

No. 754,484.

PATENTED MAR. 15, 1904.

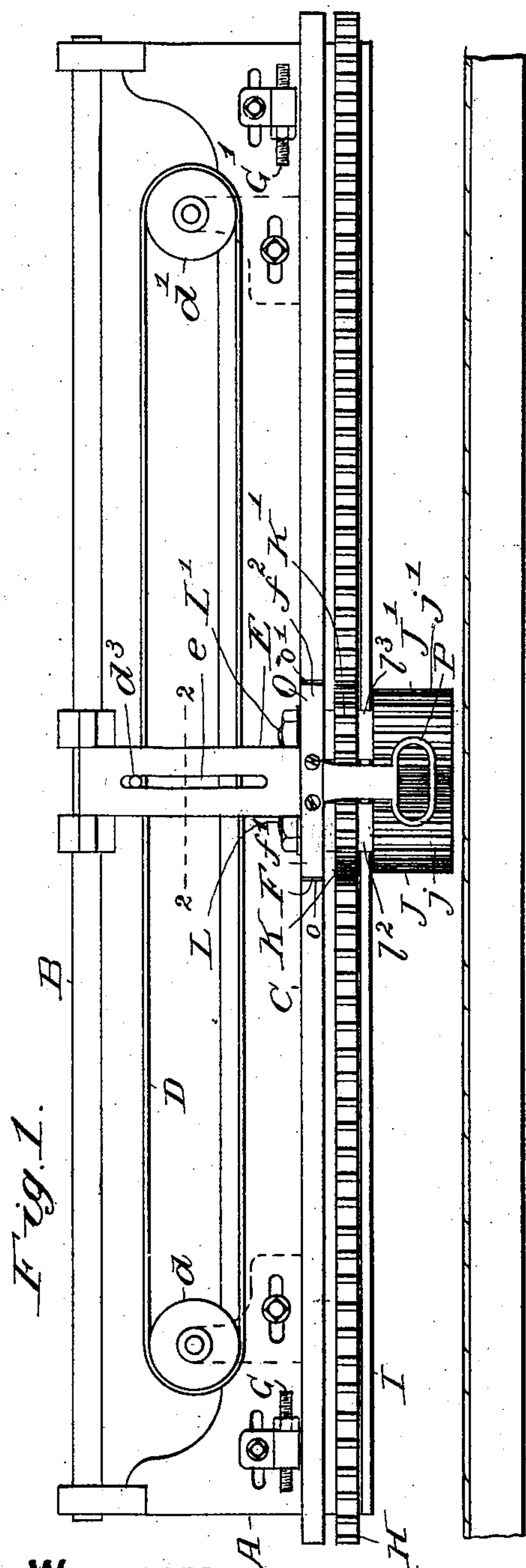
P. L. McBRIDE.

FEEDING MECHANISM FOR CARDING MACHINES.

APPLICATION FILED NOV. 25, 1901.

