

W. N. WHITELEY & W. BAYLEY.

Patented Jan. 11, 1887.

The image contains five technical drawings of a mechanical device, likely a printing press or a similar machine.

- Fig. 1:** A perspective view of the machine. It shows a large flywheel (B) with a crank (A) and a connecting rod (E). A series of gears (P, Q, R, S, L, M, N, O, G, H, F) are arranged in a train. A frame (K) supports the mechanism. A handle (C) is visible on the left. Various other parts are labeled with letters and numbers, such as g¹, g², g³, g⁴, a, b, c, d, e, f, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z.
- Fig. 2:** A detailed view of a gear (O) with five spokes and a central hub (P). It is labeled with o, p, and n.
- Fig. 3:** A detailed view of a component (O) with a horizontal shaft (p) and a vertical shaft (n). It is labeled with o, p, n, t, h, u, and N.
- Fig. 4:** A detailed view of a component (T) with a vertical shaft (x) and a horizontal shaft (z). It is labeled with b², b, T, x, y, and z.
- Fig. 5:** A detailed view of a component (T) with a vertical shaft (x²) and a horizontal shaft (z). It is labeled with b², b, T, x², y, and z.

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HARVESTER.

SPECIFICATION forming part of Letters Patent No. 355,959, dated January 11, 1887.

Application filed January 13, 1886. Serial No. 188,406. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM N. WHITELEY and WILLIAM BAYLEY, citizens of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates particularly to that class of harvesters wherein the cut grain falls upon conveying-belts, which deliver it to elevating-belts, which in turn deliver it into a grain-receptacle, where it is automatically bound into bundles and discharged. Our invention is in the nature of an improvement upon the device for communicating power to the binding mechanism through the medium of one of the usual shafts employed to drive the knife.

The objects of our invention are to transmit the power to the binding mechanism in as simple and direct a manner as possible, and at the same time to provide for the usual lateral adjustment of the binding-machine in reference to the elevators when the former is moved to the right or left to accommodate the varying lengths of grain. These objects we accomplish by means of the mechanism shown in the drawings and hereinafter described.

In the drawings, Figure 1 is a perspective view of a portion of a harvesting-machine having a binder attached, showing the relative position of our improved device for driving the binder in its relation to the adjacent parts. Fig. 2 is a side elevation, and Fig. 3 an edge view, of our gears for driving the binder. Fig. 4 is an edge view, and Fig. 5 is a side elevation, of the brace by which the outer side of the binding-machine is supported.

Similar letters refer to like parts in the several views.

Referring to Fig. 1, in which the usual form of our harvester is shown, B is the main wheel, pivoted in the main frame A, upon which is mounted the upper frame-work, *a a a a*, supporting the elevators C, seat-board, driver's seat, &c., all arranged in the usual manner. Supported upon the main frame and driven

by the bevel-wheel E, fixed to the main driving-wheel B, is the gearing which drives the knife, composed of a bevel-pinion, F, on the counter-shaft *f* and engaging the bevel-wheel E. At the other end of the counter-shaft is the spur-gear wheel G, which engages the spur-pinion H on the fly-wheel shaft *h*, upon the opposite end of which is the fly-wheel and crank operating the knife, all in the usual manner. In the binder, J is the deck; K K², the head and butt boards; L, the binder-frame; M, the knotter-wheel; N O P Q R S, the usual train of gears operating the binding mechanism.

Our invention is particularly connected with the gears N and O, the gear N being on the fly-wheel shaft of the harvester proper, and the gear O being upon the packer-shaft of the binding-machine, the two forming the connection between the two distinct machines, the first for cutting and elevating the grain and the second for binding it. The gear N is "shrouded"—i. e., formed with a flange upon each side at the ends of the teeth, rising as high as the points of the teeth. It is secured to the shaft by the clamp-bolt *t* and prevented from turning on the shaft by the usual spline, *u*.

The gear O is formed in the usual manner, the teeth engaging those of the shrouded gear N, the thickness of the gear O being somewhat less than the distance between the flanges of the gear N. The gear O is fitted to the packer-shaft *p* and slides thereon, being prevented from turning by the spline *u*, fixed to the packer-shaft *p*, as shown.

