

No. 615,375.

Patented Dec. 6, 1898.

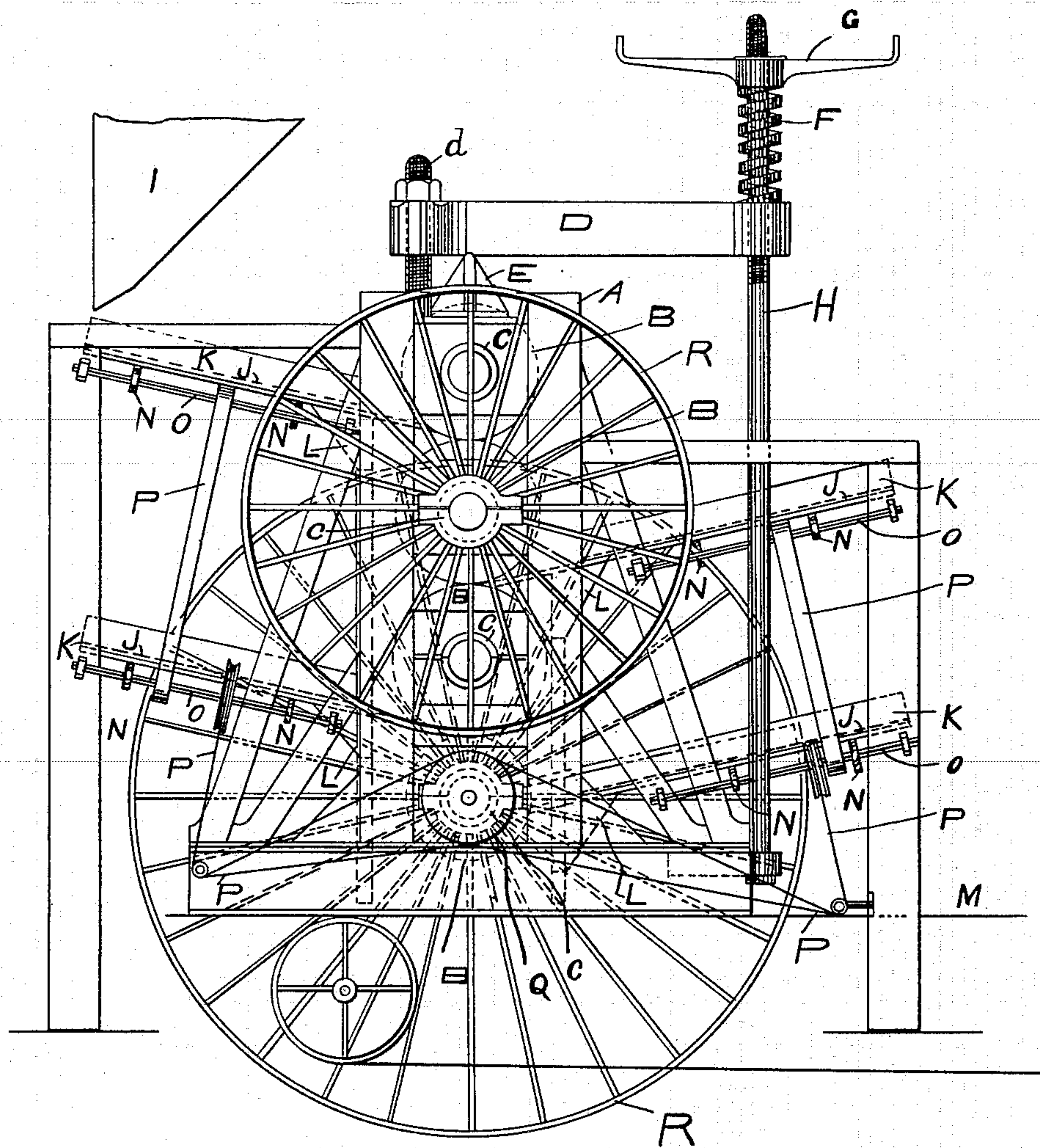
J. F. WEBB.
ROLLER CRUSHING MILL.