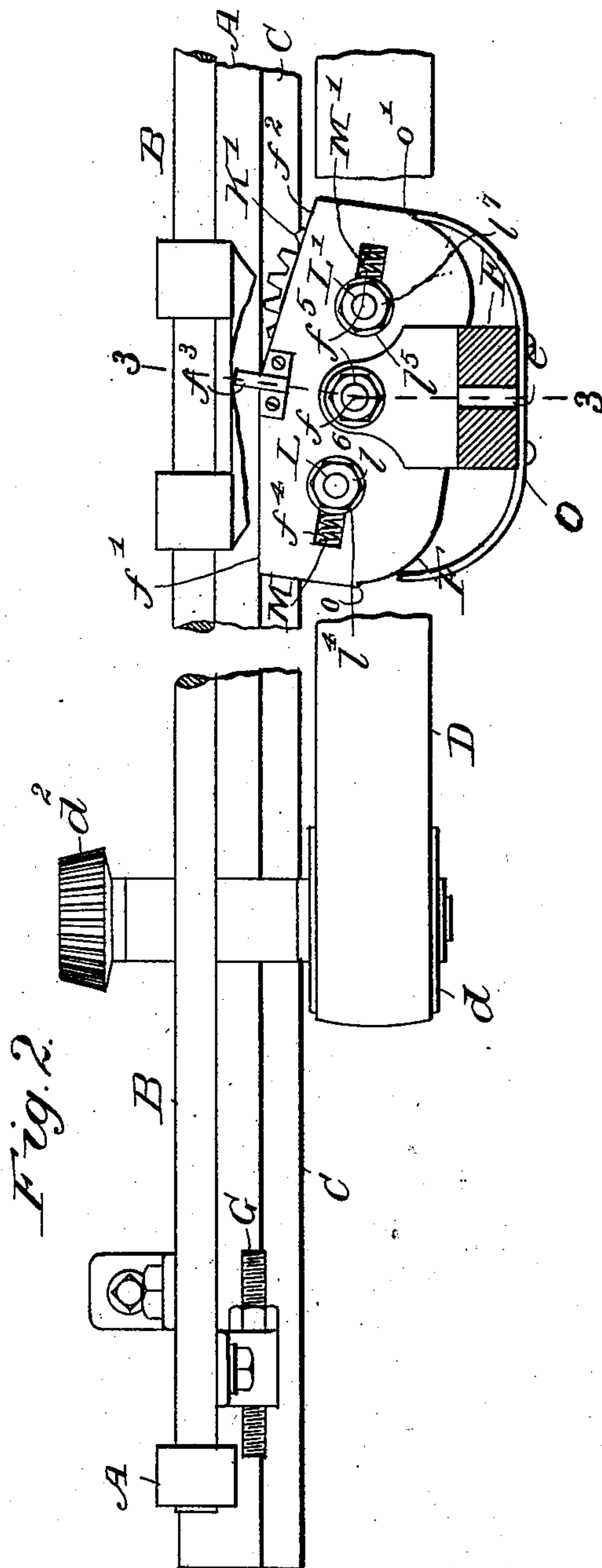
NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES.

Kirkley Hyde,
Anne T. Halloran



INVENTOR

Patrick L. McBride,
By *Albert M. Moore,*
His ATTORNEY.

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2 SHEETS—SHEET 2.

