

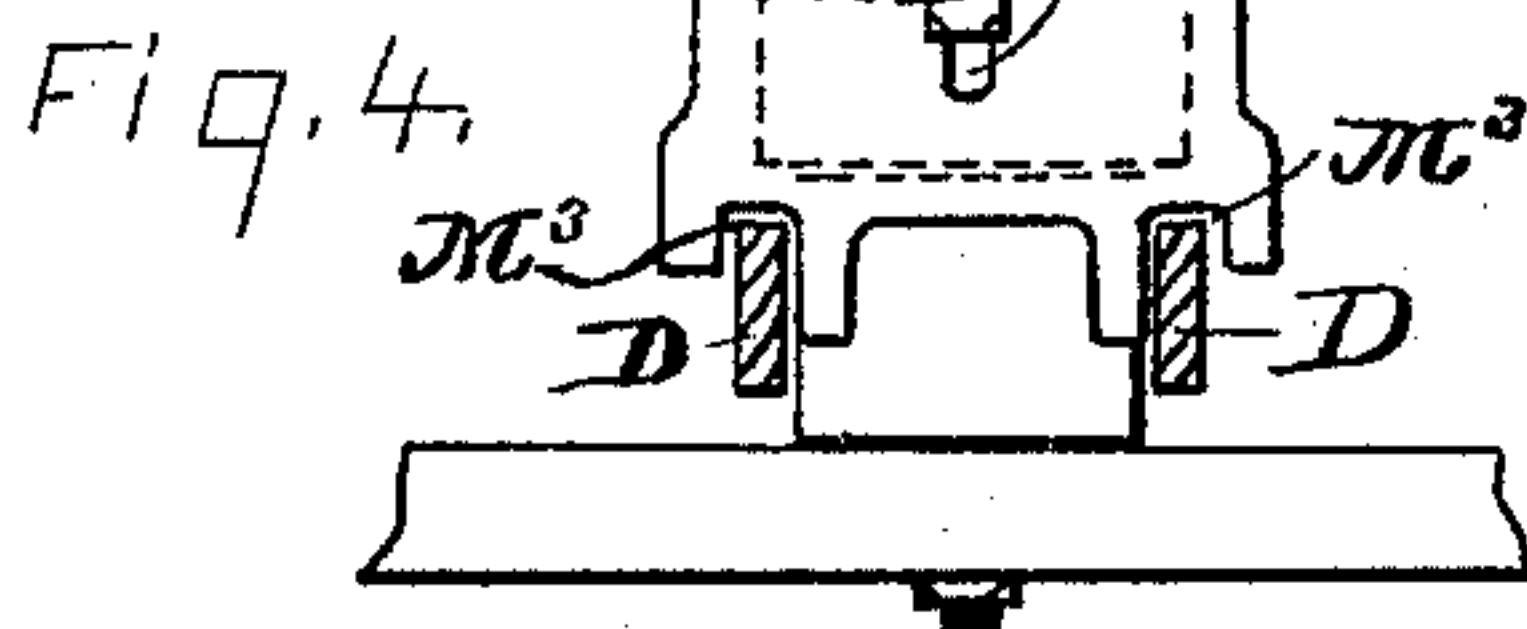
