

(Model.)

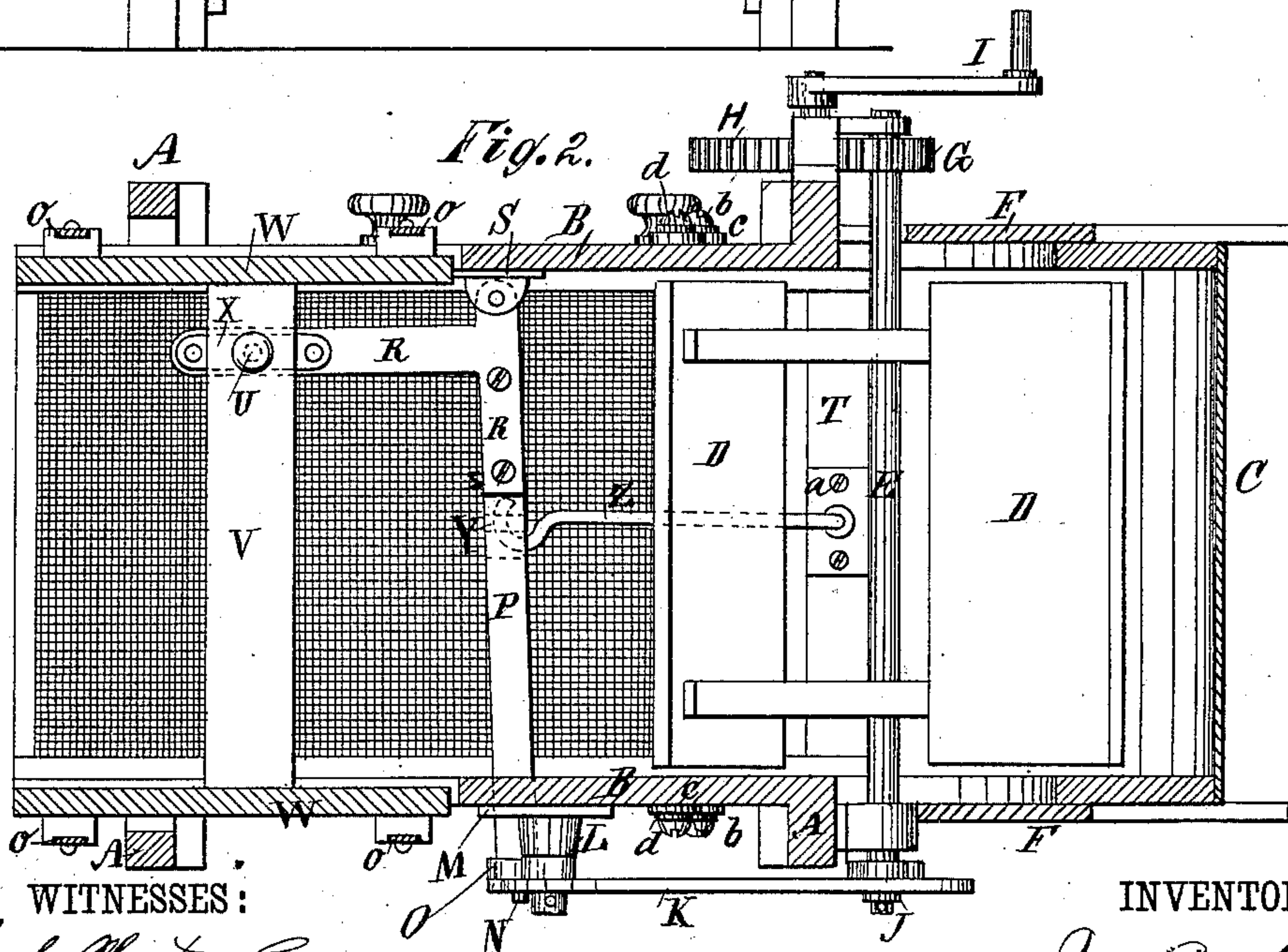