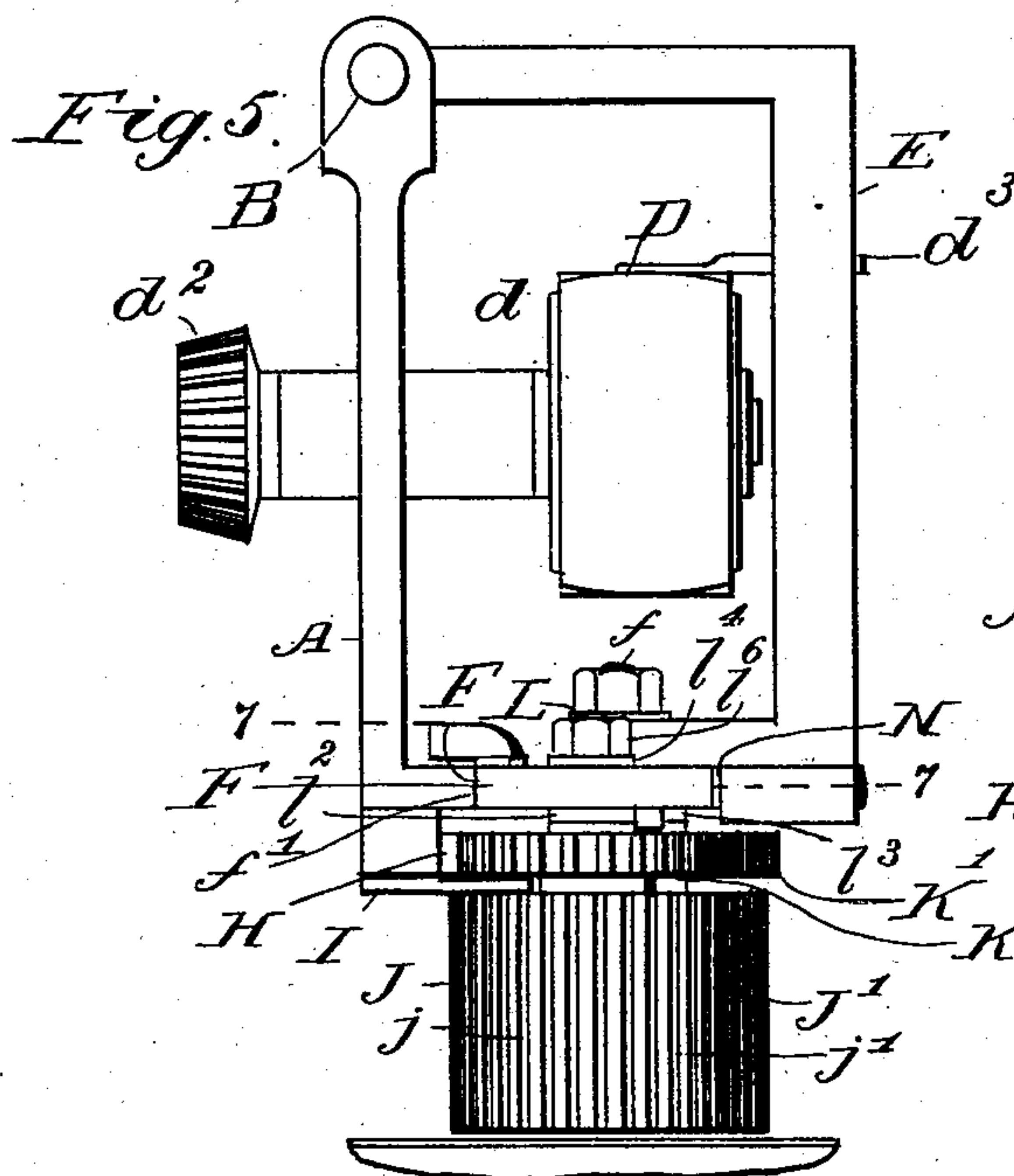


Fig. 6.

