

(No Model.)

J. W. JACKSON.
ROLL FOR ROLLER MILLS.

No. 326,121.

Patented Sept. 15, 1885.

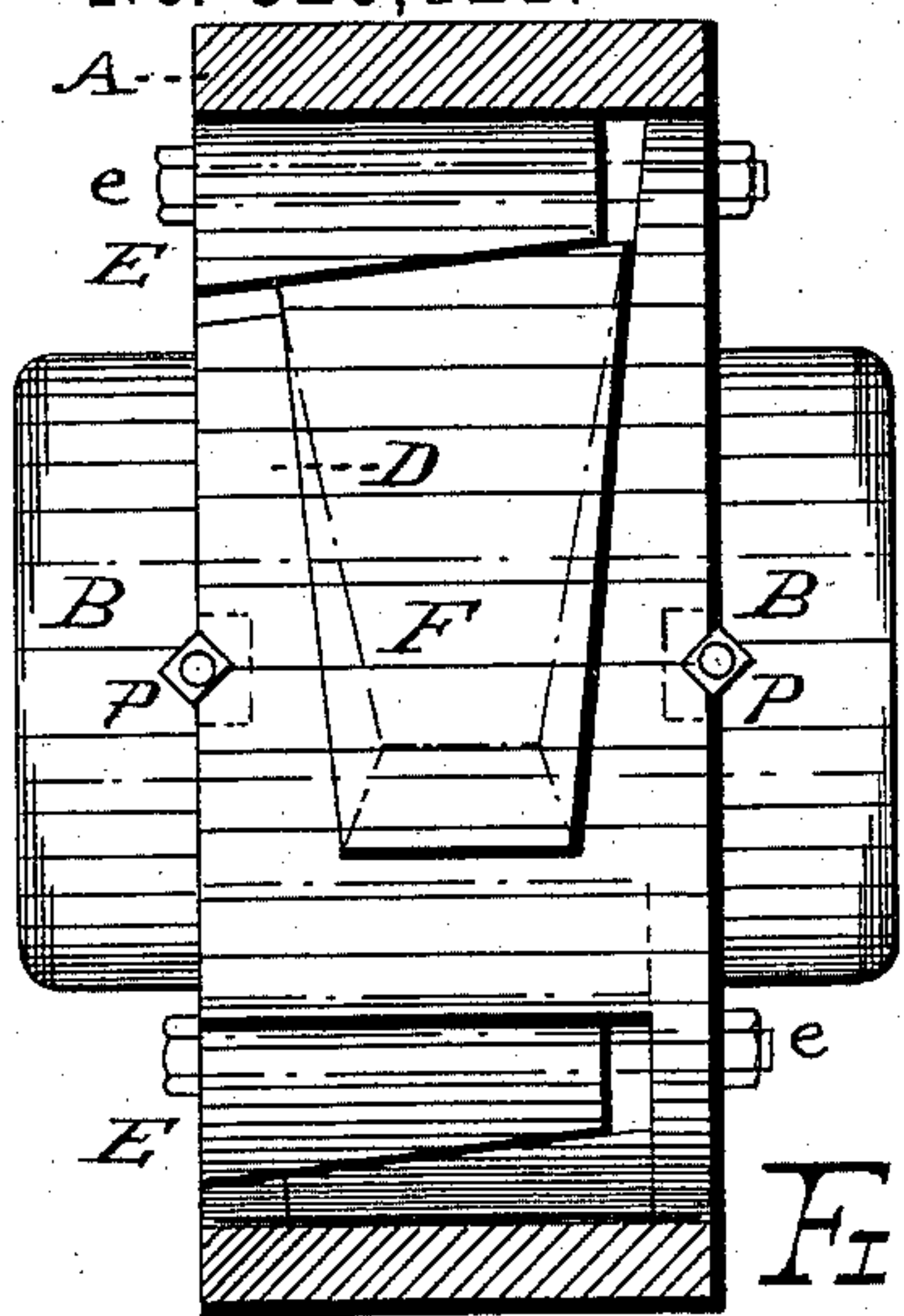


Fig. 1.