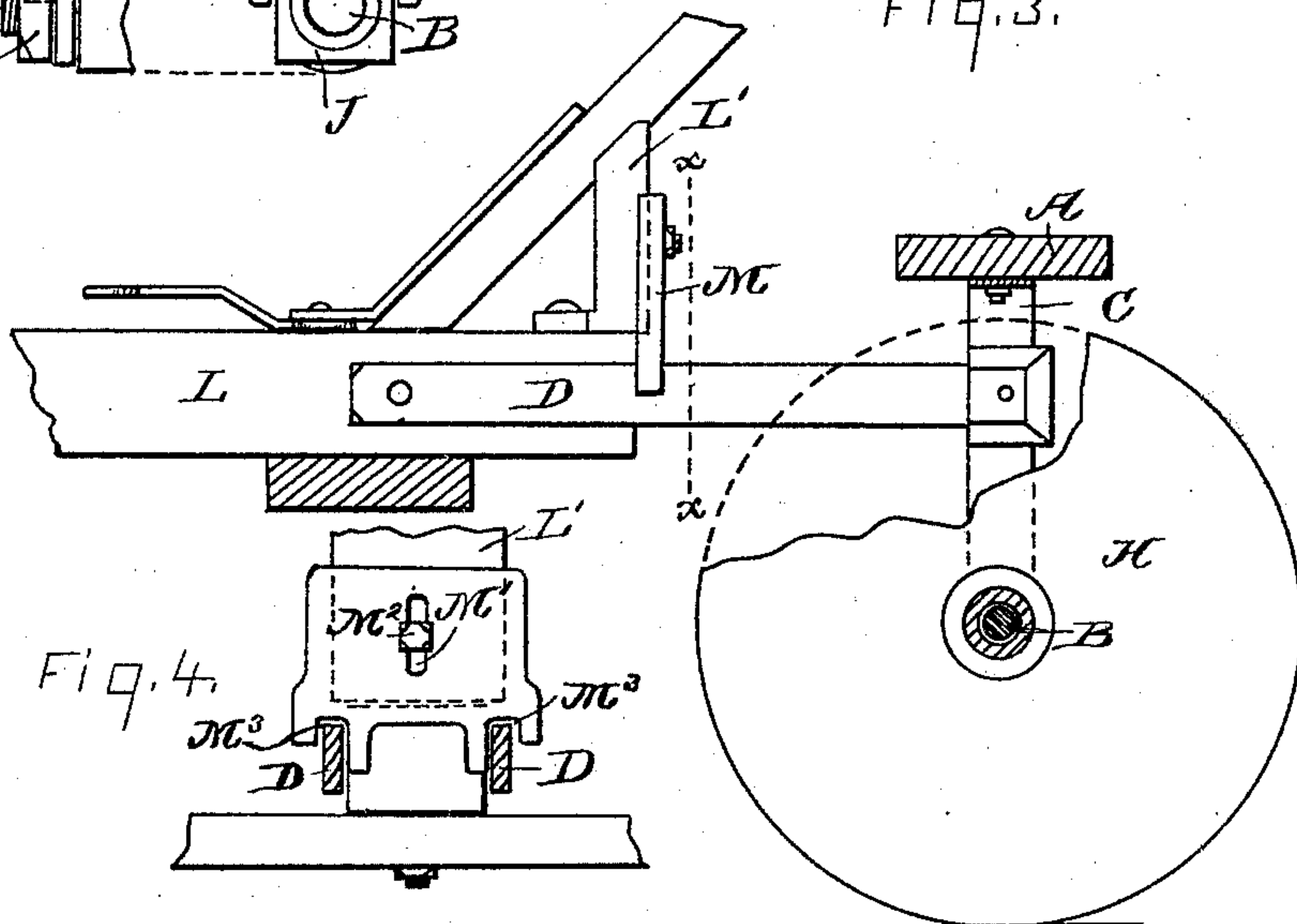
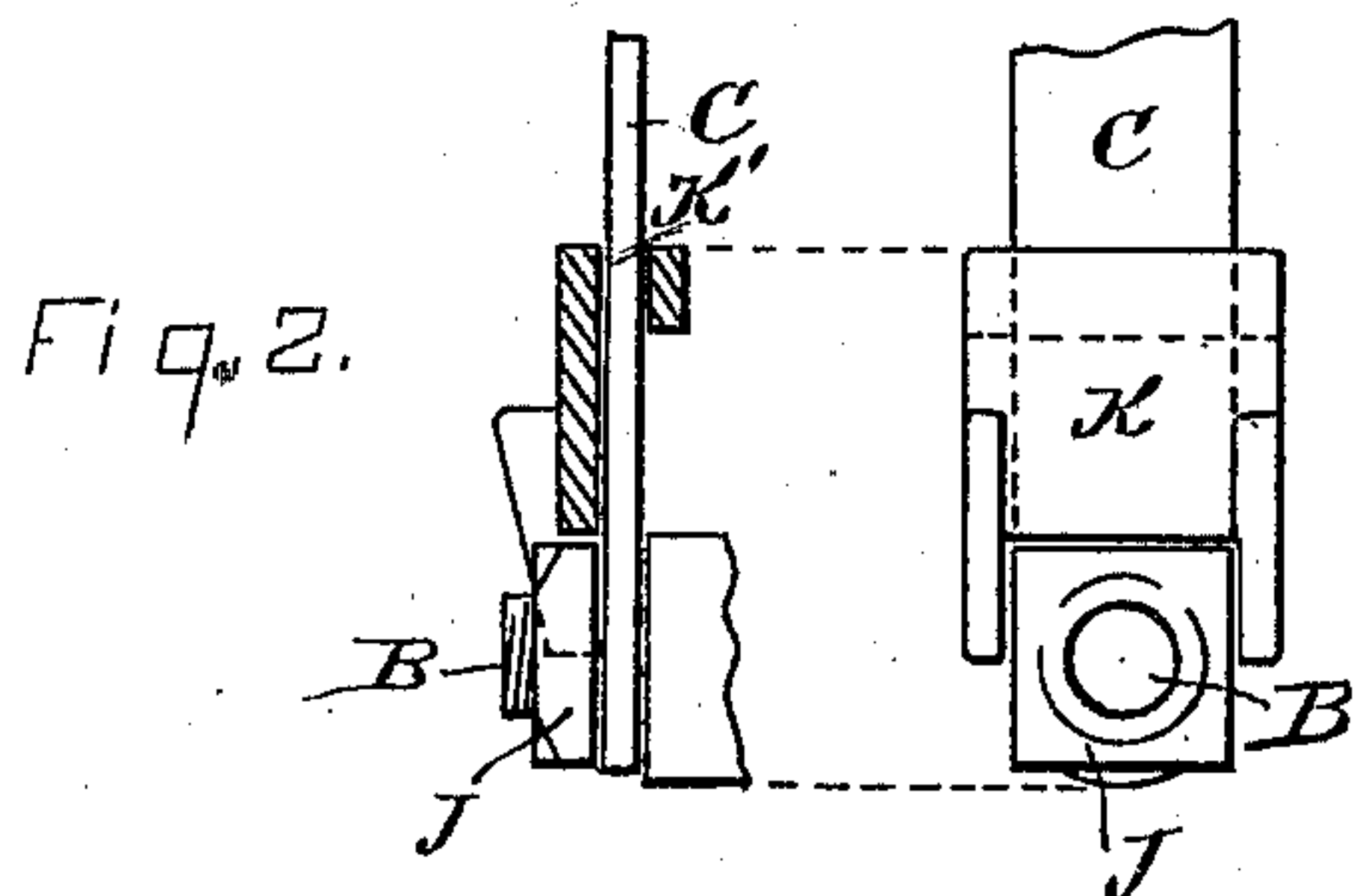
