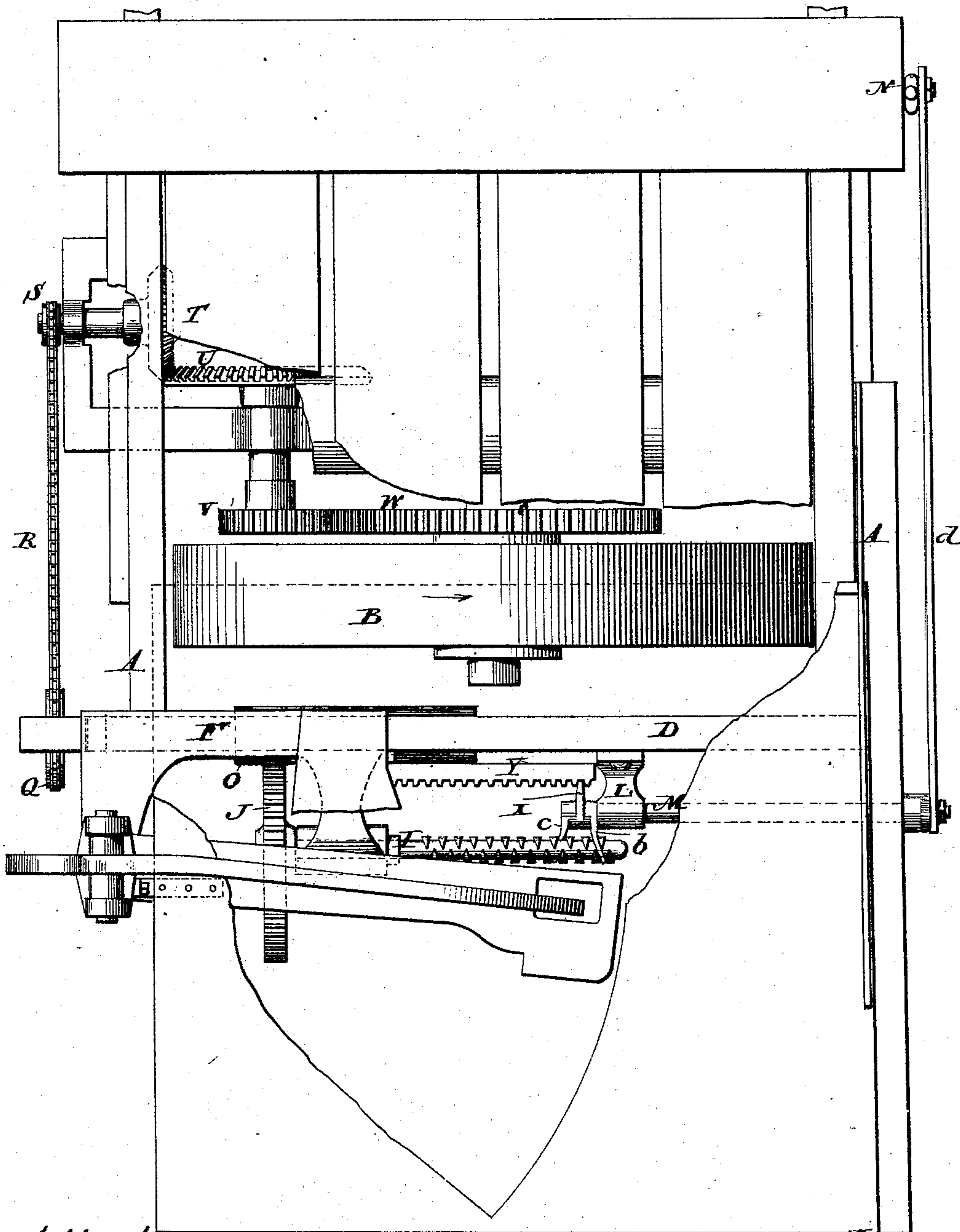


J. F. GORDON.
GRAIN BINDER.

No. 283,096.

Patented Aug. 14, 1883.

Fig. 1



Attest.