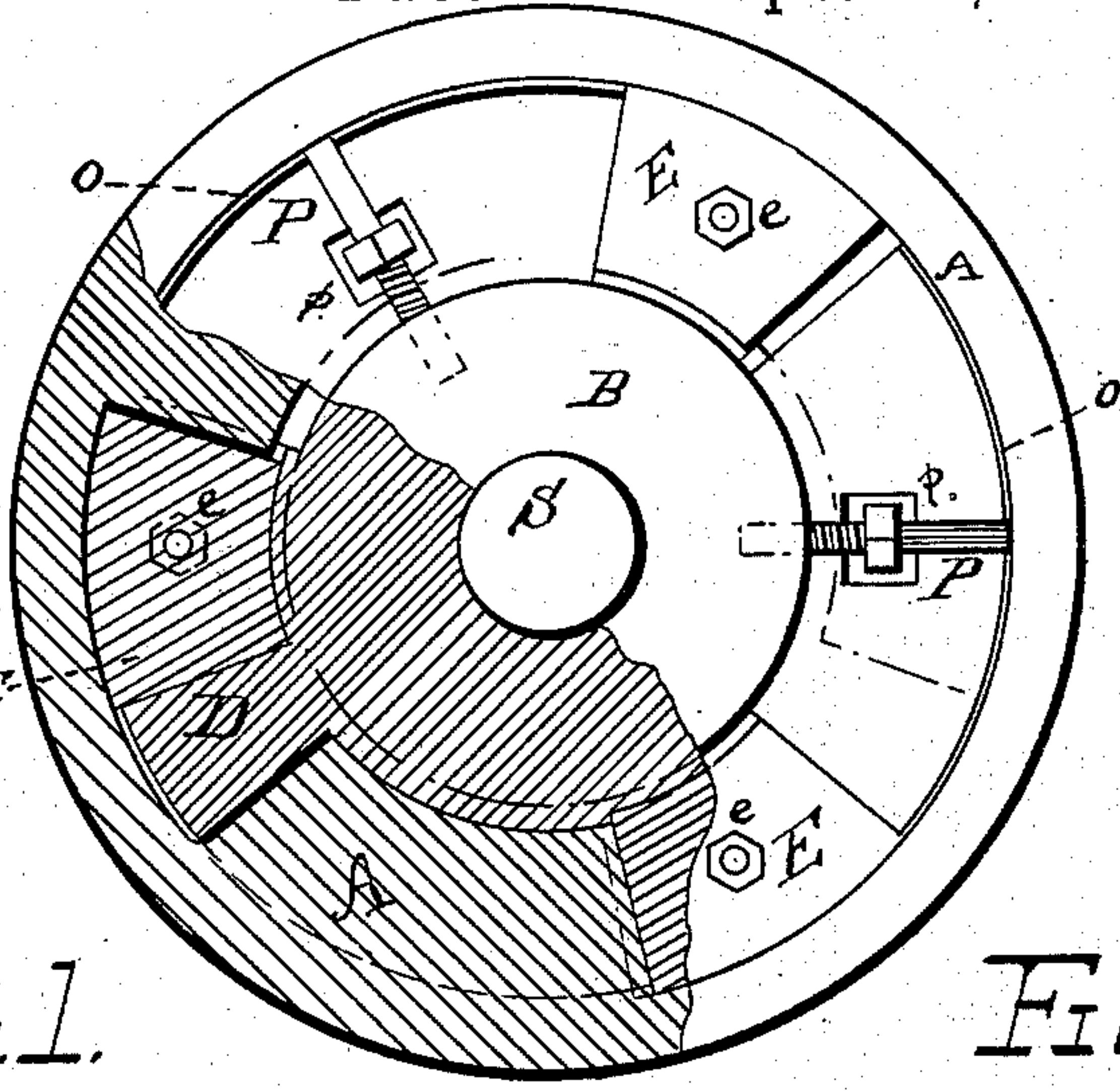


Fig. 2.