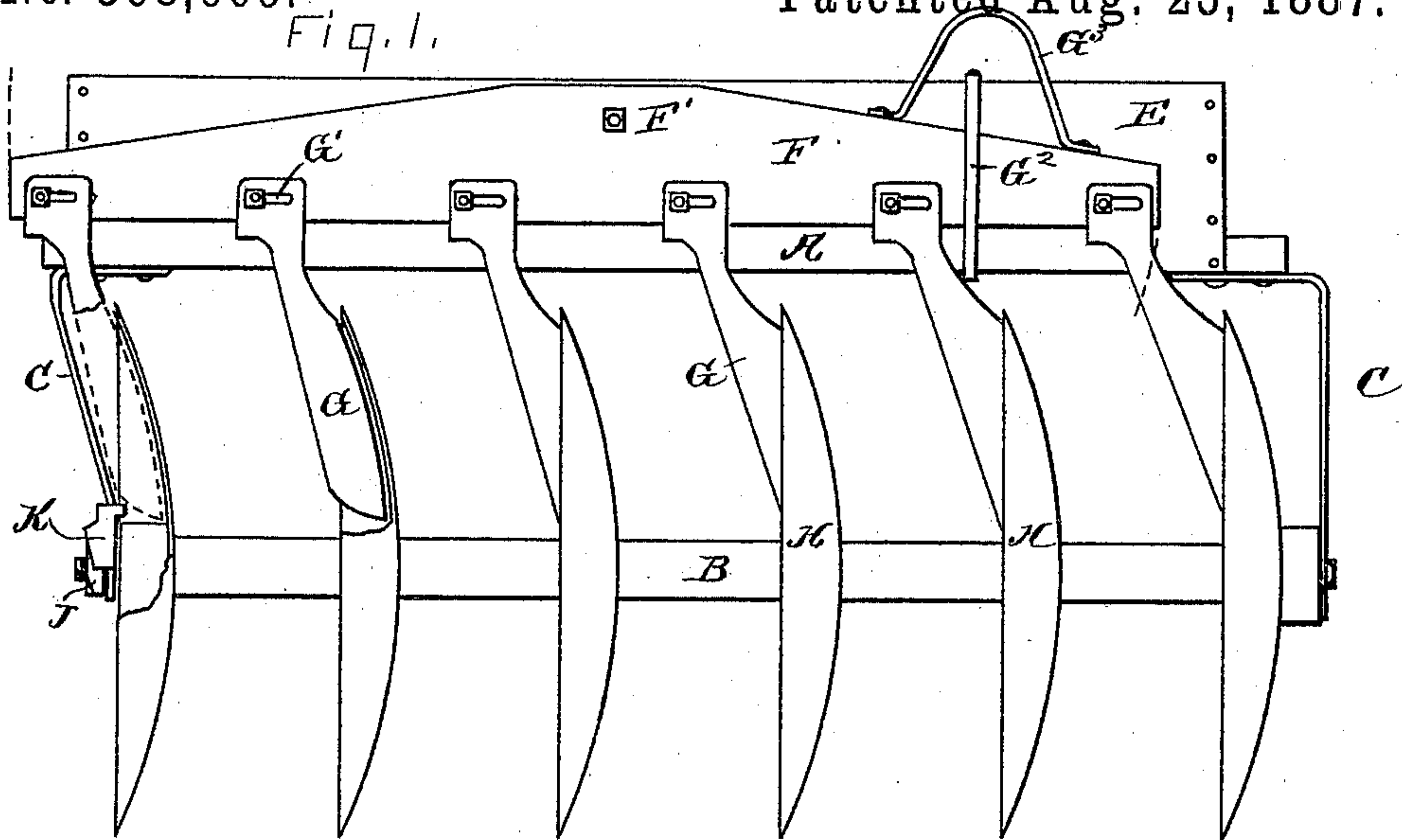
(No Model.)