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Fig. 2

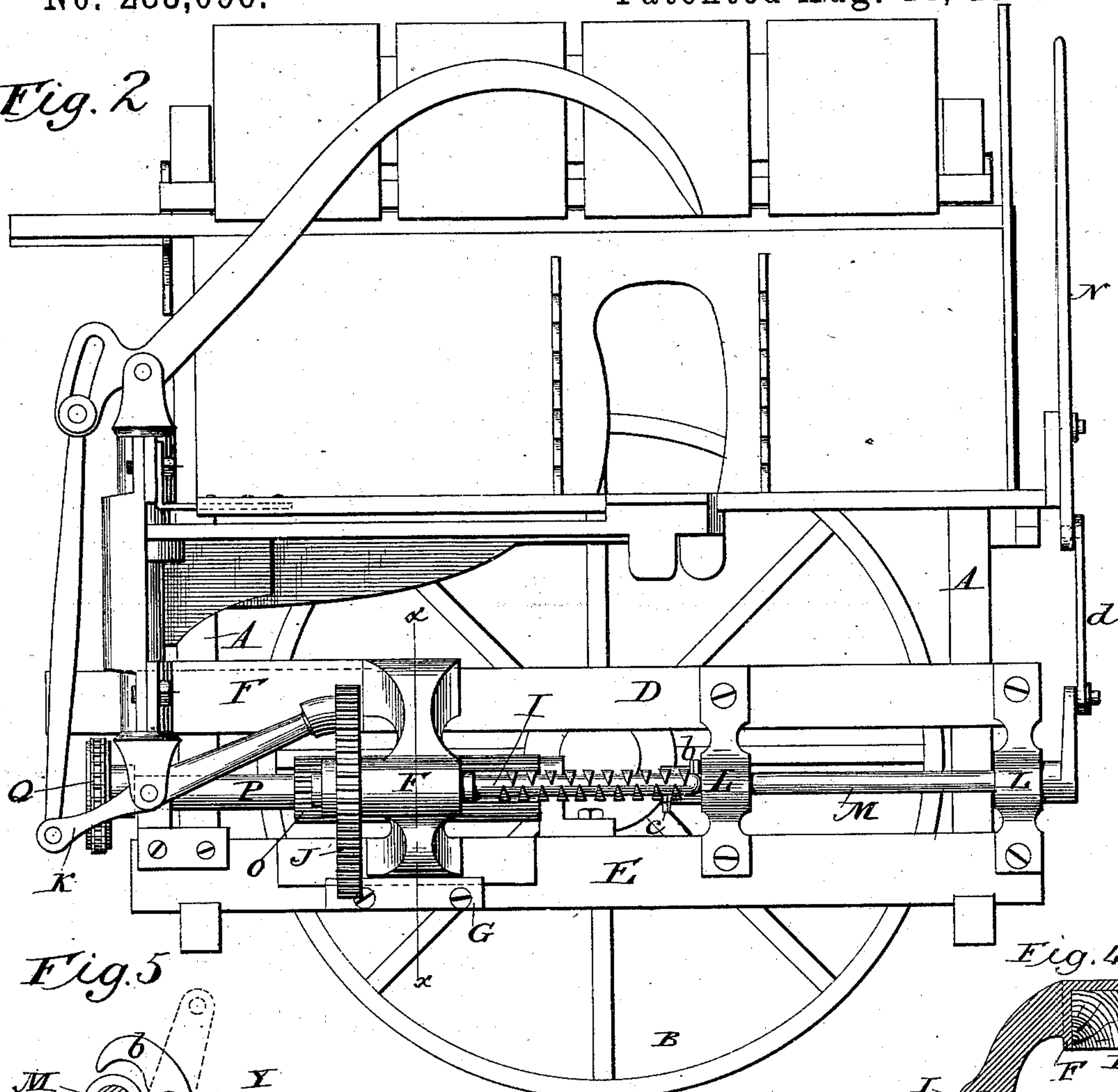


Fig. 5

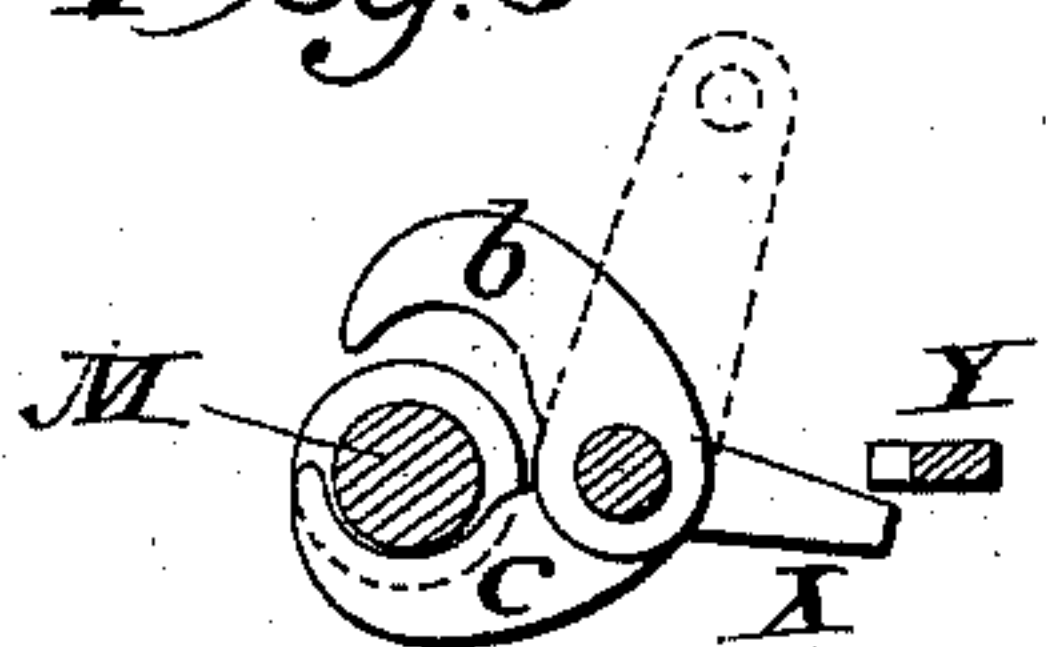


Fig. 4.