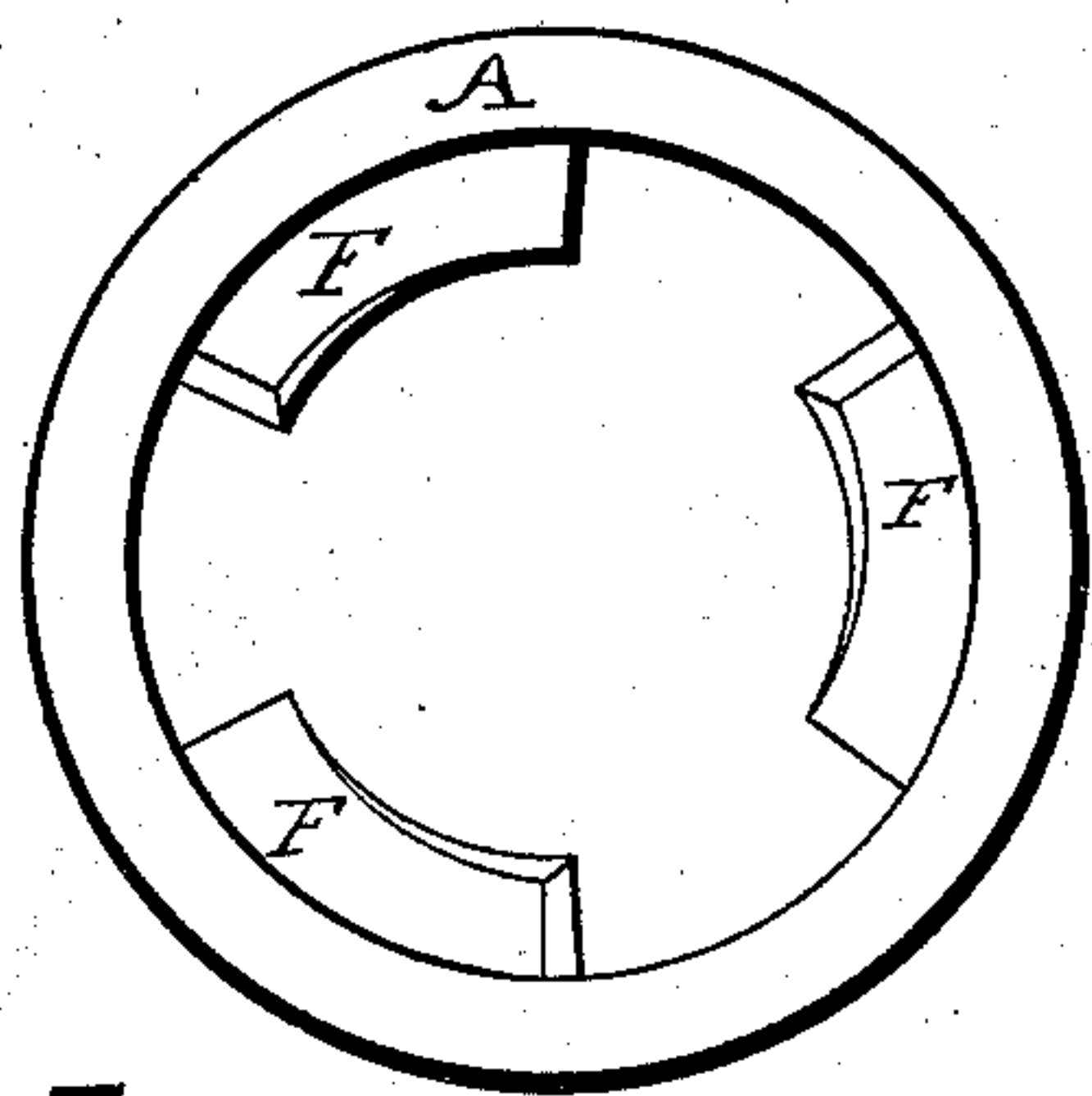


Fig. 3.

