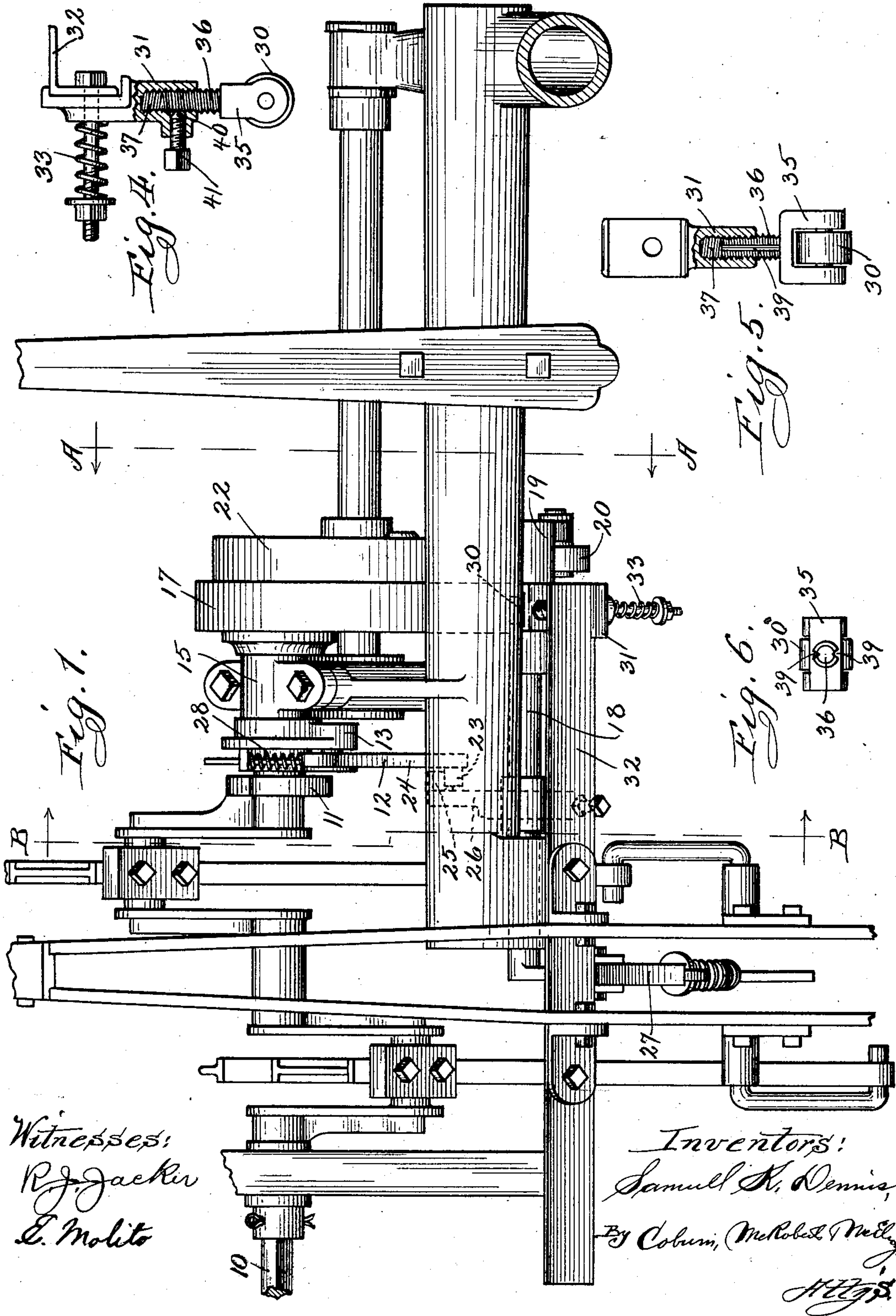


S. K. DENNIS.
BINDING MECHANISM FOR GRAIN HARVESTERS.

APPLICATION FILED DEC. 19, 1902.

NO MODEL.

