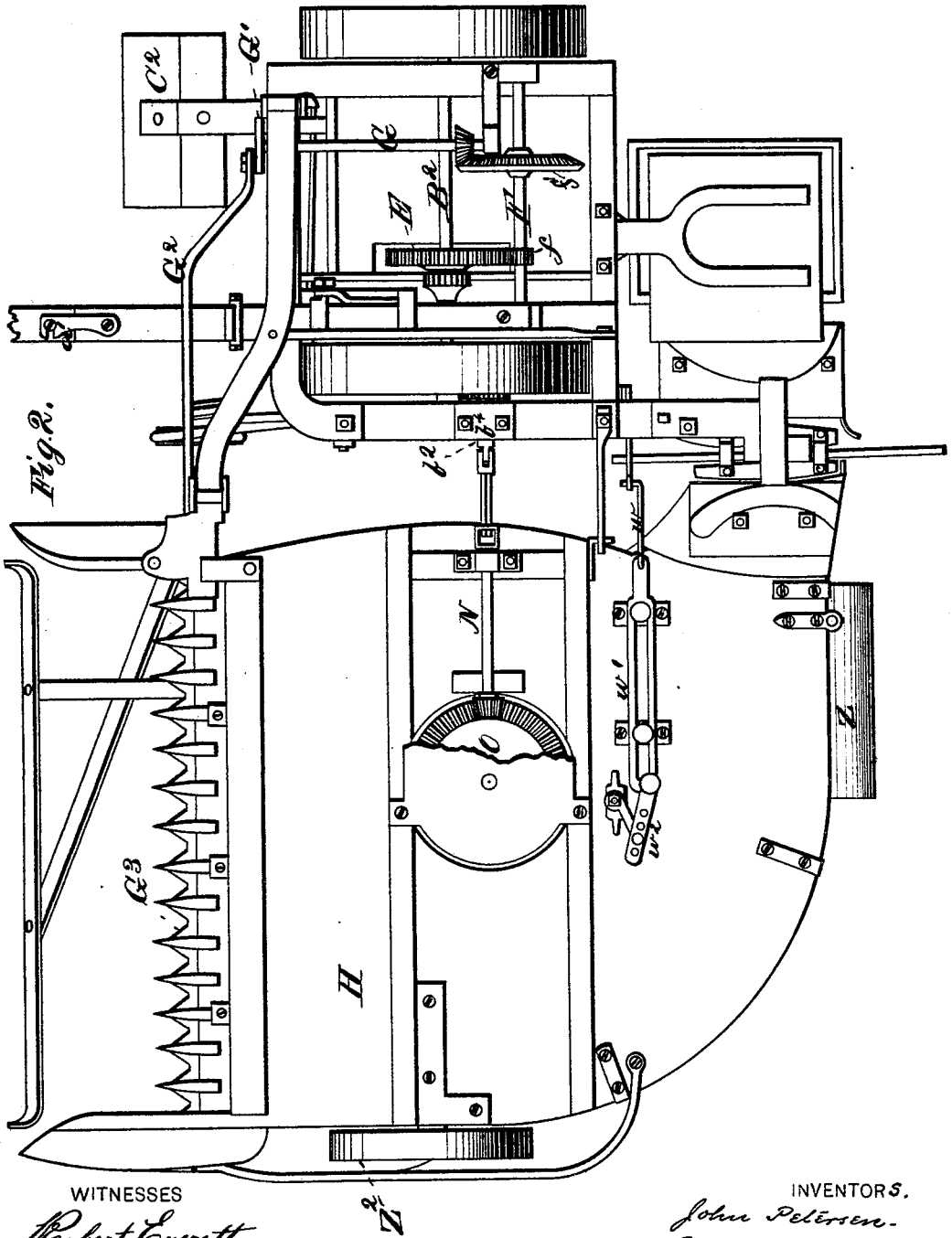

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Fig. 3.