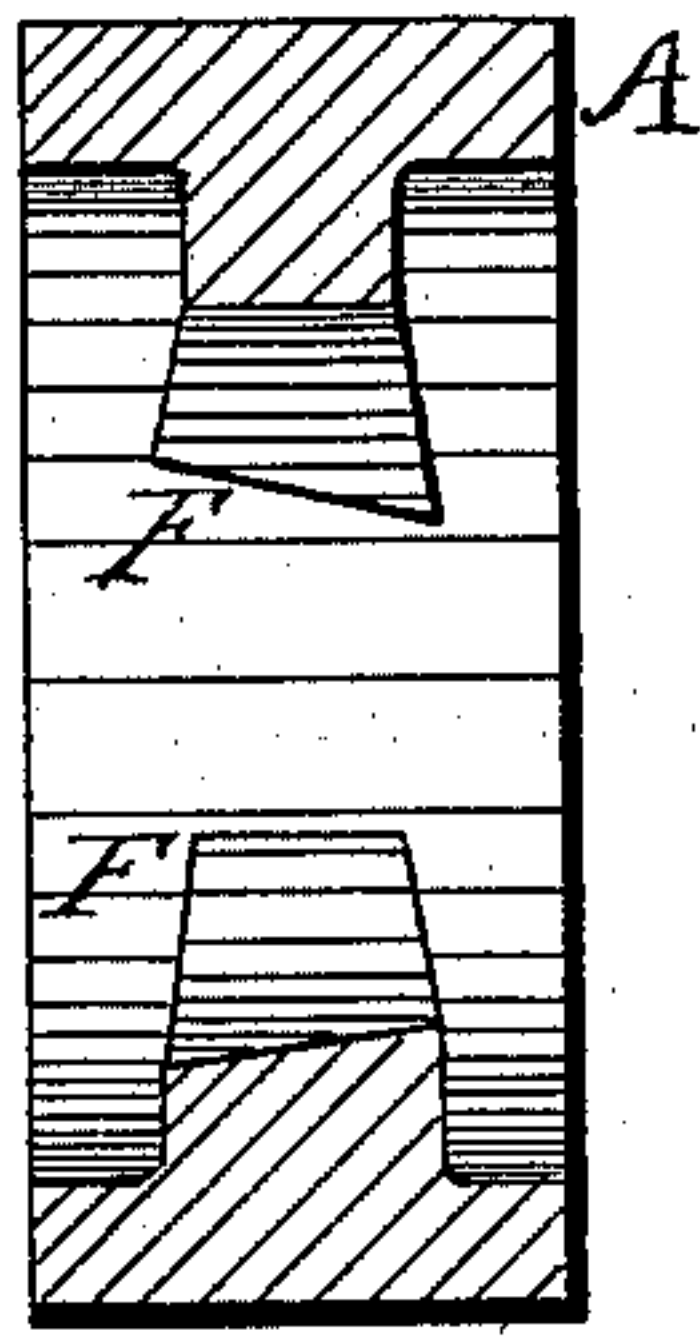


Fig. 4.