2 SHEETS—SHEET 1



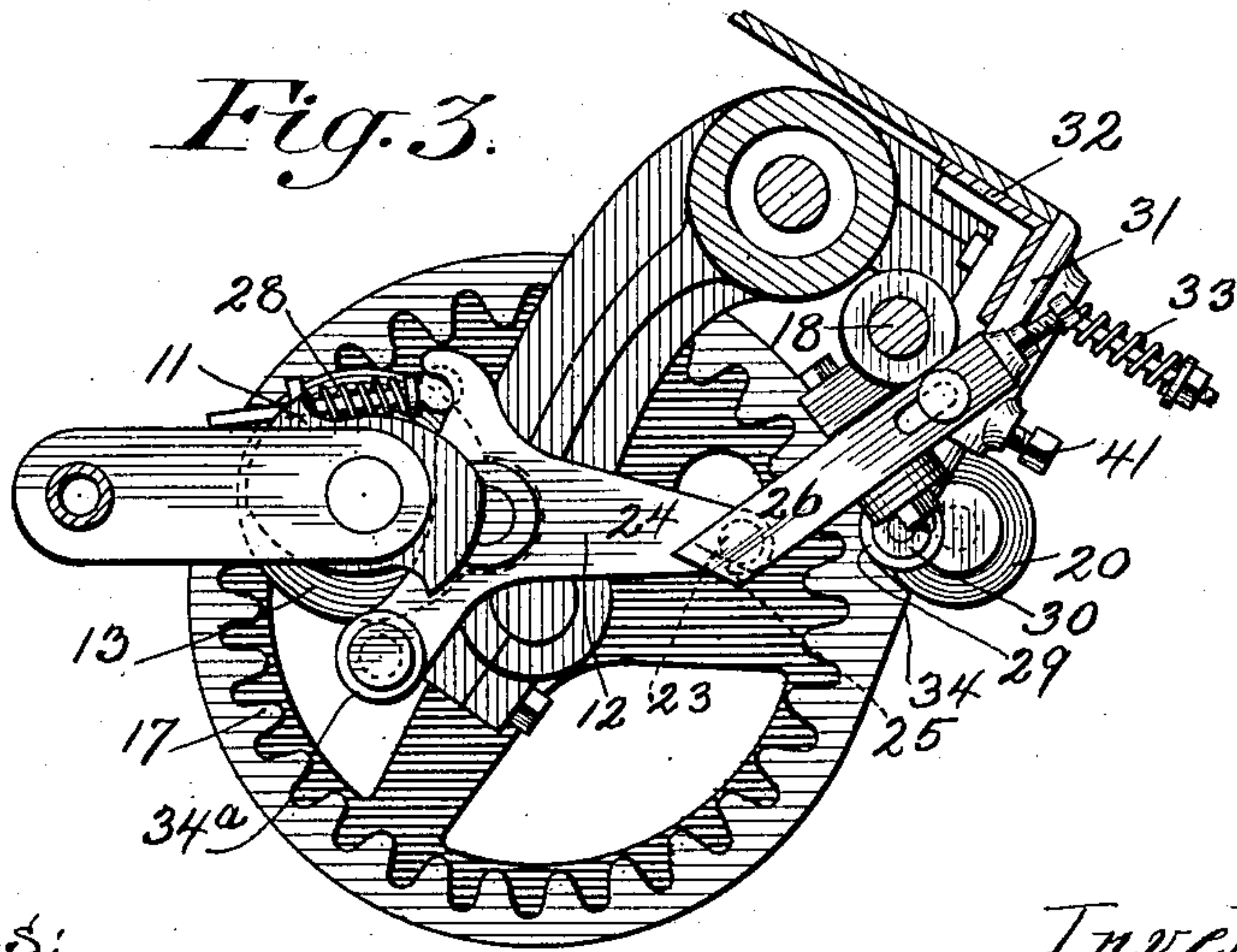