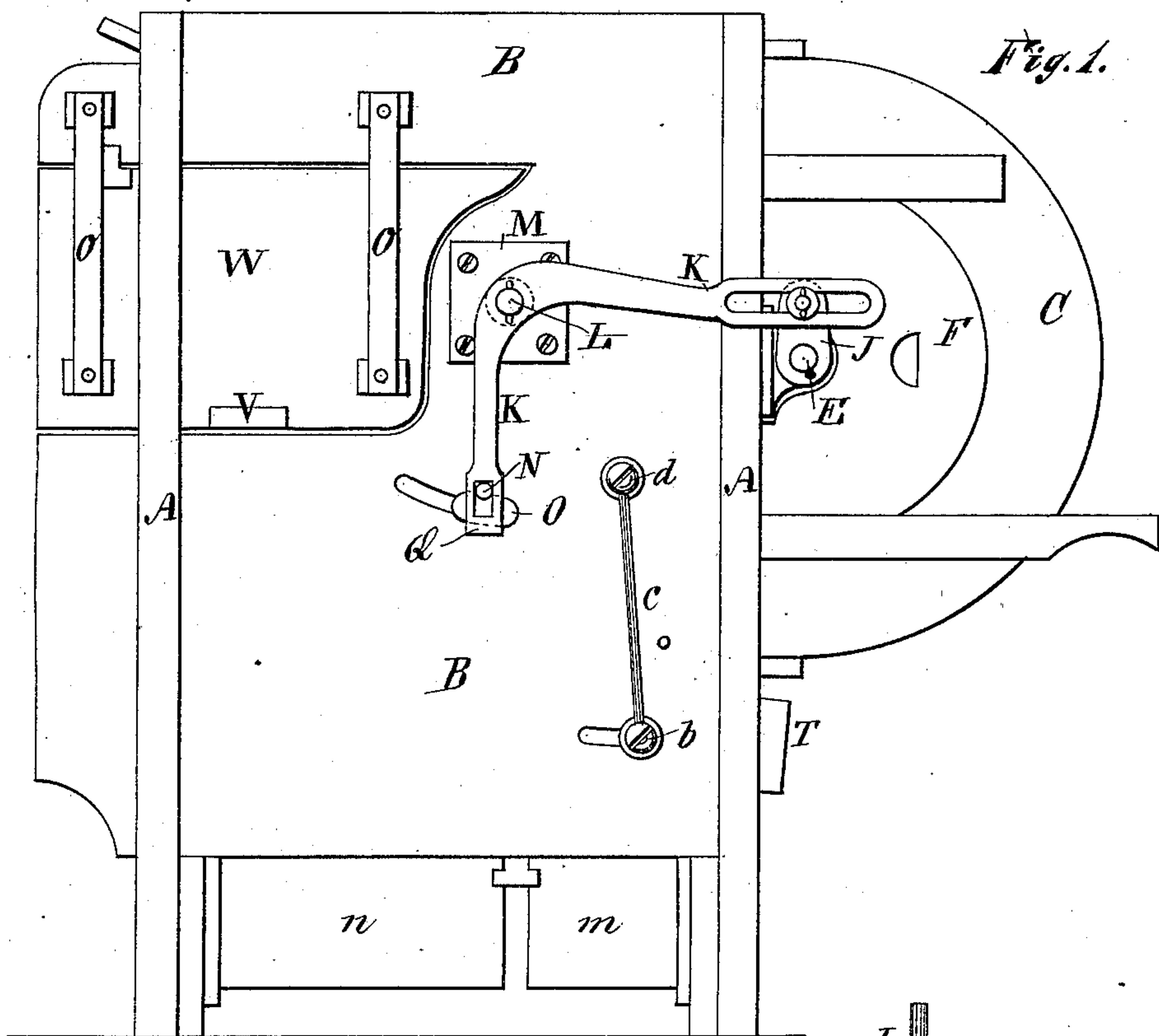
2 Sheets—Sheet 1.