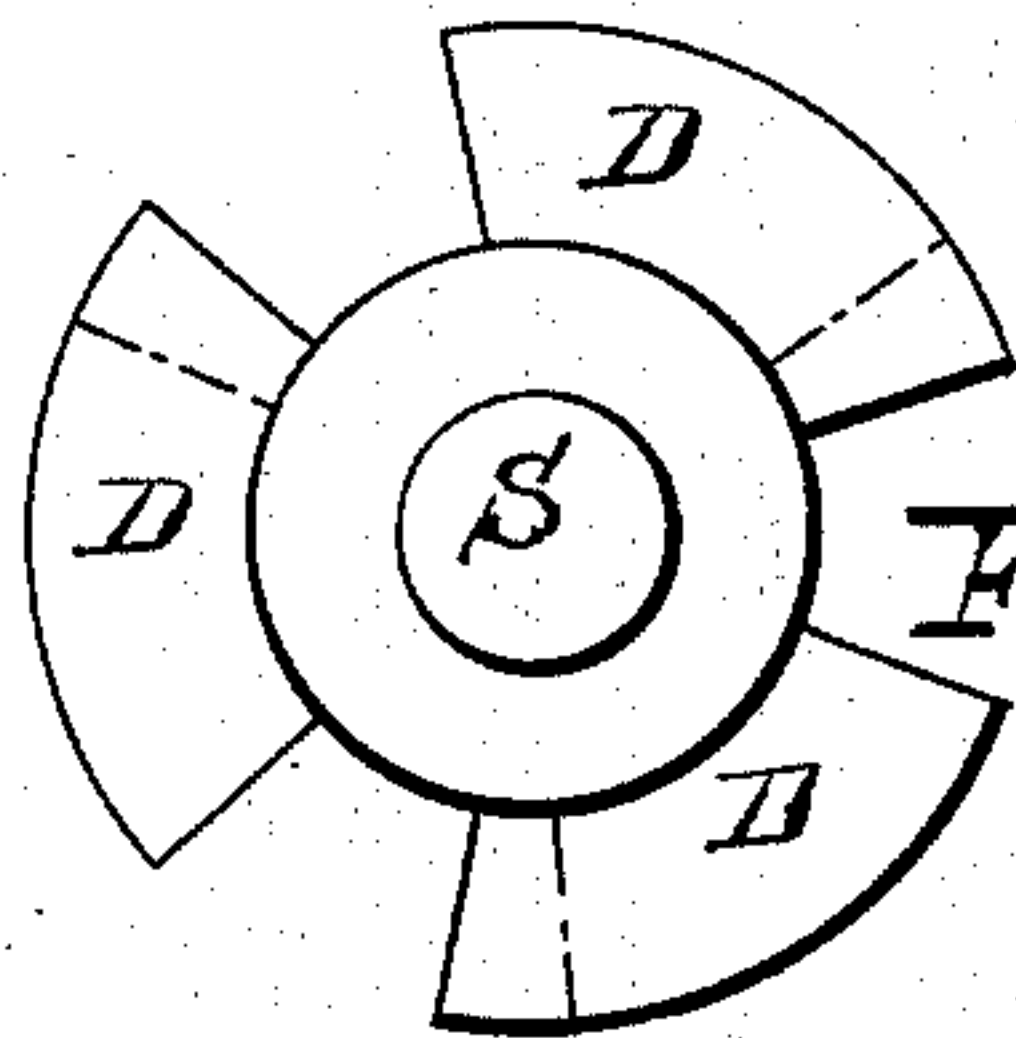


Fig. 5.



Fig. 6.

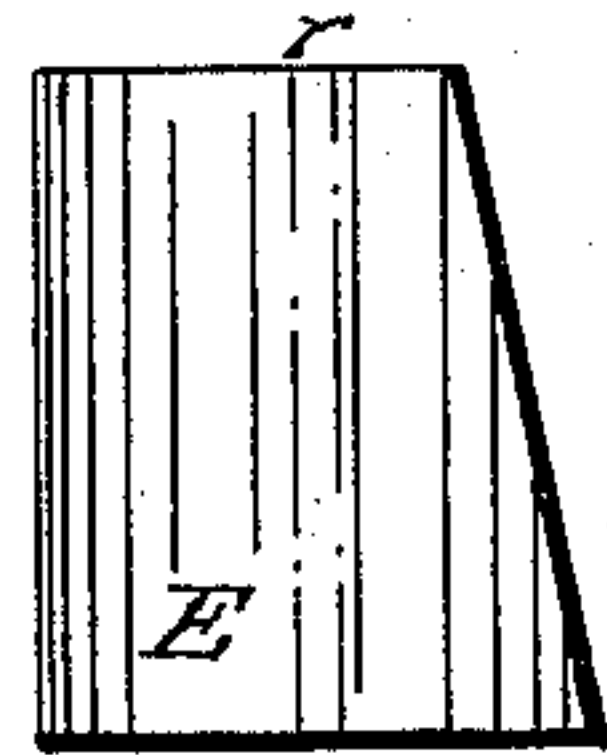


Fig. 7.