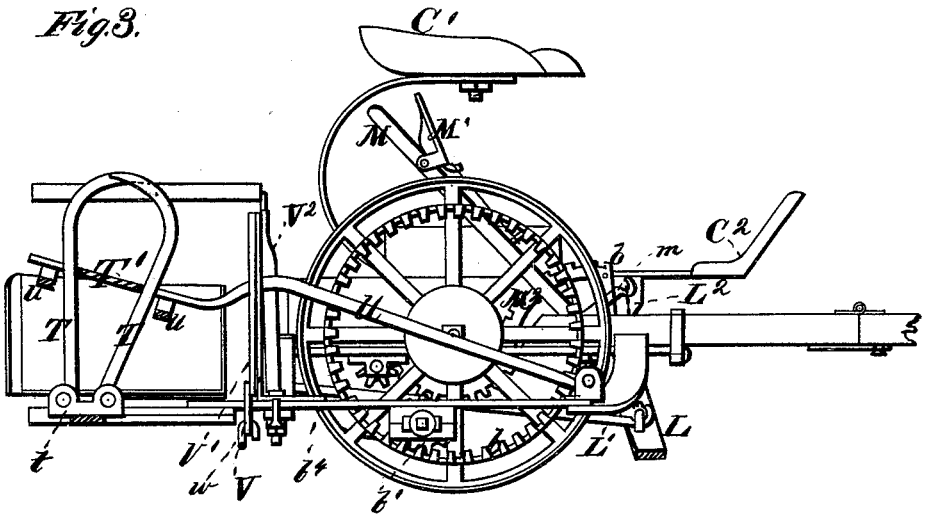


Fig. 4.

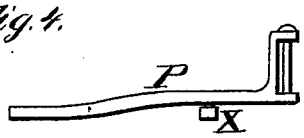
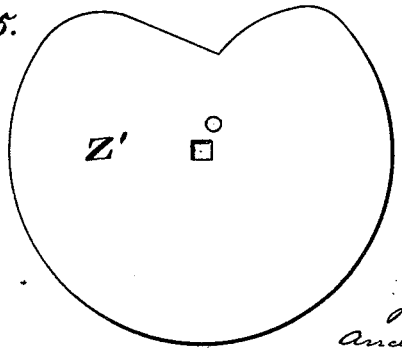


Fig. 6.

Fig. 5.



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JOHN PETERSEN AND ANDREW THORSON, OF ST. PETER, MINNESOTA.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **183,700**, dated October 24, 1876; application filed June 17, 1876.

To all whom it may concern:

Be it known that we, JOHN PETERSEN and ANDREW THORSON, of St. Peter, in the county of Nicollet and State of Minnesota, have invented a new and valuable Improvement in Harvester, Reaper, and Binder; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a plan view of our harvester, reaper, and binder; and Fig. 2 is a bottom view thereof. Fig. 3 is a transverse vertical sectional view; and Figs. 4, 5, and 6 are detail views of the same.

This invention relates to improvements in binders, as will be hereinafter particularly described.

In the annexed drawings, A designates a draft-tongue, which is secured to the main frame B of a harvester, which frame is carried by driving and transporting wheels B^1. Draft-tongue A is divided crosswise into two parts, hinged together at *a*, so that the outer and longer part A′ may be thrown or folded backward over the frame when the harvester is to be stored away under cover. Said tongue is also provided with a catching device, *a′*, on its under side, to hold it rigid while in operation. Frame B is provided on each side, near its front end, with standards *b b*, to which is pivoted the front end of driver's platform C, that supports a longitudinally-adjustable seat, C^1, and dash-board C^2. Platform C is thus pivoted, to provide for the easy inspection and cleaning of gearing, hereinafter to be described. On the rear of said frame B, and at the side thereof nearest the grain-platform, we attach a binder's stand, D, also a frame, D^1, to prevent the binder from being thrown to the ground by the movements of the harvester. On binder's stand D we fix a shield, D^2, the object of which is to protect the binder from the straw and grain as the same is discharged from the platform, hereinafter described. Axle B^2 of driving and transporting wheels B^1 B^1 is provided with a gear-wheel, E, turning therewith, which meshes into a pinion, *f*, secured on shaft F, which is journaled in frame B, parallel to axle B^2. Bevel-gear *f′* on said shaft F communicates motion to crank-wheel shaft G, which is arranged parallel to the line of draft. G^1 is the crank-wheel; G^2, the pitman operated thereby, and G^3 the cutter-bar, operating across the front of grain-platform H, in the usual manner. I designates a reel, and I^1 a reel-shaft, provided with a grooved pulley, I^2, and journaled on the upper end of standard J. Said standard is pivoted to the side of grain-platform H, at the front thereof, so that it can be folded down and back when the harvester is to be put under cover, and also adjusted for different heights of grain; and it is provided with clamping-nut *j* and screw-threaded bolt j^1, whereby it may be rigidly secured at any desired angle. Said bolt also operates at all times as a stop, to prevent said standard from tipping forward, since it catches against hook j^2, which is attached to grain-platform H. On the side of standard J toward the harvester driving-wheels B^1 B^1 we attach two small grooved guide pulleys or rollers, *k k*, and on the end of main axle B^2 we fix a grooved pulley, K. K′ is a band, which passes over grooved pulley I^2, under guide-rollers *k k*, and around grooved pulley K. The office of this band is to transmit motion from axle B^2 to reel-shaft I^1, thereby rotating the latter. The reel-shaft has its bearings in eyes which are cast on a slide, J^1, which is adjustable up and down on standard J, and can be fitted at any desired point by means of a set-screw, J^2.