L. E. PHELPS, R. K. SWIFT & J. J. A. ZELLER.

DISK HARROW.

No. 368,609.

Patented Aug. 23, 1887.



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UNITED STATES PATENT OFFICE.

LYMAN E. PHELPS, OF ROCHELLE, AND R. K. SWIFT AND JOHN J. A. ZELLER,
OF ROCK FALLS, ILLINOIS.

DISK-HARROW.

SPECIFICATION forming part of Letters Patent No. 368,609, dated August 23, 1887.

Application filed February 7, 1887. Serial No. 226,840. (No model.)

To all whom it may concern:

Be it known that we, LYMAN E. PHELPS, R. K. SWIFT, and JOHN J. A. ZELLER, citizens of the United States, said PHELPS residing at Rochelle, Illinois, and said SWIFT and ZELLER at Rock Falls, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Disk-Harrows; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Our invention consists in certain improvements in disk-harrows, being additions which we have found to be advantageous and practicable to the construction shown in United States Patents Nos. 310,475 and 337,017, heretofore granted us for improvements in disk-harrows on January 6, 1885, and March 2, 1886, respectively; and inasmuch as the present construction is in the mode such as exhibited in said patents, we do not deem it necessary to repeat or describe the same further than would be necessary to make clear the location, construction, and operation of our present improvements.

In the drawings, Figure 1 exhibits the rear elevation of the left one of the gang of disks, showing the location relative to the disks of the oscillating scraper-bar. The short dotted lines at the end of said bar indicate the direction taken by the latter when the scrapers are permitted to fall away from the disks. Fig. 2 shows the end and side view of our improved nut-lock for holding the nut on the end of the axle of the disk-gangs in any desired position. Fig. 3 is a partial side elevation exhibiting the slotted plate at the rear of the tongue, which is adjustably seated over and intended to regulate the altitude of the draft-rods D D, which latter are respectively attached to the inner ends of the disk-gangs in any suitable mode. Fig. 4 is a cross-section in the line *xx* of Fig. 3.

The foregoing specified devices constitute

substantially the improvements which are desired to be secured by this application.

Referring to Fig. 1, A is the transverse draft-frame, to which the axle B of the disk-gang is attached by means of vertical braces C, connecting said draft-frame with said axle, the lower end of said braces being collared on said axle. E is a plank or board extending vertically edgewise from and suitably attached to the rear of the draft-frame A. F is a scraper-bar pivoted at its longitudinal center on the bolt F', the latter being passed transversely through the bar F and plank E. G G are the scrapers fastened adjustably, as shown, by means of bolts passed through the horizontal slots G' in the shank of the scraper G. The cutting-faces of the scrapers G are shaped to conform to the concave faces of the disks H when drawn into contact with the latter. The scraper-bar F is so pivoted that its center of gravity is slightly within the pivot-bolt F', so that the scraper-bar in its normal position will swing downward at its inner end and upward at its outer end, in the direction indicated by the short dotted lines at the ends thereof, and thus cause the scrapers G to swing out of contact with the disks H. The stop or rest G², attached to the frame A, limits the oscillation of said scraper-bar. As above stated, Fig. 1 exhibits the left one of the gangs. A suitable handle, G³, is placed upon the bar F near its inner end and within convenient reach from the driver's seat. The normal position of the scraper-bar is that in which the scrapers have automatically swung away from the disks H, and when it is desired to scrape said disks the driver grasps the handle G³, and, by slightly raising the inner end of the bar F, brings the scrapers G into contact with the disks H and holds them there until the disks are sufficiently cleaned, when, by removing his hand, the scrapers automatically, by means of the oscillation of the bar F, fall away from the disks. The operation can be repeated and prolonged as often or as long as may be necessary, it often being the case in some soils that little or no scraping is required.