In Fig. 1 the gear P is shown removed from the packer-shaft *p* for the purpose of the better exhibiting the gears N O and their relation to the harvester proper and to each other. In practice the gear P is fixed upon the outer end of the packer-shaft *p*, and from it the gears Q R S receive their motion in the usual manner.

Fixed to the binding-machine are two pieces of gas-pipe, *g b*, by which it is supported upon the harvester. The pipe *g* slides in guides, one of which is shown at *i*, and the other rests upon the grooved friction-wheel T in the supporting-brace W, which is pivoted to the main frame by the bracket V.

At Figs. 4 and 5 are shown two views of the

brace W, which is composed of two parts secured together by the clamp-bolt x , assisted by the scroll-plate y , pivoted on the bolt x and bearing against the pin Z. The lower portion 5 of the brace being pivoted to the bracket V and the upper portion having pivoted in it the grooved friction-wheel T, the pipe h is prevented from being thrown out of the groove in the friction-wheel T by the bolt b^2 . Consequently it is impossible for the lower side of the binding-machine to rise up and disengage the gears N O. The functions of the brace W are twofold: first, to support the lower side of the binding-machine, and, second, by its being rendered adjustable as to its length by 5 being formed in two parts connected by the clamp-bolt x in the slot x^3 , the lower side of the binding-machine may be raised or lowered for the purpose of adjusting the gears N O to each other, so that the teeth thereof may be engaged to the proper depth. Upon the pipe 10 g is fixed a rack, g^2 , in which engages a spur-pinion on the shaft g^3 , having on its upper end the usual crank-lever, g^4 , by rotating which the binding-machine may be adjusted laterally in reference to the harvester, in the usual manner, to provide for the varying lengths of grain.

The shrouded gear N being fixed upon the 30 fly-wheel shaft, which is a part of the harvester, and the spur-gear O being allowed to slide upon the packer-shaft of the binding-machine, and the gear O being confined in its lateral movements by the flanges at each side of the gear N, it follows that as the binding-machine 35 is moved laterally in reference to the harvester the gear O remains engaged with the shrouded gear N, the packer-shaft sliding through the gear O, by which mechanism the 40 gears N O always engage each other without reference to the lateral position of the binding mechanism in reference to the harvester.

The gear O may be fitted upon a spline on the packer-shaft, as shown, or the shaft may 45 be square, as most convenient; or the gear upon the packer-shaft may be fixed to the shaft and the one on the fly-wheel shaft or counter-shaft may be arranged to slide thereon.

We are aware that shrouded or flanged 50 gears have heretofore been used to keep an opposite working-gear in position, and to this we do not lay claim.

We are also aware that it is not new to communicate motion to a binder from the fly-wheel shaft and onto a packer-shaft by means 55 of a chain, and this we do not claim; but

What we do claim is—

1. The combination of the harvesting-machine having a counter-shaft which operates the cutting apparatus thereof, a binding mechanism supported at one side on said harvesting-machine, means for moving said binding mechanism laterally relative to said harvesting-machine, two spur-gears to transmit motion to said binding mechanism, one of said 65 gears being on said counter-shaft and the other being on the packer-shaft, and one of said gears being movable laterally on its said shaft and the other shrouded to keep it in mesh with the other gear, and an adjustable 70 support for the outer side of said binder mechanism, whereby it may be set up or down to effect a proper engagement of said transmitting-gears.

2. In combination, in a self-binding harvester, two spur-gears to transmit motion to 75 the binder mechanism, one of said gears being on the fly-wheel shaft of the harvester proper and the other on the packer-shaft of the binding-machine, and a supporting-brace 80 adjustable in length, whereby the binder-table is supported at its outer side and adjusted in height to secure proper engagement of said transmitting-wheels.

3. In a self-binding harvester, the combination of the harvesting mechanism, the binding mechanism, the gearing interposed between said mechanisms whereby motion is transmitted to the binding mechanism, means for laterally adjusting the binding mechanism, and 90 a supporting-brace pivoted at its lower end to the harvester-frame, carrying an anti-friction wheel, upon which the binding-machine slides, and also adjustable as to length, whereby when said brace is shortened or elongated 95 to adjust the binder to secure proper engagement of said interposed wheels said brace may also move on its pivot to avoid cramping.

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Witnesses:

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