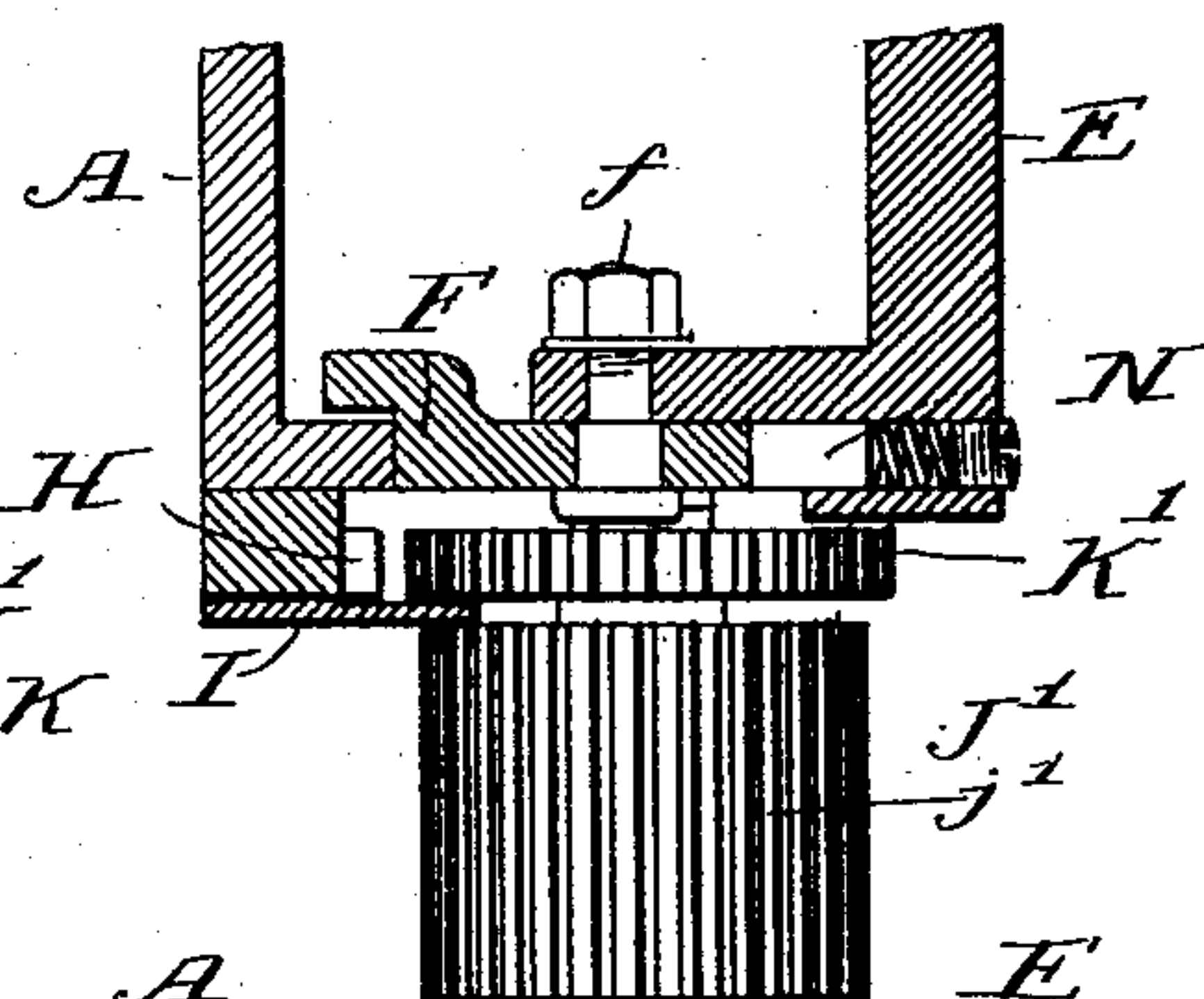


Fig. 7.