J. D. BUSH.

FANNING MILL.

No. 256,972.

Patented Apr. 25, 1882.



WITNESSES :

Philo. Foster.
C. Sedgwick

INVENTOR:

J. D. Bush
BY Merritt & Co

ATTORNEYS.

(Model.)

2 Sheets—Sheet 2.

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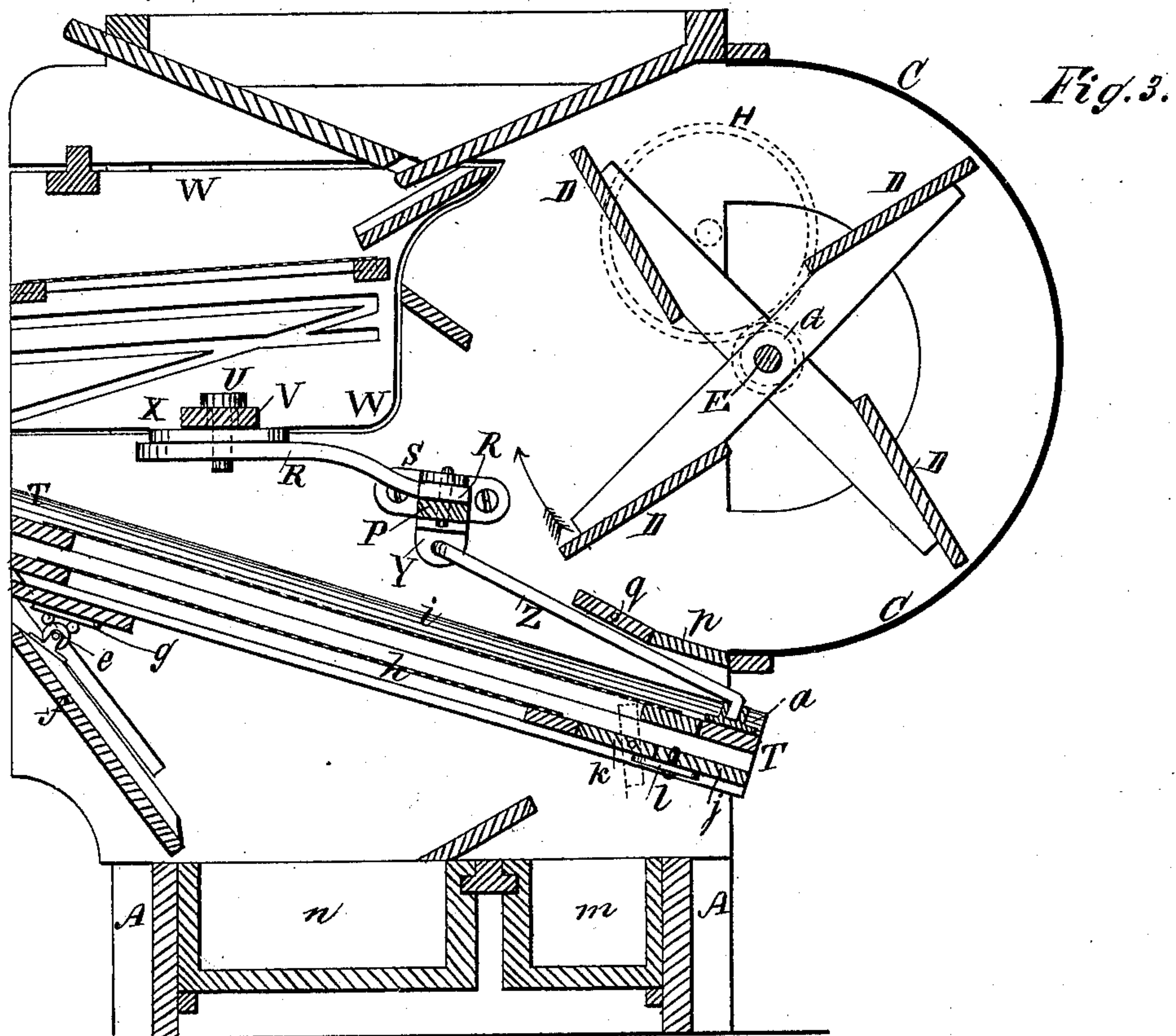


Fig. 3.