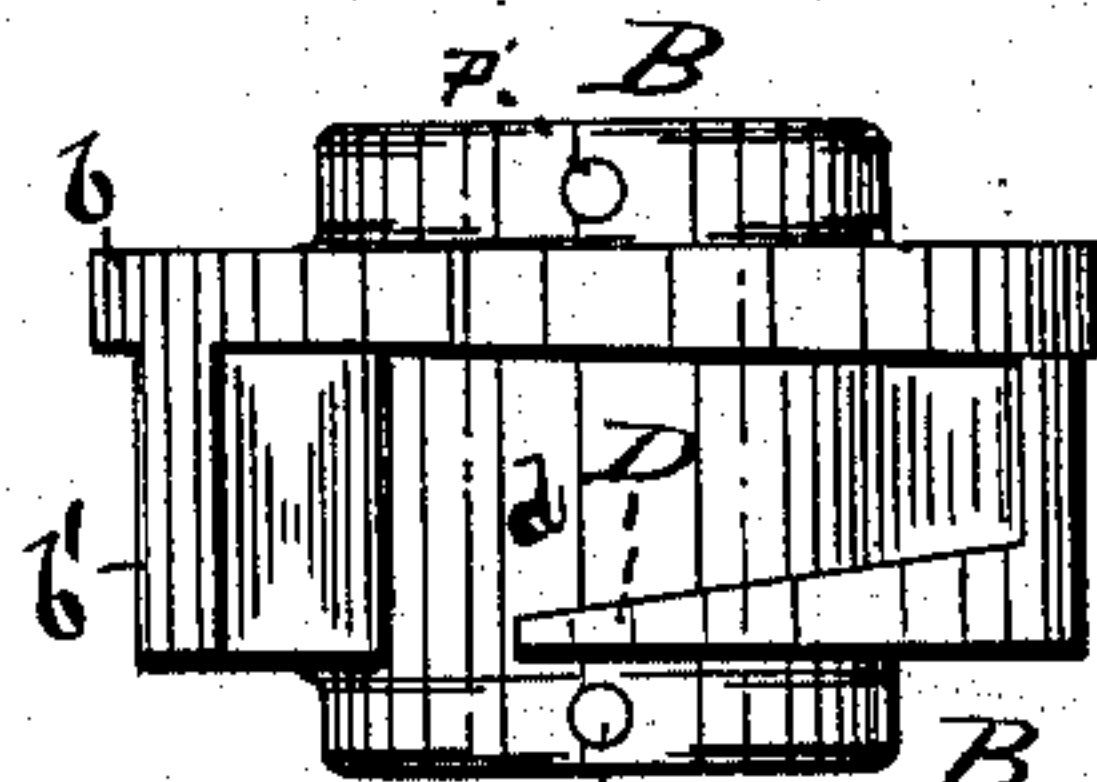


Fig. 8.

WITNESSES:

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JAMES W. JACKSON, OF DENVER, COLORADO.

ROLL FOR ROLLER-MILLS.

SPECIFICATION forming part of Letters Patent No. 326,121, dated September 15, 1885.

Application filed March 16, 1885. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. JACKSON, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Rolls for Roller-Mills, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improvement in means for attaching the outer portion or shell of a crushing-roll to the axis upon which it is rotated, and more particularly to that species of roll used in reducing ore, which, being composed of exceedingly hard material, it is desirable to provide with means for detachably securing the same to its driving-shaft, and also for adjusting the same to an operative position, without the use of machine-tools. By means of the devices hereinafter described the hard portion or shell of my improved roll is rendered concentrically adjustable, and at the same time capable of being readily removed and replaced, as will be hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is an elevation, partly in section, showing the hub, the shell, and the adjusting devices. Fig. 2 is an end elevation, partly in section, of a roll embodying my invention. Figs. 3 and 4 are detail views of the shell or outer portion of the roll. Figs. 5 and 8 are detail views of the inner portion or hub upon which the shell is supported. Figs. 6 and 7 are detail views of the adjusting or key blocks.