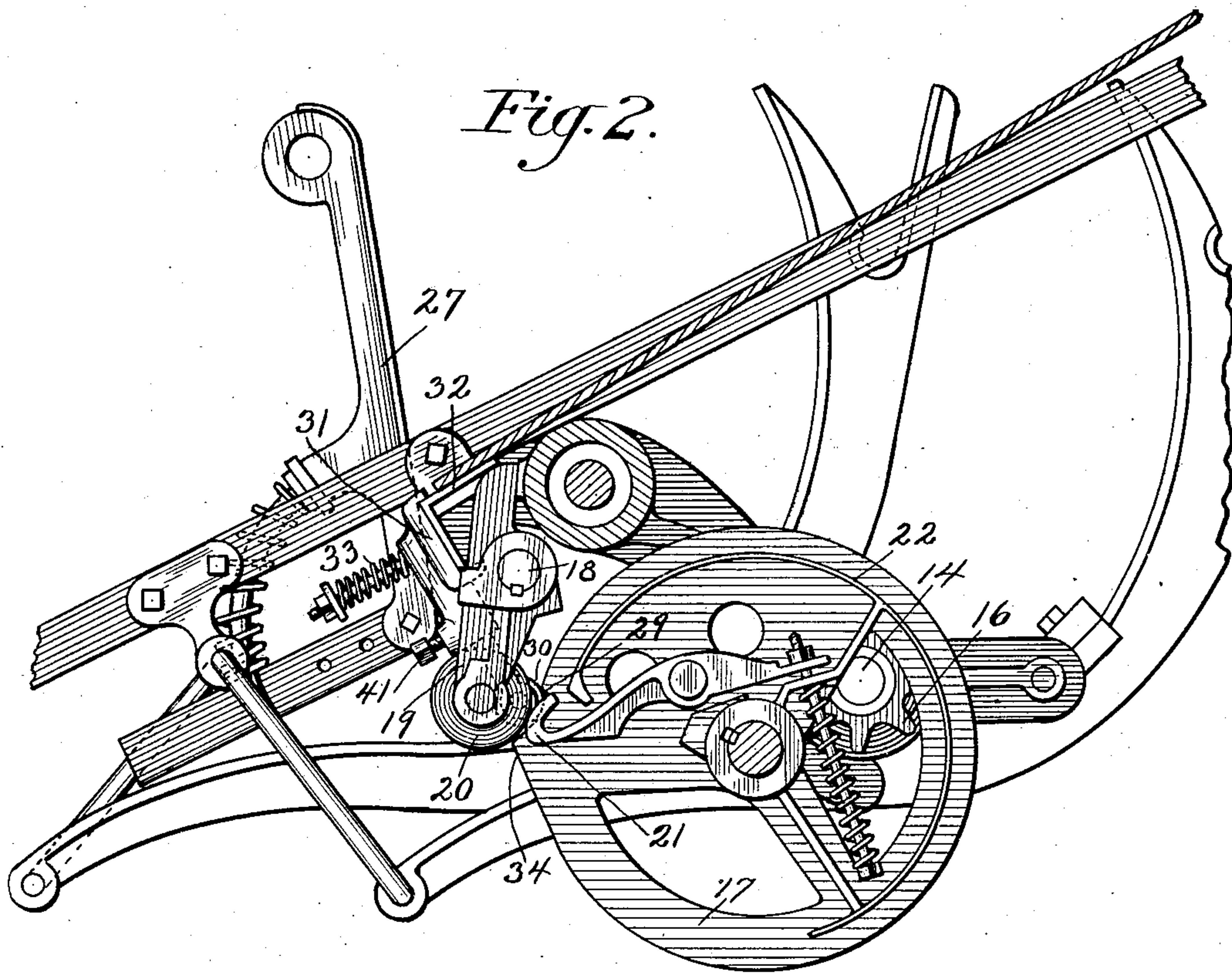
Witnesses:
R. J. Jacker
E. Molito