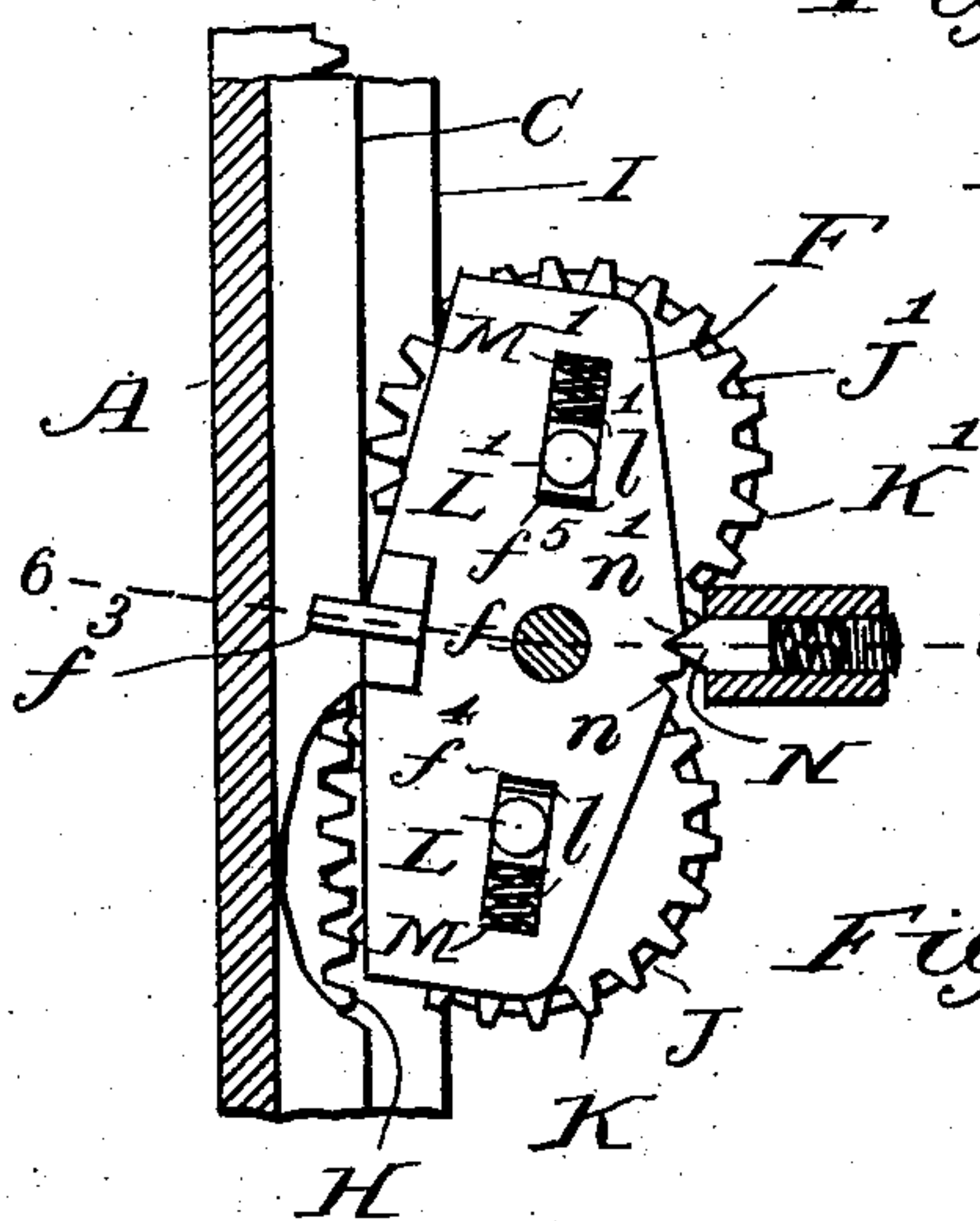


Fig. 3.