Grain-platform H is made vertically adjustable by means of hinged cross-lever L, hinged at one end to the front inner corner of platform H, and hinged at the other end to a bracket fixed to the under side of frame B. Said lever is also partly supported on the free hooked end of a longitudinal bar, L^1, which is pivoted to a bracket on the rear of frame B. To the upper side of lever S I attach one end of a chain, L^2, which is lifted or lowered by horizontal arm *m* of a vertical pivoted lever, M. Lever M is provided with a spring-catch, M, which engages with a fixed rack or notched segment, M^2. By moving lever M backward we make an upward draft on chain S^2, and thus raise the front of said platform H. The

rear of main frame B is connected to the inner side of grain-platform H by an arm, h, pivoted to said platform H.

Wheel B^1 on the inner side of harvester-frame B is internally geared at b, and meshes with a cog-wheel, b^1, on a short shaft, b^2, which is journaled in a longitudinal bar, b^4, rigidly attached to frame B. Short shaft b^2 is connected by a universal joint to rotating shaft N, which is journaled in brackets on the under side of grain-platform H. Shaft N is provided with a fixed bevel-gear, for engaging with a large horizontal bevel-geared wheel, O, which is journaled in plates fixed to the upper and lower side of grain-platform H.

On the upper journal o of said wheel O we attach one end of arm P, to the other end of which is hinged another arm, P^1, said arms being further connected by retracting-spring p^2. To the outer end of arm P^1 we attach a vertical rake, P^2. To the inner side of this rake is hinged a wing, Q, which is connected to arm P^1 by a retracting-spring, p^1. Said wing is provided with a standard and with a roller, which engages with a curved flange, R, on the surface of the grain-platform. Flange R ends before reaching the edge of grain-platform H, so as to allow the passage of rake P^2 in its circuit.

Curved guide-flange R is eccentric to the axle of wheel O, so that wing Q may be thrown out to fill the open space at the end of flange R, after passing which it is retracted by spring p^1, and held flat against arm P^1 until the roller is again brought against and around such flange. The function of said wing is to prevent the straw from escaping on the inner side of the rake as it is swept around thereby to be discharged.

The straw is prevented from escaping on the outside of the rake by rim or shield R′, which is secured on the outer edge of platform H. P^3 is a bar or arm secured to the side of arm P^1, and projecting at right angles therefrom. It is provided with a roller, p^3, which travels around the outside of curved eccentric flanges P^4 P^5, which are constructed as shown in Fig. 1, and rigidly secured to the upper side of grain-platform H.

Flange P^4 operates to keep the arms P and P^1 extended while the rake P^2 is traveling between shield R′ and flange R for the purpose of discharging the grain; but when the end of flange R is past, roller p^3 slips around the curved end of flange P^4, and engages with the inner side of flange P^5. This shifting movement leaves spring p^2 at liberty to draw arm P^1 obliquely toward arm P, and thereby to hold the rake and pivoted wing out of all danger of collision with the harvester-frame or driving-wheels. On passing farther around platform H, roller p^2 again comes into contact with the outside of eccentric guide-flange P^4, and arm P^1 is again straightened relatively to arm P, so as to be once more ready for use in raking.