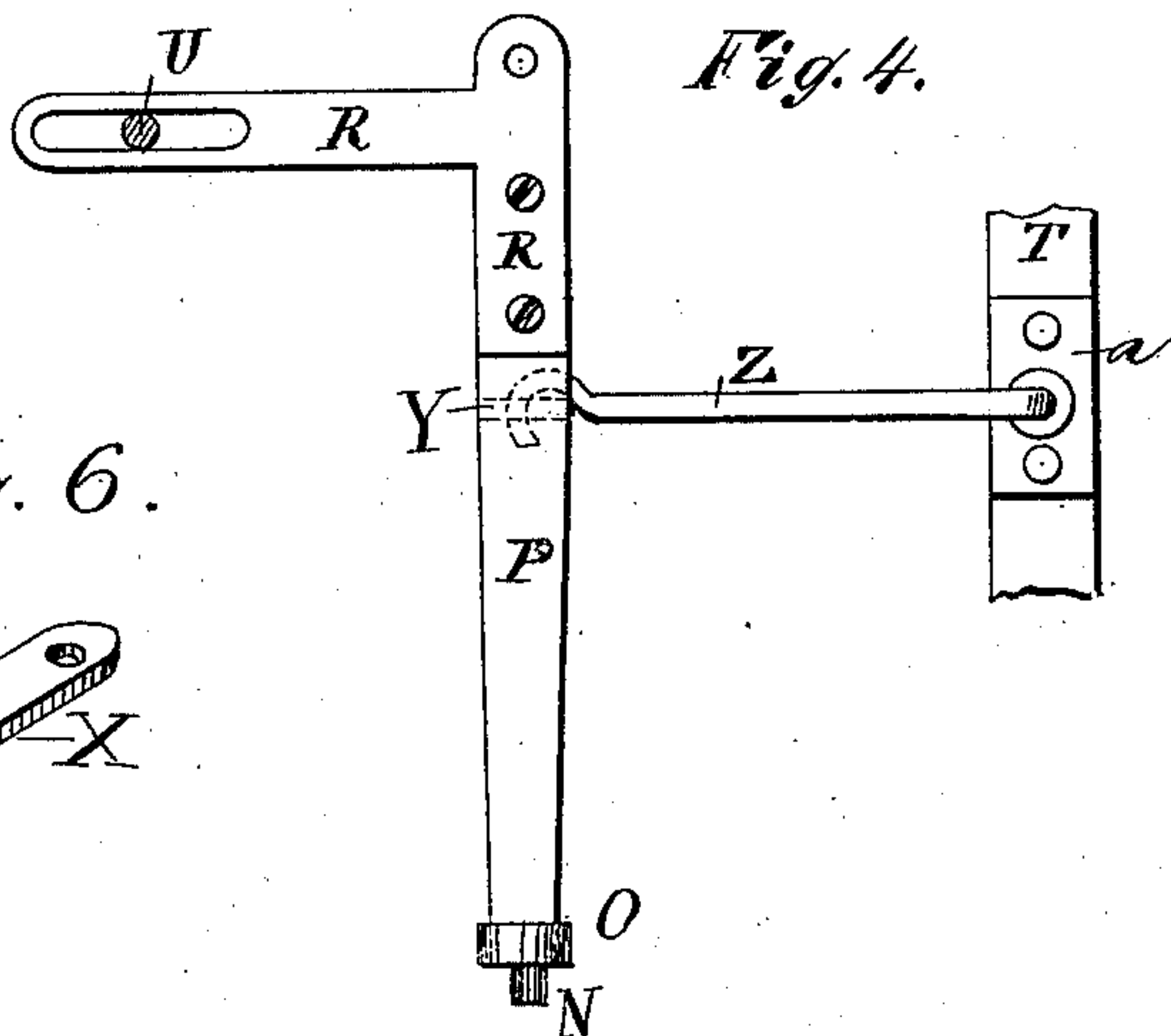


Fig. 4.

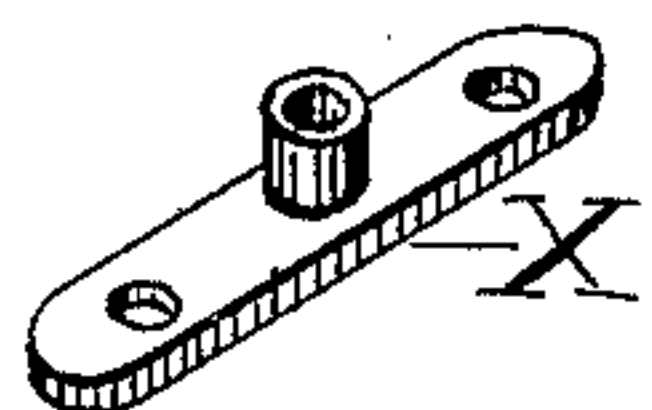


Fig. 6.