(Application filed Oct. 20, 1897.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1



Witnesses
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Inventor
John Frederick Webb
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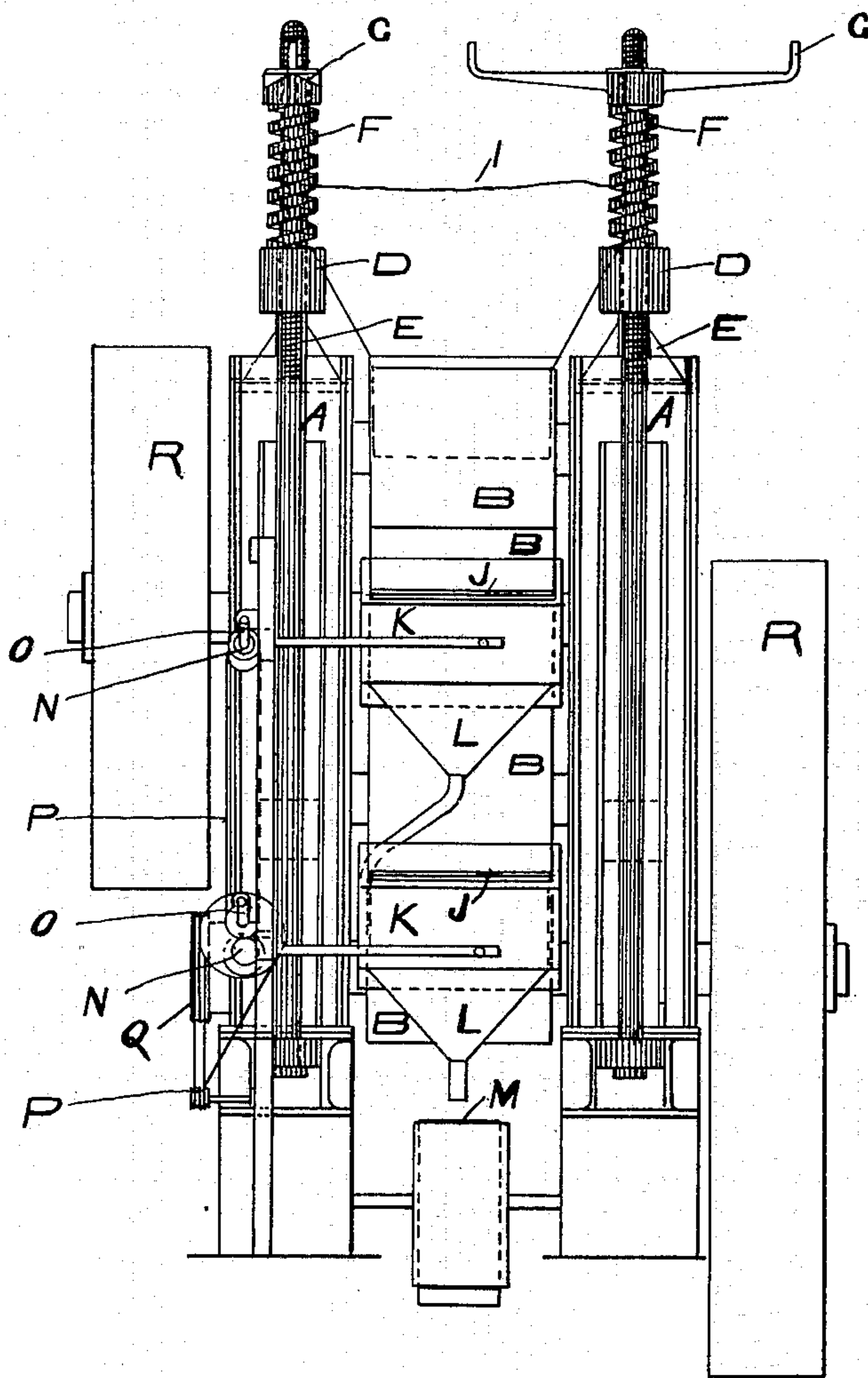
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ROLLER CRUSHING MILL.

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2 Sheets—Sheet 2.

FIG. 2



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN FREDERICK WEBB, OF LONDON, ENGLAND, ASSIGNOR TO THE ORE
ATOMIC REDUCTION AND GOLD EXTRACTION COMPANY, LIMITED, OF
SAME PLACE.