The operation of this improvement of ours

is commendable for its simplicity and efficiency.

Referring to Fig. 2, C is a vertical brace, the lower end of which is loosely collared on the axle B of the disk-gangs. J is the nut screwed on the outer end of the axle B, and intended to exert a certain degree of compression throughout the gang of disks. It is impracticable to screw the nut J sufficiently tight to insure its stability. At the same time the wear on the ends of the boxes or thimbles of the disks H requires that the nut J be adjustable; and it is sometimes necessary to remove said nut in order to replace broken parts. The required condition of the nut J being therefore that of comparative looseness, great difficulty has been experienced in holding the latter at any required position. In our invention we have obviated this difficulty by providing the nut-lock K, which is furnished at its upper end with slot K', through which it is strung and adapted to slide loosely on the brace C. The lower end of the lock K is adapted to slide loosely down over the front and rear edges of the nut J, and thereby hold the latter from casually turning in either direction. The gravity of the lock K holds it in position on the nut J, and when it is desired to remove or change the latter said lock is easily slipped up on the brace C sufficiently to disengage the nut J, and when the latter is replaced the lock K automatically drops over said nut and holds the latter in any position in which it is placed. As the lock K can be disengaged from the nut only by rising vertically, no operation or jar of the disk-gang will cause its disengagement.

Referring to Figs. 3 and 4, L is a tongue, to the sides of which are pivotally attached the draft-rods D D. As in the operation of the disk-gangs the tendency of their inner ends is to rise, some method of preventing such rising is necessary in order to compel the line of disks to remain parallel to the surface of the ground. This might be accomplished by a fixed stop over the draft-rods D were it not for the fact that the varying heights of different teams would change the maximum altitude permitted to such rods. To meet this exigency we provide the plate M, which is seated adjustably on the rear side of the short brace L' on the rear end of the tongue L by means of the vertical slot M' in such plate, through which slot said plate is attached by means of the bolt M² to said brace L'. Recesses M³ in the lower edge of the plate M bestride, respectively, the rods D and limit the upward movement of the latter. By means of the slot M' the altitude of the plate M relative to that of the rods D can be adjusted to suit the height of different teams, or to regulate for any reason the maximum altitude of the inner end of the disk-gangs.

What we claim as our invention, and desire to secure by Letters Patent of the United States, is—

1. In a disk-harrow, in combination with the disks H, the scraper-bar F, pivoted near its longitudinal center to any suitable part of the machine and extended substantially parallel with the line of said disks, scrapers G G, attached to said bar F, the center of gravity of said bar and its attached scrapers being slightly at one side of the pivotal point of said bar, so that said scrapers by means of the oscillation of said bar will automatically swing away from said disks and be adapted to be drawn into contact with the latter as required, substantially as shown, and for the purpose described.

2. In combination with the gang of disks H, a superimposed scraper-bar, F, adapted to oscillate on its pivotal point, placed at or near its longitudinal center, and scrapers G, attached to said bar and adapted, substantially as shown, to automatically, by means of the oscillation of said bar upon its pivot, swing out of contact with said disks and be drawn into contact with the latter at will, for the purpose described.

3. In a disk-harrow, the combination of a gang of disks, the oscillating scraper-bar, and scrapers attached to said bar and adapted by the oscillation of the latter to be drawn to or from the sides of said disks, respectively, substantially as shown, for the purpose described.

4. In a disk-harrow, the combination of the nut J, seated on the axle of the disk-gang, the nut-lock K, provided with slot K', and a vertical brace or way, C, passed loosely through said slot K', whereby said lock K is adapted by its own gravity to engage and hold said nut in any desired position, substantially as shown.

5. In a disk-harrow, the combination of the draft-rods D D, suitably attached at their rear ends, respectively, to the inner ends of the disk-gangs and pivoted at their forward ends to the frame of the machine, and the plate M, provided with recesses M³, placed bestride the upper edge of said draft-rods, and provided, further, with the slot M', and adjustably attached through said slot to any suitable part of the machine, substantially as shown, and for the purpose described.

In testimony whereof we affix our signatures in presence of two witnesses.

LYMAN E. PHELPS.
R. K. SWIFT.
JOHN J. A. ZELLER.

Witnesses:

THOMAS A. GALT,
CYRUS KEHR.