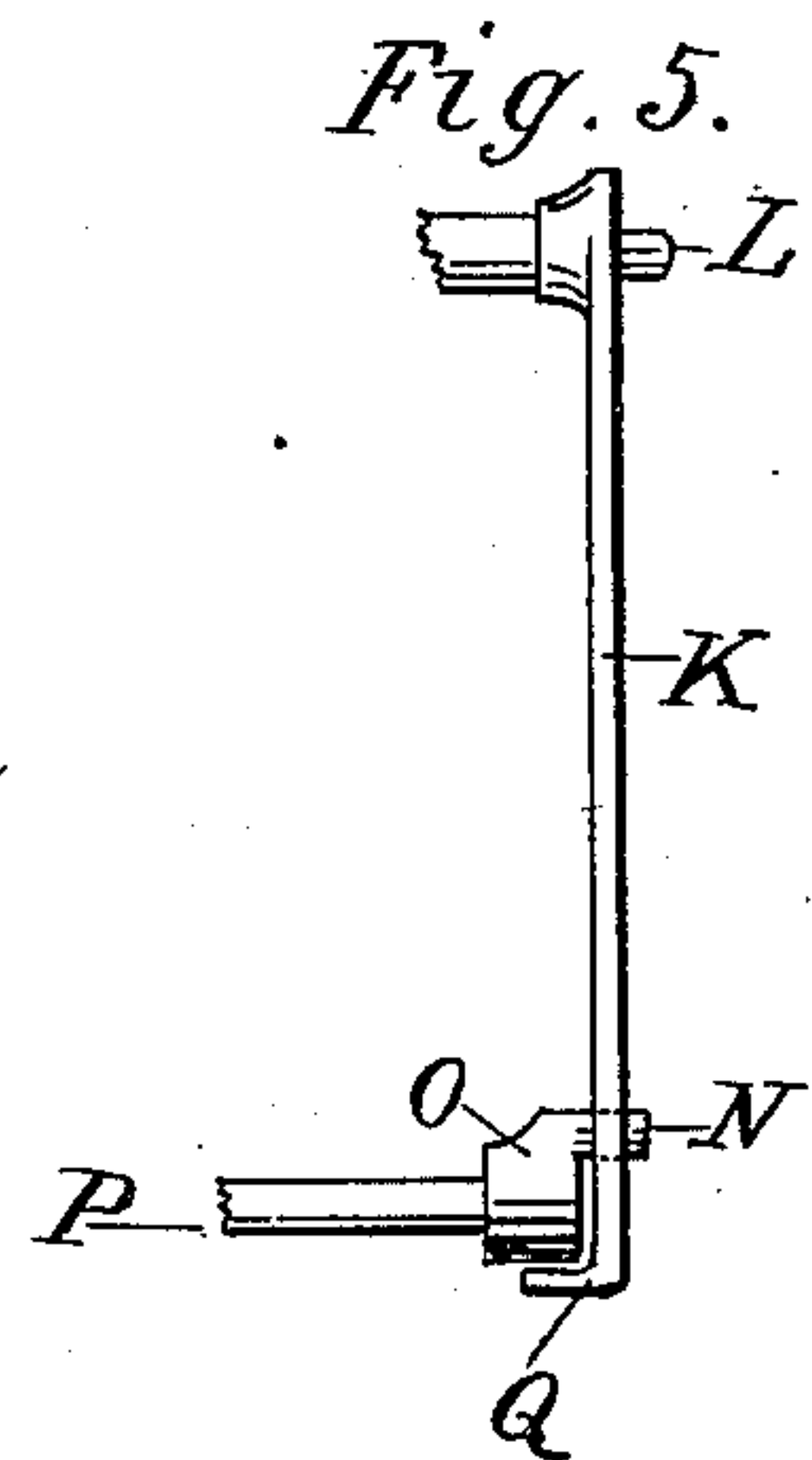


Fig. 5.

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UNITED STATES PATENT OFFICE.

JONATHAN D. BUSH, OF LEBANON, MISSOURI.

FANNING-MILL.

SPECIFICATION forming part of Letters Patent No. 256,972, dated April 25, 1882.

Application filed August 16, 1881. (Model.)

To all whom it may concern:

Be it known that I, JONATHAN DUANE BUSH, of Lebanon, in the county of Laclede and State of Missouri, have invented a new and useful Improvement in Fanning-Mills, of which the following is a full, clear, and exact description.