At the rear of platform H, at the point of discharge of the straw, and opposite to binder's shield D^2, we attach a small step or platform, S, provided with wings s s, projecting at right angles therefrom. As shield D^2 is provided with a similar step or platform, S^1, and wings s' s', the said two platforms, wings, and shield constitute, taken together, a box for the reception of loose grain, which is divided by an open space in the middle. Under this open space is a cross-piece, t, to which I pivot jaws T T, which operate, when closed, to grasp and hold each gavel of straw, so as to allow it to be bound.

This closing is effected by means of an H-shaped plate, T′, which is provided with cross-bars u u, that engage with the outside of jaws T T, and close the same when said plate is raised. This raising is effected by means of a long lever-arm, U, which is rigidly attached at one end to said plate T′, and is hinged at the other end to a clip, which is secured to plate or bar b^4 of harvester-frame B. Lever-arm U is provided with a tooth, u', which is caught by the projecting edges of the internal gear-teeth of driving wheel B^1, and lifted high enough to close jaws T T before being released.

V is a slotted vertical guide-plate secured to the upper side of plate or bar b^4, and it is adapted to allow vertical play of lever-arm U within said slot. To the rear of plate V is hung, at the top thereof, a swinging slotted plate, V^1, of similar shape, but which is internally notched on one side at v. When arm U rises to notch v it catches thereon, and so remains, holding together jaws T T until tripped. V^2 is a spring, which operates to guide arm U in its fall by throwing it outward at the lower terminus of its stroke.

This tripping is effected by means of a rod, w, attached to said swinging plate V^1, and is connected, by means of longitudinally-sliding piece w^1 and elbow-lever w^2, or their equivalent, with a bent arm, W, which is operated by a stud, X, on the lower side of arm P. Rod w extends across from the main frame B to grain-platform H. w^1 and w^2 are attached to the under side of harvester-platform H, and bent lever W extends up above said platform, and lies parallel therewith.

When stud X strikes lever W a draft is transmitted to slide V^1, which is thus pulled sufficiently to disengage the notch v from lever U, and allow said lever to fall, thereby opening griping-jaws T T.

When the roller on arm P^3, attached to arm P^1, comes in contact with lever W, it replaces plate V^1 in position to sustain lever U, and also forces beveled tooth w on lever U into engagement with the internal gear of wheel B. Spring V^2 operates to guide lever U in its fall, and hold lever U out of position for engagement with such gear until the roller on arm P^2 again forces it into engagement.

Z is a receptacle pivoted on a standard, and constructed with one end open for convenience of access. Its office is to hold straw, which

is to be used in wisps by the binder for binding the grain. While binding the open end should be turned toward him; but when said receptacle is to be supplied with straw from outside of the platform the open end should be turned outward. Z^1 is a horizontal shield, which is rigidly secured on the journal of wheel O, and rotates therewith. Its office is to protect said wheel and guide-flanges P^4 and P^5. Z^2 is the grain-wheel, which supports the outer side of grain-platform H, and may be made adjustable, so as to balance a varying weight on the other end of the harvester. Clutch and feather connections may be made with any of the gear-wheels and axles, so the apparatus can be thrown out of operation while being transported over the road. Rake P^2 may be made vertically adjustable, to correspond to the varying heaviness of the grain. Many known equivalents may be substituted for the various details of the apparatus without departing from the spirit of our invention. A perforated or slotted plate, for instance, may be substituted for the H-shaped one shown and described; or a pin pivoted at the bottom may be substituted for notched swinging plate V^1. The harvester may be converted into a mower by removing the reel, griping devices, and other parts not needed for mowing.

What we claim as new, and desire to secure by Letters Patent, is—

1. In combination with hinged jaws T T and internally-geared wheel B^1, hinged arm U, provided with plate T′, and with tooth u', substantially as set forth.

2. Swinging notched plate V^1, in combination with lever-arm U, and with devices, substantially as set forth, for tripping said plate.

3. The combination of stud X on arm P with bent arm W, and devices connecting the same to swinging notched plate V^1, substantially as set forth.

4. The box composed of shield D^2, steps or platforms S S^1, and sides s s', in combination with compressing-arms T T and operating-lever T′, substantially as described, and for the purpose set forth.

5. A harvester provided with jaws T T, which are adapted to automatically seize and hold the straw that is raked into them, substantially as and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

JOHN PETERSEN.
ANDREW THORSON.

Witnesses:
EDWIN R. MOORE,
SUMNER LADD.