Inventors:
Samuel K. Dennis,
By Coburn, McRobert & McElroy
Attys.

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Inventor:
 Samuel K. Dennis
 By Coburn, McRobert & McElroy
 Attys.

UNITED STATES PATENT OFFICE.

SAMUEL K. DENNIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PLANO MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BINDING MECHANISM FOR GRAIN-HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 735,721, dated August 11, 1903.

Application filed December 19, 1902. Serial No. 135,840. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL K. DENNIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Binding Mechanism for Grain-Harvesters, of which the following is a specification.

My invention is concerned with certain improvements in the class of grain-binders shown in the patent to Stewart, No. 568,810, dated October 6, 1896, and is designed to improve that class of devices by the employment in connection therewith of an adjustable locking-arm to take the place of the non-adjustable ones hitherto employed, so that by the adjustment thereof to take up any wear on the machinery the resulting hammering of the parts and tendency to trip and bind before the gavel is completed can be entirely remedied.

To illustrate my invention, I annex hereto two sheets of drawings, in which the same reference characters are used to designate identical parts in all the figures, of which—

Figure 1 is a top plan view of so much of the binding mechanism as is concerned with my present invention. Fig. 2 is a sectional view thereof on the line A A of Fig. 1. Fig. 3 is an elevation in section on the line B B of Fig. 1. Figs. 4 and 5 are side and end views of the adjustable arm, partly in section, to show the construction thereof; and Fig. 6 is a top plan view of the roller-bearing screw-bolt employed in connection therewith detached.

Referring to Figs. 1 to 3 in the operation of this type of binders, it will be understood that the packer-shaft 10 is rotating continuously and is intermittently connected by means of the clutch-disk 11, secured on the end thereof, being engaged by the swinging clutch member 12, eccentrically mounted on the opposed disk 13, secured on the end of a short shaft 14, mounted in the bearing 15 and having on the other end a gear-pinion 16, meshing with the internally-toothed cam-wheel 17, which controls the movement of the binder trip-shaft 18. This binder trip-shaft 18 has secured on one end thereof the arm 19, carrying the antifriction-roller 20, which while

the binder is not operating rests against the spring-controlled hook 21, and which when the cam-wheel is rotated when the clutch members 11 and 12 are engaged coöperates with the mutilated flange 22, formed on the outer surface of the cam-wheel 17. The clutch member 12 is normally held out of engagement with the coöperating clutch-disk 11 by means of the lug 23 on the arm 24 thereof engaging with the inwardly-projecting lug 25 on the trip-stop 26, both of the lugs 23 and 25 lying in the same vertical plane and indicated in dotted lines in Fig. 3. The trip-stop 26 is secured on the trip-stop shaft 18, mounted in suitable bearings and which also supports the presser-bar 27. When the presser-bar 27 is moved downwardly sufficiently by the pressure of the gavel being formed, it rocks the trip-stop shaft 18 sufficiently to move the lug 25 out of the path of the lug 23, thus permitting the spring 28 coöperating with the clutch member 12 to swing said clutch member into position to be engaged by the clutch-disk 11, which engagement being effected the rotation of the packer-shaft is imparted to the cam-disk 17 and the binding mechanism is set in operation. The cam-disk 17 makes a complete rotation in the binding of a bundle, at the end of which the presser-bar 27 and the trip-stop shaft 18 are returned to normal position, so that the lug 25 is once more brought into the plane of the lug 23, so that the packer-shaft is unclutched from the cam-wheel 17 and the movement of the binding mechanism proper is stopped. To assist in the stoppage of the cam-wheel and to prevent any possible over-rotation thereof, as well as to hold the parts firmly in their inoperative position to prevent jarring, a recess 29 is formed at the proper point in the periphery of the cam-wheel 17, and an antifriction-roller 30, journaled in the end of a stop-arm 31, which is mounted on the angle-iron 32, coöperates with said recess. The stop-arm 31 is prevented from longitudinal movement by its attachment to the angle-iron, but is capable of a slight swinging movement against the resistance of the spring 33 to permit the starting of the cam-wheel and also the final passage of the projection 34 beneath the roller 30 before it falls into the re-