In the accompanying drawings, Figure 1 is a side elevation of my improvement. Fig. 2 is a sectional plan view of the same. Fig. 3 is a sectional side elevation of the same. Fig. 4 is a plan view of the lever, angle-bar, and rod for operating the shoes. Figs. 5 and 6 are detail views of the bent lever and cross-plate respectively.

Similar letters of reference indicate corresponding parts.

The object of this invention is to promote the efficiency of the fan-mills, simplify and cheapen their construction, and increase their durability.

The invention consists in the combination, with the fan-shaft, the upper shoe, and the lower shoe, of the crank, the pivoted bent lever, the cross-lever, the angle-bar attached to the cross-lever, and the rod hinged to the cross-lever, whereby the upper shoe will be vibrated laterally and the lower shoe longitudinally from the fan-shaft; also, in the combination, with the casing, crank, fan-shaft, and the cross-lever provided with a pin at its end, of the bent lever having its end slotted and pivoted to the said casing; also, in the combination, with the slotted lower end of the bent lever having a flange or foot formed upon it, and the outer end of the cross-lever, of the band having a pin projecting from its upper part, whereby the wear and friction are lessened; also, in the combination, with the cross-bar of the upper shoe and the cross-lever, of the angle-bar, the cross-plate having center thimble and end holes, and the connecting-pin, whereby the movement of the said shoe can be regulated; also, in the combination, with the casing, the pivoted bent lever, and the upper shoe, of the cross-lever and the angle-bar pivoted to the casing, and having its longer arm slotted; and, also, in the combination, with the casing, the pivoted bent lever, the upper shoe, and the lower shoe provided with a socket-plate, of the cross-lever, the angle-bar, the lug-plate, and the connecting-rod, as will be hereinafter fully described.

A represents the frame, and B the casing, of a fan-mill. C is the fan-drum, and D are the

fans, which are attached to the fan-shaft E. The air enters the drum C through openings in the sides of the said drum, and the amount of air received is regulated by sliding doors or gates F, by means of which the said openings can be fully closed, partly closed, or fully opened. The fan-shaft E revolves in bearings attached to the front posts of the frame A.

To one end of the shaft E is attached a small gear-wheel, G, the teeth of which mesh into the teeth of the larger gear-wheel, H. The gear-wheel H is journaled to a post of the frame A, and to a support or bracket attached to the said post. To the outer journal of the gear-wheel H is attached the crank I, by means of which motion is given to the fans. To the other end of the fan-shaft E is attached a small crank or crank-wheel, J, the crank-pin of which passes through a longitudinal slot in the horizontal arm of the bent lever K. The lever K is pivoted at its bend or angle to a post, L, upon which it is kept by a pin or other suitable fastening. The post L is cast with a shoulder for the lever K to rest against, and with a base-flange, M, to receive the screws by means of which the said post is secured to the side casing, B, of the mill. The lower end of the downwardly-projecting arm of the lever K is slotted to receive the pin N, formed upon the upper part of the band O, which is driven upon the end of the lever P, which passes through a curved slot in the casing B. The lower side of the band O rests upon an inwardly-projecting flange or foot, Q, formed upon the lower end of the lever K, so as to relieve the pin N and lessen friction and wear. The downwardly-projecting arm of the lever K, being slotted and engaging the lever P, causes the lever P to move back and forth in the curved slot of the casing when the fan-shaft is operated. The lever P extends across the mill and has the cross-head of an angle-bar, R, attached to it. The farther or outer end of the cross-head of the angle-bar R is inserted between and pivoted to lugs formed upon the plate S, by a pin passing through the said lugs and the said end. The lug-plate S is secured to the inner surface of the side casing, B, in such a position that the lever P will be parallel with the lower shoe, T, of the mill, or nearly parallel. The long arm of the angle-bar R is slotted at its outer end to receive the pin U, which also passes through a hole in the

cross-bar V, attached to the upper shoe, W, and through a hole in the cross-plate X, attached to the said cross-bar V. The cross-plate X, which is for the purpose of giving a greater or less movement to the upper shoe, has a thimble formed upon its upper side, which passes through the cross-bar V, and thus secures the said cross-plate X firmly to the said cross-bar V. The ends of the cross-plate X project at the sides of the cross-bar V, and have holes formed through them to receive the pin U. With this construction, the greatest movement will be given to the upper shoe, W, when the pin U is inserted in the hole in the outer arm of the cross-plate X, the least movement when the said pin is inserted in the hole in the inner arm of the said cross-plate, and a medium movement when it is inserted in the central hole or thimble of the said cross-plate, the slot in the angle-bar R being made of such a length that it will receive the pin U in either position.