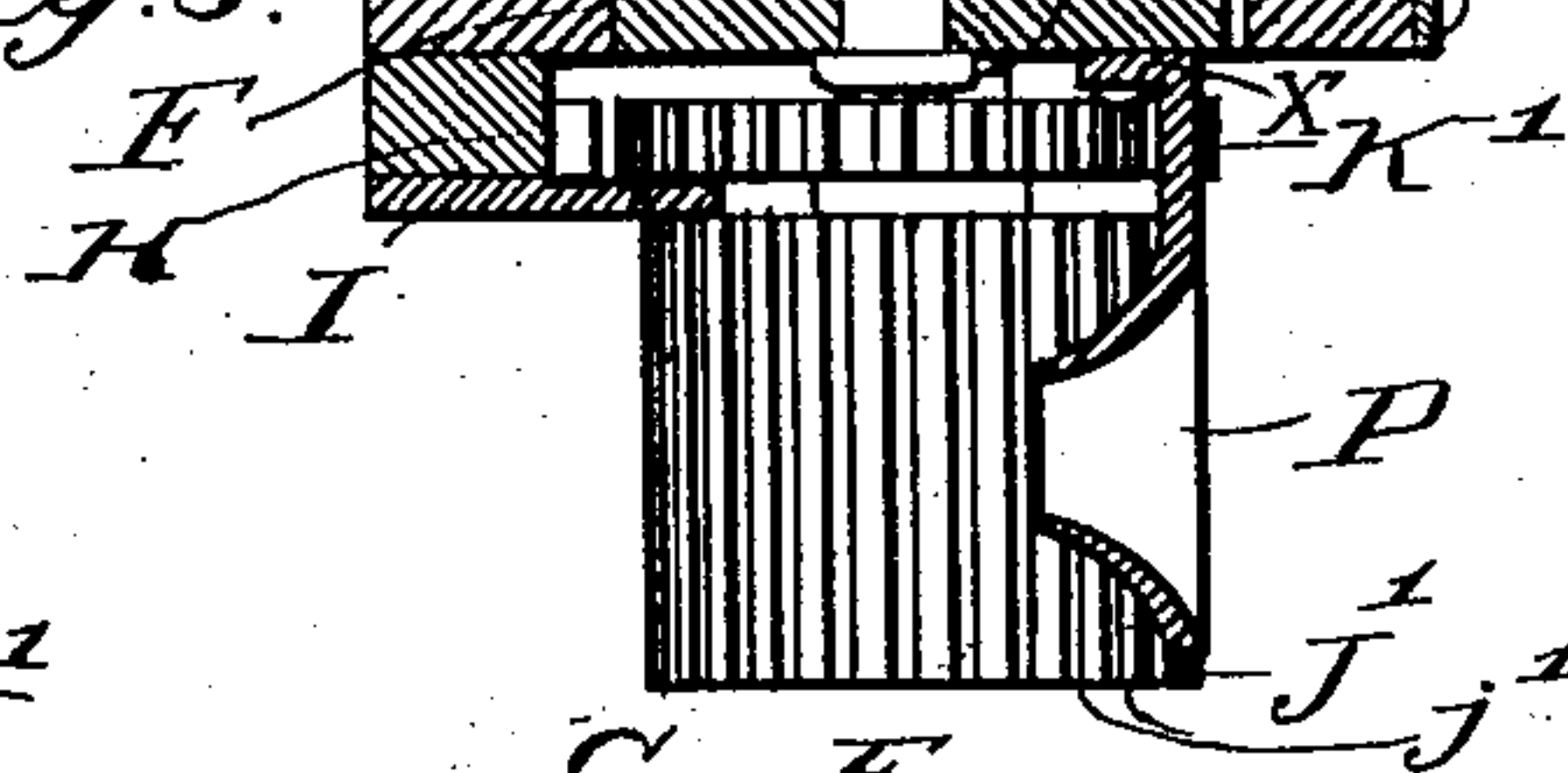
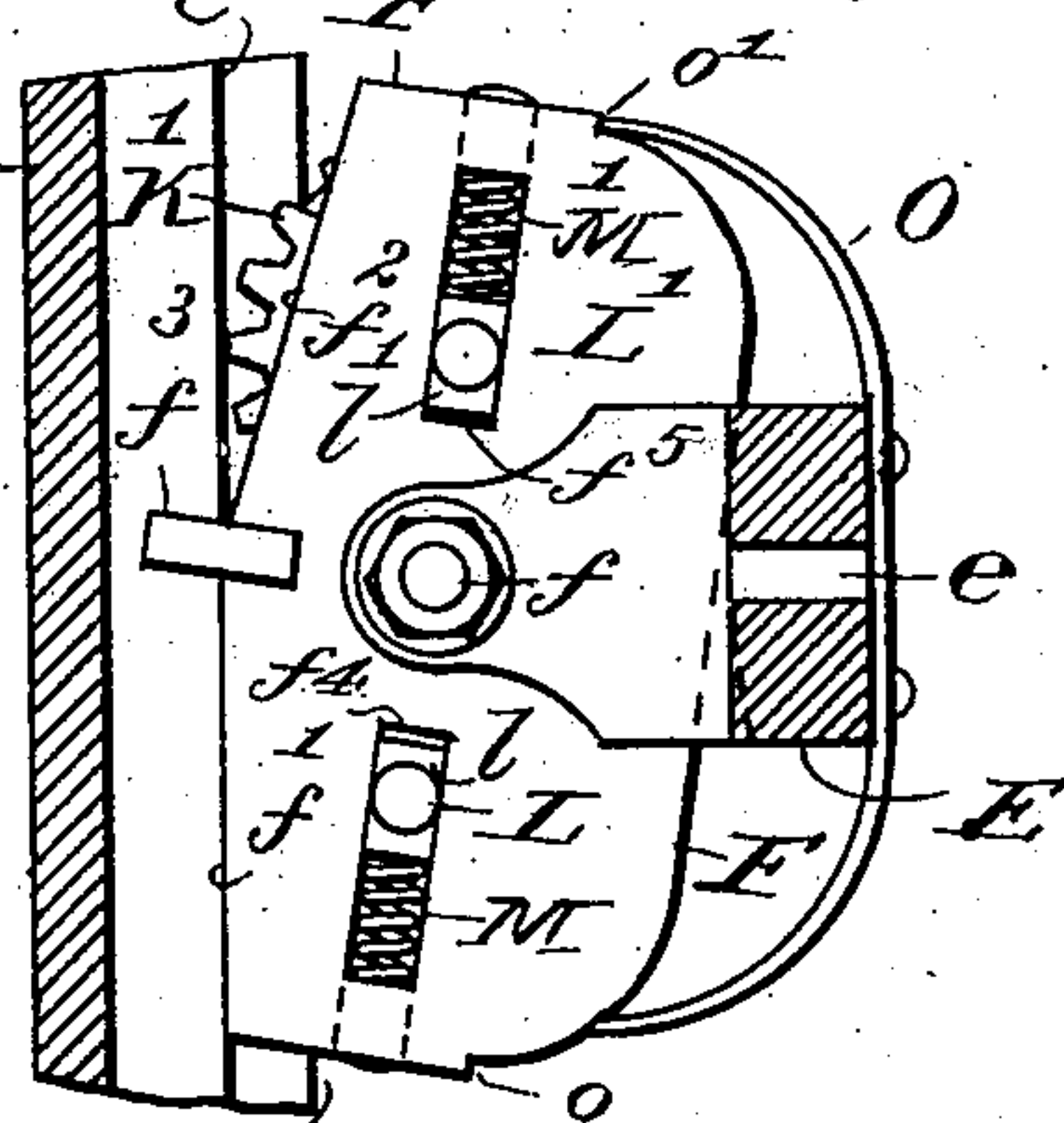


Fig. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

PATRICK L. McBRIDE, OF LOWELL, MASSACHUSETTS.