The same letters denote the same parts.

S represents the shaft upon which the roll is to be mounted. B is a hub, which is permanently secured to said shaft, and preferably composed of ordinary iron or other malleable metal, and it is provided at one end with a flange or collar, *b*. At regular intervals around said hub B portions of its periphery are removed, forming wedge-shaped key seats or recesses *d*, the metal on the opposite sides of which being cut away and tapered to form the wings D, between the extremities of which and the rear ends of the recesses are openings adapted to receive the key to be secured therein. In this particular instance I have shown the hub provided with three such recesses;

but it is obvious that more or fewer may be used, as found convenient. A solid portion, *b'*, intervenes between adjacent recesses *d*, and affords a solid bearing for the adjusting-blocks.

A is the outer shell of the roller, and constitutes that portion which comes into contact with the substances to be reduced, and in order to withstand the rough usage to which it is subjected it must be of the hardest metal obtainable, and as such materials are not readily manipulated or worked it is desirable to replace a worn-out or defective shell without going to the expense and trouble of permanently securing it by any of the well-known means. I therefore make the said shell somewhat larger than the diameter of the flange *b*, and provide it with inwardly-extending wedge-shaped keys F, of a length corresponding to the side openings of the recesses *d*.

In assembling my device the hub is first permanently secured upon its shaft. The shell A is then placed upon the hub, the keys F entering the rear ends of the key-seats *d*. The shell being larger than the hub, the space between them, O, permits adjustment, and the shell is turned until the keys rest solidly against the flange *b*, when an adjusting-block, E, is inserted behind each key. These blocks are shorter than the width of the wings and recesses, and are longitudinally perforated at *r*, and provided with adjusting-bolts *e*, which pass through said blocks and the flange *b*, and by means of which the wedges can be adjusted as desired.

I do not consider it desirable to adjust the shell wholly by means of the wedge-blocks E, as could readily be done by such slight and obvious modification of their lines as would give them vertical as well as lateral action, because the pressure against the under side of the shell by said wedges would be unequal, and therefore dangerous to such hard and brittle material. I therefore provide three or more thrust-bolts, P, which are inserted in threaded holes in the hub, and extend radially therefrom, and are provided with squared portions that may be turned in recesses *p*, formed in the sides of the wings D. These bolts abut against the under side of the shell, which by means thereof can be adjusted within the lim-

its of the space O, so as to compensate for any slight irregularities in thickness or form, and so bring its periphery into a position concentric with the axis. When the shell has been
5 adjusted as above described, the space O is to be filled with metal borings or any hard cement, and the wedges E tightened, after which the roll is ready for use.

I am aware that it is not new to provide
10 crushing-rolls with chilled or otherwise hardened rims, the same being applied and attached in sections, and therefore do not claim a detachable rim, broadly, as my invention consists in means for detachably connecting a
15 solid chilled rim to its supporting-hub.

What I claim, and desire to secure by Letters Patent, is—

1. A roll consisting of a hub permanently secured to the axle and formed with circumferential recesses in its periphery, said recesses
20 being provided with transverse openings therein, and an outer portion or shell formed in a

single piece and provided internally with circumferential keys registering with the recesses in the hub, and adjusting-blocks fitting the
25 transverse openings in the recesses in the hub, substantially as set forth.

2. The combination of the hub B, having depressions *d*, and side wings, D, with the shell A, formed with the wedge-shaped keys
30 F, adapted to enter the said recesses *d*, and the wedge-shaped blocks E, and means, substantially as described, for adjusting said blocks.

3. The combination, with the recessed hub B, of the shell A, formed with keys registering
35 with the recesses in the hub, the adjusting-screws P, and blocks for insertion behind the keys F, substantially as described.

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

JAMES W. JACKSON.

Witnesses:

B. R. GRAYSON,
L. L. SAWYER.