To the under side of the lever P is attached a lug-plate, Y, to the lug of which is hinged an end of a rod, Z. The rod Z passes forward nearly parallel with the lower shoe, T, and its other end is bent downward at right angles, and works in a socket in a plate, a, attached to the center of the lower end of the shoe T, so that the said shoe T will be vibrated by the vibration of the lever P.

To the sides of the lower part of the shoe T are attached pins or screws b, which pass through curved slots in the side casings, B, and to their outer ends are hinged the lower ends of the suspension-rods c. The upper ends of the rods c are hinged to pins or screws d, attached to the side casings, B. The suspension-rods c are designed to support about three-fourths of the weight of the shoe T. The rear parts of the side bars of the shoe T rest upon rollers e, attached to the tail-board f, so that the said shoe can move freely, and so that the inclination of the said shoe can be regulated by adjusting the said tail-board f.

To the parts of the side bars of the shoe T that rest upon the rollers e are attached metal plates g to prevent wear. The lower surface of the wear-plates g are roughened, so that as the shoe T moves upon the rollers e it will be jarred to keep its screens clear and prevent them from becoming clogged with grain. The sides of the shoe T are beveled upon the inner sides of their upper edges to prevent grain from lodging upon the said edges and falling down between the said shoe and the said casings. The lower screen, h, of the shoe T is made shorter than the upper screen, i, and the space between the lower end of the screen h and the lower end of the shoe T is occupied by the boards j k. The lower board, j, is permanently attached to the side bars of the shoe T; but the upper board, k, is pivoted at its ends to the said side bars, so that it can be turned up to close the space beneath the upper screen, i, and direct the grain that may be sliding down the lower screen, h, into the forward drawer, m, or turned down to allow the grain that may be

sliding down both screens to pass out together at the front of the mill. The board k is secured in place, when adjusted, by a button, l. The grain and seeds that pass through the lower screen, h, are received in the rear drawer, n.

The upper shoe, W, is fitted into openings in the side casings, B, and is suspended by spring-bars o, the lower ends of which are attached to the lower parts of the sides of the said shoe, and their upper ends are attached to the side casings, B, above the said shoe. The lower part of the fan-drum C is extended inward by means of two boards, p q, the lower one, p, of which is rigidly attached to the side casings, B, and the upper one, q, is pivoted at its ends to the said casings, so that it can be turned upon its pivots to direct the air-blast, as the work to be done may require.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a fan-mill, the combination, with the fan-shaft E, the upper shoe, W, and the lower shoe, T, of the crank J, the pivoted bent lever K, the lever P, the angle-bar R, the lug-plate Y, and the rod Z, substantially as herein shown and described, whereby the upper shoe will be vibrated laterally and the lower shoe longitudinally from the said fan-shaft, as set forth.

2. In a fan-mill, the combination, with the casing B, the crank J, fan-shaft E, and the vibrating lever P, provided with pin N, of the bent lever K, having its ends slotted and pivoted at its bend to the said casing, substantially as and for the purpose set forth.

3. In a fan-mill, the combination, with the slotted lower end of the bent lever K, having flange or foot Q, and the end of the lever P, of the band O, having pin N, substantially as herein shown and described, whereby the wear and friction are lessened, as set forth.

4. In a fan-mill, the combination, with the cross-bar V of the upper shoe, W, and the lever P, of the slotted angle-bar R, the cross-plate X, having center thimble and end holes, and the pin U, substantially as herein shown and described, whereby the movement of the said shoe can be regulated, as set forth.

5. In a fanning-mill, the combination, with the casing B, the fan-shaft E, crank J, the bent lever K, and the upper shoe, W, of the lever P, and the angle-bar R, pivoted to the side of the said casing, and having the arm operating the shoe slotted, substantially as and for the purpose set forth.

6. In a fan-mill, the combination, with the casing B, the fan-shaft E, the crank J, the bent lever K, the upper shoe, W, and the lower shoe, T, provided with socket-plate a, of the lever P, the angle-bar R, the lug-plate Y, and the rod Z, substantially as and for the purpose set forth.

JONATHAN DUANE BUSH.

Witnesses:

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C. C. DRAPER,

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