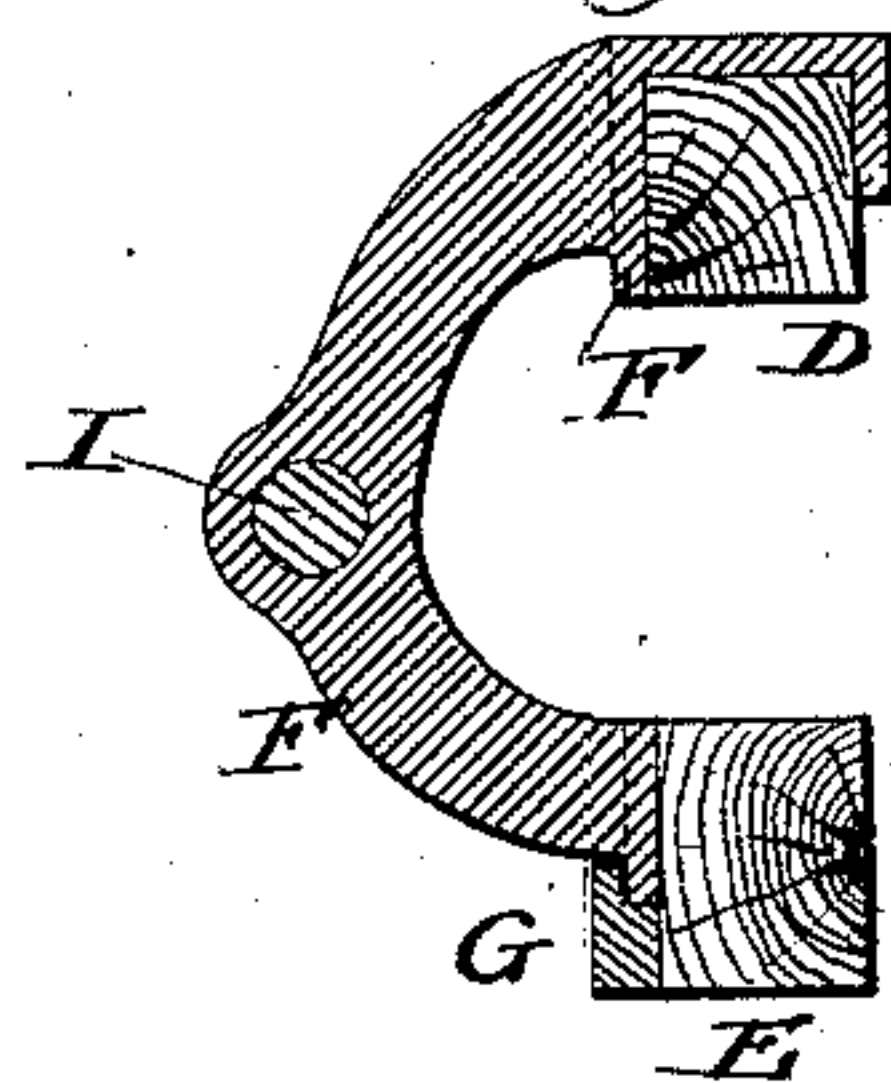


Fig. 3