cess 29 and the parts come to rest. As these devices have been hitherto constructed the stop-arm 31 has been incapable of any longitudinal adjustment, and as a result of the wear of the parts its locking effect on the cam-disk 17 was soon destroyed, in which condition the trip-stop 26 soon became displaced enough to allow the antifriction-roller 34^a, forming the engaging member of the clutch member 12, to approach the path of the clutch-disk 11, so as to be partially engaged thereby, causing a hammering of the parts twice each rotation of the packer-shaft and sometimes becoming so far displaced as to cause entire accidental disengagement of the lugs 23 and 25 and the consequent premature movement of the binding mechanism. To remedy this defect, I have devised the following mechanism for making the trip-arm adjustable, the details of which are best shown in Figs. 4 to 6, where it will be seen that the roller 30 is mounted in a yoke 35, which has projecting upwardly therefrom the screw-threaded extension 36, which is screwed into the cooperating recess 37, formed in the body portion of the stop-arm 31. To provide a means for positively securing the screw-threaded extension 36 in any desired position of adjustment, I form therein one or two vertical grooves 39, into which the pointed end 40 of the screw-bolt 41 is screwed, so as to prevent any possible rotation and consequent displacement after the adjustment is once made. By means of this mechanism I am enabled to entirely take up the wear of the parts and dispense with the hammering and accidental operation of the binder, which has heretofore proved a serious annoyance with devices of this class.

While I have shown my invention as embodied in the form which I at present consider best adapted for carrying out its purposes, it will be understood that it is capable of some modifications, and that I do not desire to be limited in the interpretation of the following claims, except as may be necessitated by the state of the prior art.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a harvester, the combination with the continuously-rotating packer-shaft having the clutch-disk secured on the end thereof, of the shaft concentric therewith and having the eccentrically-mounted spring-pressed clutch member on one end adapted to engage with the clutch-disk when the spring is free to act, and the gear-pinion on the other end, the toothed cam-wheel with which the gear-pinion engages, the trip-stop rock-shaft carrying the trip-stop adapted to engage and

lock the aforesaid spring-pressed clutch member, the presser-bar, and the arm cooperating with the cam-wheel, a locking-notch on said cam-wheel, and the longitudinally-adjustable stop-arm engaging with said notch for the purpose described.

2. In a harvester, the combination with the continuously-rotating packer-shaft having the clutch-disk secured on the end thereof, of the shaft concentric therewith and having the eccentrically-mounted spring-pressed clutch member on one end adapted to engage with the clutch-disk when the spring is free to act, and the gear-pinion on the other end, the toothed cam-wheel with which the gear-pinion engages, the trip-stop rock-shaft carrying the trip-stop adapted to engage and lock the aforesaid spring-pressed clutch member, the presser-bar, and the arm cooperating with the cam-wheel, a locking-notch on said cam-wheel, and the longitudinally-adjustable stop-arm engaging with said notch for the purpose described and consisting of the internally-screw-threaded body portion held from longitudinal movement, the cam-wheel-engaging end screwed into said body portion, and means for locking the two portions in the chosen position.

3. In a harvester, the combination with the continuously-rotating packer-shaft having the clutch-disk secured on the end thereof, of the shaft concentric therewith and having the eccentrically-mounted spring-pressed clutch member on one end adapted to engage with the clutch-disk when the spring is free to act, and the gear-pinion on the other end, the toothed cam-wheel with which the gear-pinion engages, the trip-stop rock-shaft carrying the trip-stop adapted to engage and lock the aforesaid spring-pressed clutch member, the presser-bar, and the arm cooperating with the cam-wheel, a locking-notch on said cam-wheel, and the longitudinally-adjustable stop-arm engaging with said notch for the purpose described and consisting of the internally-screw-threaded body portion held from longitudinal movement, the cam-wheel-engaging end screwed into said body portion, and means for locking the two portions in the chosen position consisting of a set-screw in the body portion adapted to engage a groove in the screw-threaded portion of the engaging end.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL K. DENNIS.

Witnesses:

FRED E. NAGEL,
C. W. LEFFINGWELL.