FEEDING MECHANISM FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 754,484, dated March 15, 1904.

Application filed November 25, 1901. Serial No. 83,513. (No model.)

To all whom it may concern:

Be it known that I, PATRICK L. McBRIDE, a citizen of the United States, residing in Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Feeding Mechanism for Carding-Machines, of which the following is a specification.

This invention relates to feeding mechanism for carding-machines; and it consists of the devices and combinations hereinafter described and claimed.

The invention herein described is applicable to the so-called "Apperly feed," (shown in United States Patent No. 18,888, granted to Apperly and Clissold,) where the sliver or roping is fed "diagonally" by a carriage which traverses the feed-apron at an angle to the path of said apron.

I do not use the latches which in the original Apperly feed catch the sliver at the end of the traverse to prevent its displacement by the return movement of the carriage, the necessity for such latches being obviated in my apparatus by the use of positively-driven feed-rolls, which deliver the sliver under the presser-plate at a speed as great as the travel of the carriage. Positively-driven feed-rolls have, however, been used before my invention, and such feed-rolls have been positively driven by substantially the means employed by me; but such feed-rolls are usually arranged at a fixed distance from each other, incapable of being varied by any inequality in the thickness of the sliver, with the result that said rolls feed a thick sliver faster than a thin one and the thick parts faster than the thin parts of the same sliver, thus increasing instead of diminishing the inequalities of the cheaper stock on the feed-apron.

In United States patent to Bates, No. 534,418, dated February 19, 1895, a feed-carriage is shown in which one of the feed-rolls is supported upon the comparatively heavy body of the carriage, while the other feed-roll is carried by a lighter frame swinging on said body, a spring being used to press said frame toward said body to pinch the sliver between said rolls. In the Bates device the rolls are driven from a transverse shaft through a train of gears, one of which re-

volves with said shaft and is movable longitudinally thereof, the other of said gears being supported on the carriage and not in the more usual and simpler way by means of a stationary horizontal rack supported on the machine-frame and gears concentric with the rolls and engaging each other and in turn engaging said rack. When such rack and gear devices are used, it is desirable that each roll should be equally capable of moving away from and toward the other. Otherwise the adjustability of the rolls toward and from each other would depend largely upon the direction of movement of the carriage, because the roll the gear of which happened to be in engagement with the rack could not yield away from the other, and each gear takes in turn such engagement.

The object of this invention is to make the feed-rolls easily, equally, and automatically movable toward and from each other as the sliver varies in thickness.

In the accompanying drawings, on two sheets, Figure 1 is a front elevation of a feed mechanism; Fig. 2, a plan of the same, the carrier being in horizontal section on the line 2 2 in Fig. 1; Fig. 3, a vertical section of the frame, rack, and carrier on the line 3 3 in Fig. 2; Fig. 4, a plan of the carriage and rail which supports the rack and presser-plate, the carriage being partly in section in the line 2 2 in Fig. 1. Figs. 5, 6, and 7 show a modification of the device which retains the shifting plate in either of its positions, Fig. 5 being a side elevation of the carriage and its driving-shaft and Fig. 6 being similar to Fig. 3 and Fig. 7 to Fig. 4, except such modification.

The frame A, guide-rod B, guide-rail C, driving-band D, driving-band rolls d d' , one of which is fast on the same shaft with the bevel-pinion d^2 , the latter being driven by gearing, (not shown,) are all of any usual construction and operation, the band D carrying a horizontal pin d^3 , which enters a vertical slot e in the carriage E and causes said carriage to traverse in the usual manner. These parts are used with the feed-rolls shown in the Apperly and Clissold patent above referred to.