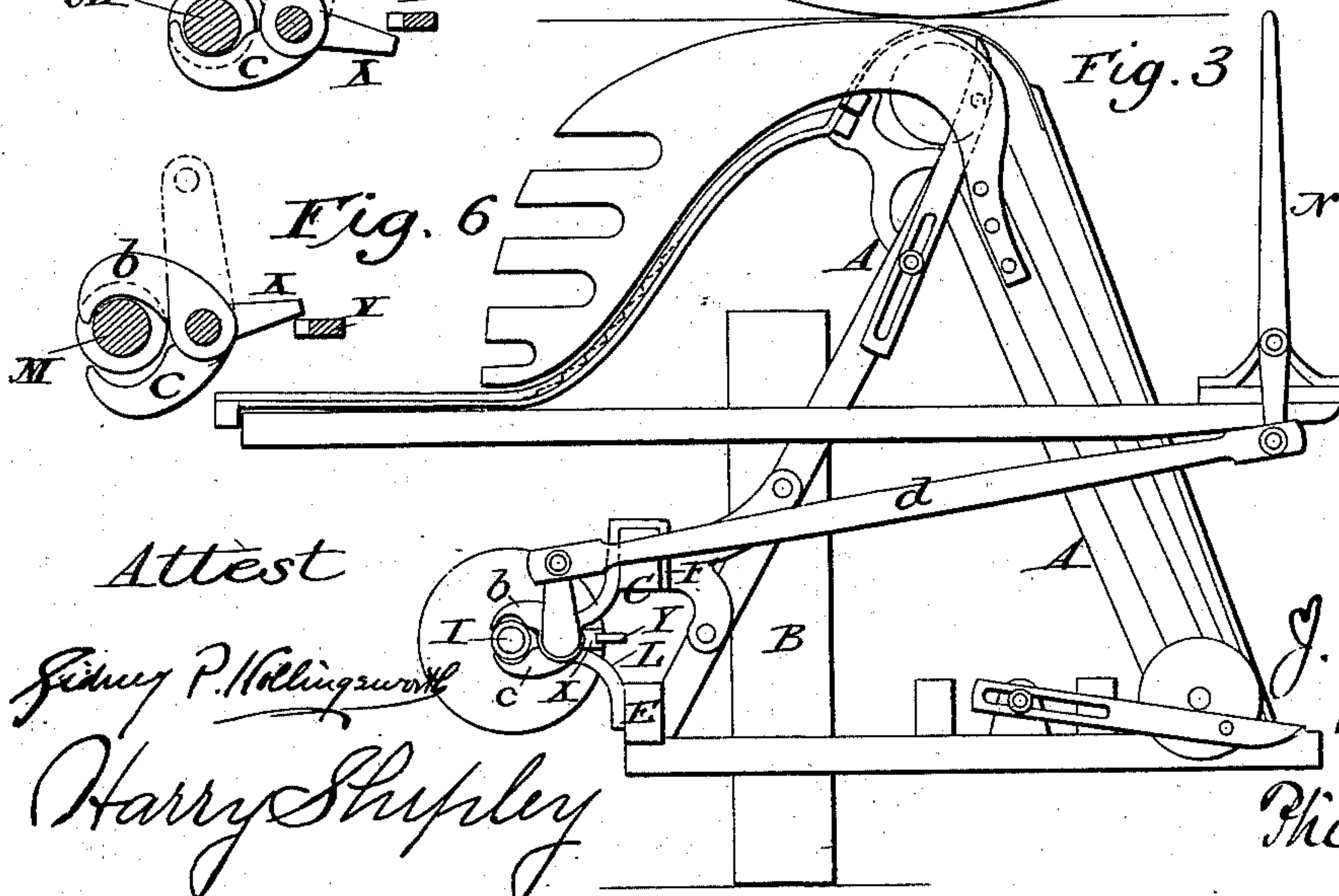
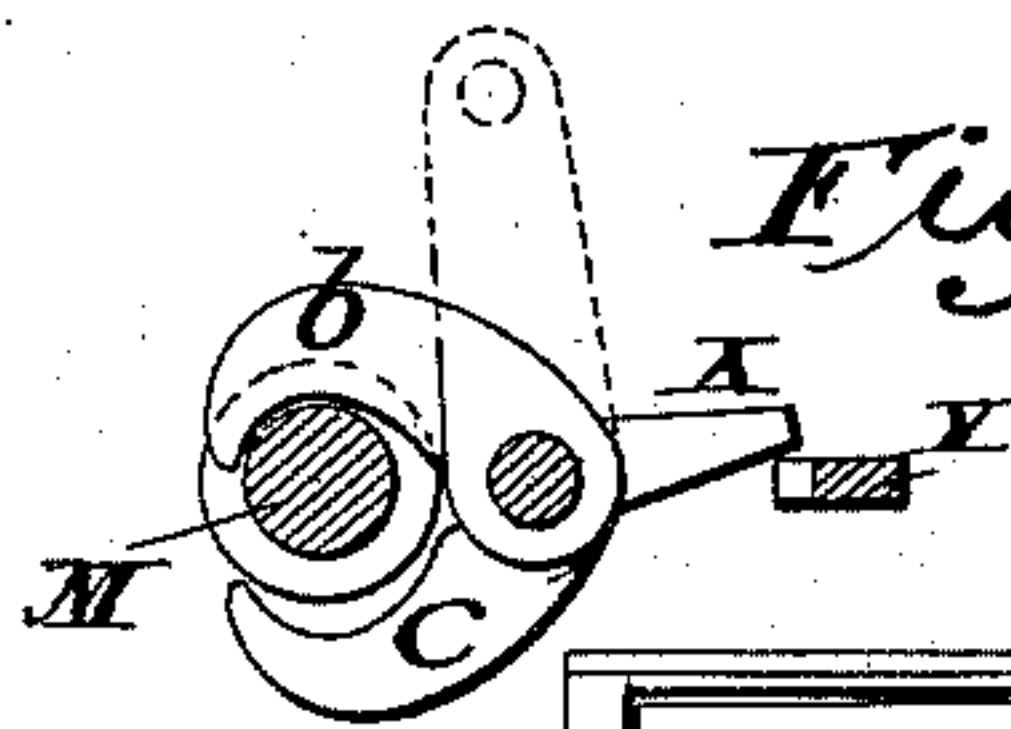