ROLLER CRUSHING-MILL.

SPECIFICATION forming part of Letters Patent No. 615,375, dated December 6, 1898.

Application filed October 20, 1897. Serial No. 655,818. (No model.)

To all whom it may concern:

Be it known that I, JOHN FREDERICK WEBB, residing at London, England, have invented Improvements in Roller Crushing-Mills, of which the following is a specification.

This invention relates to roller crushing-mills, and has for its object the construction and arrangement of such a machine whereby material can be fed into and passed through a series of crushing operations, so that the material is gradually broken down, and when finally issuing from the machine it is of the proper degree of fineness.

In order that the invention may be the better understood, I will now proceed to describe the same in relation to the accompanying drawings, hereunto annexed, reference being had to the letters marked thereon.

Like letters refer to like parts in both figures.

Figure 1 is a side elevation of my mill. Fig. 2 is an end elevation of the same.

To carry my invention into effect, I arrange in suitable housings or frames A a series of rollers B, which may have either a smooth or a grooved periphery. These rollers B are superposed with their axes parallel upon one another and are held in the vertical center of the machine by suitable bearings C, adapted to slide in the housings or frames A.

I apply spring or other elastic pressure to the bearings C of the rollers B in order to tend to force their peripheries into contact with one another. This pressure may be applied either direct or through a leverage. In the mill illustrated it is applied by a lever D, restrained by a bolt *d* at one end, and resting on a pressing-piece E, which is placed upon the uppermost bearing C. The other end of the lever D is loaded by a spring F, compressed by a hand-nut G upon a bolt or spindle H.

A hopper I is situated on the upper part of the machine, from which material is fed onto the first of a series of inclined screens J, which are placed alternately at the front and back of the rollers, so as to feed the material from screen to screen through the adjacent crushing-rollers B. Each screen J is fitted

with a box or floor K, upon which the material that can pass through the screen falls, a funnel delivery device L being arranged at the lower end of each screen J to lead down the material to the traveling band or conveyor M for transmission to any convenient place, as such material having passed through one of the screens is sufficiently small and does not require any further treatment by crushing by the rolls B, thus saving unnecessary work being put upon it by useless crushing.

The screens J are agitated by any suitable mechanism in order to maintain the feed of the material down their inclined surfaces into the space between the rollers B or into the hopper I. This agitation may be simply effected by eccentrics N, carried by the shafts O, operated by band driving-gear P, driven by the pulley Q, situated on the axle of the lowest roller B.

I arrange every other roller B with means for being driven, the intermediate rollers being driven by frictional contact with the driven rollers. A convenient form of driving is by means of large pulleys R, adapted to be driven by straps or belts. It will thus be seen that the coarse material travels down from screen to screen in a zigzag path, passing between a pair of rollers in each alternation of direction of travel. For example, with the four rollers, as shown in the drawings, the material passes between them three times, while the material when fine enough passes through one or other screen and is delivered in a finished condition onto the conveyor. The rolls run at a very high peripheral speed, the result of which is that the stream of material as it leaves the rolls is projected in a horizontal direction and drops upon the screens at a considerable distance from the rolls.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a roller crushing-mill, the combination with two horizontal sills, of two parallel uprights on each sill, three or more journal-boxes sliding between said uprights, super-

posed rollers journaled in said boxes, a pressing-piece on the uppermost box in each frame, a lever resting on each piece, a bolt and nut restraining one end of each lever, a long bolt
5 extending from each sill up through the other end of its respective lever, a spring encircling the long bolt above the lever, and a nut for adjusting the tension of the spring, substantially as described.

10 2. In a roller crushing-mill, the combination with a tier of superposed rollers, of inclined screens J having floors K, funnels L leading from each floor, a conveyer M below the delivery ends of said funnels, shafts O

adjacent to said screens, eccentrics N on said 15 shafts, connections between said eccentrics and the screens, a pulley Q on the shaft of one of the rollers, and belts P conveying power from said pulley to the shafts O, substantially as described. 20

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN FREDERICK WEBB.

Witnesses:

REGINALD WILLIAM JAMES,
RICHARD A. HOFFMANN.