The carriage E is supported on the guide-

rod and traverses the feed-aprons to lay the sliver diagonally on the feed-aprons in the usual well-known manner. The carriage is provided with a horizontal plate F, pivoted thereto at f and having two straight vertical surfaces f^1 f^2 at the back inclined to each other from the middle of the back to the ends of said plate, and the rear one of these surfaces, according to the direction in which the carriage is moving, bears on the guide-rail C, said plate being turned on the pivot f at each end of its traverse by a projection f^3 on said plate striking stops G G', secured to the frame in a well-known manner.

Below the guide-rail C, I have shown the rack-rail H and below said rack-rail the presser-plate I, both of which are as commonly used. Sometimes the rack-rail serves as a presser-plate. I do not limit myself to any particular construction of the parts above mentioned. The feed-rolls J J' may be either smooth or fluted, but are shown with longitudinal flutes j j' .

To the feed-rolls are secured concentrically therewith gears K K', the pitch diameter of which should be substantially the same as the largest diameter of said feed-rolls to allow the surfaces of said rolls to come in contact, or nearly so, when no sliver is between them. The gears K K' engage each other, and the following gear, according to the direction in which the carriage is moving, engages the rack-rail and causes the adjacent faces of the feed-rolls to move in the same direction to deliver the sliver under the presser-plate I, the front edge of which extends into the spaces between said gears and feed-rolls. Each gear K K' and its concentric feed-rolls preferably turn on the corresponding vertical shaft L L', each gear and its roll being so connected as to revolve together, and the corresponding shaft is provided with an oblong shoulder l l' , which slides without turning in a slot f^4 f^5 , said slots being in the same straight line on opposite sides of the pivot f . Each shaft L L' below the shoulder l l' is provided with a collar l^2 l^3 , which bears against the under side of the plate F, and with a washer l^4 l^5 , surrounding said shaft above said plate and held on said shoulder by a nut l^6 l^7 , keeps the said shaft in a vertical position, while allowing it to move freely in the slots f^4 f^5 . The shafts are crowded by springs M M' toward the ends of the slots nearest the pivot f , said springs yielding to allow the feed-rolls to separate more or less, according to the thickness of the sliver passing between them and to exert a constant pressure upon the sliver at all times.

In the above construction both feed-rolls yield equally, the roll in engagement with the rack yielding because the movement of the rolls toward and from each other is so nearly parallel with the rack if a single feed-roll were supported upon a lever similar to

the swinging supporting-frame of the Bates patent said roll when its gear was in engagement with the rack would tend to be drawn by said engagement away from the other feed-roll and the rolls would not properly feed the sliver and said lever would assume a position more nearly at right angles to said rack and cause the carriage to bind.

The plate F may be held in either of its positions by any usual means, as by a spring-dog N, which engages notches n n' in the front edge of said plate. I prefer to use for this purpose a spring O, secured to the back of the carriage and engaging notches o o' on the ends of the plate F, as shown in Fig. 4.

The sliver is delivered to the feed-rolls by the usual trumpet P.

In order to obtain the best results, the trumpet is placed as near as practicable to the rolls in order to act as a perfect guide and prevent the sliver from rising and becoming entangled with the gears and rack. To render this possible, I have formed on the stem of the trumpet a right-angled lug X' and secured the same to the under face of the oscillating plate F, as clearly shown in Fig. 3. This will bring the trumpet quite near to the rolls.

I claim as my invention—

1. The combination of a rack, a carriage-body, feed-rolls carried thereby, gears secured to said rolls concentrically therewith and adapted to engage said rack singly, and yielding means for causing each of said rolls to approach the other equally while allowing each of them to move away from the other with the variations of thickness of the stock passing between them.

2. The combination of a rack, a carriage-body, a pivoted shifting plate, feed-rolls carried by said plate, gears secured to said rolls concentrically therewith and singly adapted to engage said rack, and yielding means for causing each of said rolls to approach the other equally toward the middle of said plate and of allowing them to move apart with the variations of thickness of the stock passing between them.

3. The combination of a carriage-body, a plate, pivoted thereto and provided with slots extending in opposite directions from the pivot of said plate, shafts having shoulders arranged in said slots and collars bearing against the bottom of said plate, washers surrounding said shaft above said plate and resting on said shoulders nuts, feed-rolls carried by said shafts and springs.

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

PATRICK L. McBRIDE.

Witnesses:

ALBERT M. MOORE,
MARGARET A. McBRIDE.