Fig. 6



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UNITED STATES PATENT OFFICE.

JAMES F. GORDON, OF ROCHESTER, NEW YORK.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 283,096, dated August 14, 1883.

Application filed March 17, 1876.

To all whom it may concern:

Be it known that I, JAMES F. GORDON, of Rochester, Monroe county, State of New York, have invented certain new and useful Improvements in Grain-Binding Machines, of which the following is a specification.

My invention relates to that class of automatic binders in which the grain is delivered upon a receiving or binding table and bound by means of devices adapted to carry the binding material around the gavel, and particularly to that type of machine in which the binding mechanism proper is movable with respect to the harvester, for the purpose of securing the central application of the band to grain varying in length, as described in Letters Patent of the United States, granted to me, on the 12th day of May, 1868, No. 77,878.

In machines as hitherto known to the art the adjusting movement of the binder is effected by the direct application of power thereto by the operator. The aim of the present invention is to avoid this laborious operation; and to this end it consists in combining with the harvester and the binder intermediate mechanism which may be thrown into and out of action by the attendant, and by which the power or motion of the harvester is applied to effect the movement of the binder thereon.

The invention also consists in various features of minor importance, which will be hereinafter more fully explained.

My improvement is susceptible of embodiment in various forms, which will suggest themselves to the skilled mechanic after a consideration of the specification and its accompanying drawings.

Referring to the accompanying drawings, Figure 1 represents a top plan view of a harvesting and binding machine having my improvement embodied therein in its preferred form, various minor parts which have no relation to the present invention being omitted. Fig. 2 represents an elevation of the machine, looking against the outer or delivery side of the binding-table. Fig. 3 is an elevation looking against one end of the binding-table. Fig. 4 is a cross-section on the line x x , Fig. 2. Figs. 5 and 6 are cross-sections

through the adjusting-screw and the jaws co-operating therewith, showing the latter in its two positions.

In its general construction, the machine represented in the accompanying drawings is essentially the same as the device patented to me on the 26th day of October, 1875, No. 169,258.

A represents the main frame, and B the driving-wheel, of an ordinary reaping or harvesting machine, which will be provided with the usual elevating devices to deliver the grain over the main wheel to the binding-machine, located at its outer side. The harvester-frame is provided outside of the wheel with two horizontal bars or sill-pieces, D and E, located one above the other, and extending fore and aft of the machine for the purpose of giving support to the binder.

F represents the base-frame of the binder, by which all the remaining parts of the binder are supported. This frame F is mounted against the outer side of the sill-pieces D and E, and at its upper edge is provided with a flange engaging over the upper sill, D, as shown in Figs. 2 and 4, whereby the binder-frame is sustained upon the harvester in such manner as to slide freely forward and backward thereon, for the purpose before explained. At its lower edge the binder-frame F is seated and guided in a longitudinal plate, G, bolted to the lower sill, E, to prevent the accidental displacement of the frame or the disconnection of the driving-gear.

Within the shifting binder-frame F, I mount a horizontal screw-shaft, I, one end of which carries the gear-wheel J, by which motion is transmitted through the arm K and its connecting devices to the binder-arm in the manner described in my patent above referred to. The opposite end of the shaft I is provided, as shown, with right and left screw-threads crossing or intersecting each other, as shown in the drawings, this construction being familiar to all skilled mechanics.

L are stationary bearings secured to the harvester-frame and supporting a horizontal rock-shaft, M, secured against endwise motion, one end of which is provided, as shown in Figs. 1, 2, 3, 5, and 6, with two arms, b and c , one

above and the other below the screw-shaft. By rocking the shaft M, its arm *b* may be engaged in the screw-shaft and the arm *c* disengaged therefrom, or vice versa, or both of the arms placed in an intermediate position, so that both are out of engagement with the shaft when the binder is to remain at rest upon the harvester, one arm being adapted to engage with the right-hand and the other with the left-hand screw. In consequence of this construction it follows that while the screw continues to revolve in one direction it will move endwise in one direction or the other, carrying the binder with it, according as it is in engagement with one or the other of the arms *b c*. The outer end of the rock-shaft M, by which these arms are carried, is connected by a link, *d*, to a hand-lever, N, located in such relation to the driver's seat that it may be operated by the driver without dismounting and while the machine is in motion.

The wheel J engages with a pinion, O, upon a shaft, P, provided with a sprocket-wheel, Q. This wheel Q receives motion, as shown in Fig. 1, from a chain, R, on a sprocket-wheel, S, the latter having its shaft provided with a bevel-pinion, T, engaging with a corresponding gear-wheel, U, the shaft of which latter bears a pinion, V, engaging with a gear-wheel, W, on the main axle. This being the fact, it follows that the attendant, by simply moving the hand-lever so as to throw one or the other of the arms *b c* into engagement with the screw, may cause the binder to move either forward or backward upon the harvester, and that by stopping the lever in an intermediate position, so as to hold both arms out of engagement with the screw, the binder may be stopped and permitted to remain at any required point.

For the purpose of locking the binder in position after being adjusted, I provide the rock-shaft M, as shown in Figs. 1, 3, 5, and 6, with a backwardly-extending arm, X, arranged to engage with a rack-bar, Y, secured rigidly to the binder-frame, this engagement taking place whenever the arms *b* and *c* are out of engagement with the screw, but at no other time.

The present invention is restricted to those matters and things which are hereinafter claimed, and as to all matters which may be described or shown, but which are not claimed, the right is reserved to make the same the subject of a separate application.

Having thus described my invention, what I claim is—

1. In a harvesting and binding machine, the combination of a binding mechanism movable forward and backward upon the harvester, a traction-wheel, and intermediate mechanism, substantially as described, whereby the traction-wheel is caused to effect the shifting of the binder.

2. In a grain harvesting and binding machine, the combination of the harvester, the binding mechanism adjustable forward and backward in relation thereto, and mechanism, substantially as described, for moving the binder, adapted to be thrown into and out of action with the driving-gear of the harvester at the will of the attendant.

3. The combination of the adjustable or shifting binding mechanism, the right and left screw, and the arms adapted to be engaged alternately with said screw.

4. The combination of the harvester-frame, the shifting-binder, the right and left screw connected with and driven by the gearing of the machine, the alternately-acting arms *b* and *c*, and the locking-arm X.

5. In combination with the adjustable binding mechanism, substantially as described, an adjusting mechanism adapted to be thrown into and out of connection with a continuously-moving portion of the machine at the will of the attendant.

6. The combination, with the adjustable binding mechanism and driving-gear, of intermediate connecting mechanism, whereby the binding mechanism may be adjusted in either direction at will by gearing rotating in one direction.

JAMES F. GORDON.

Witnesses:

E. B. WHITMORE,
B. C. WILLIAMS.