

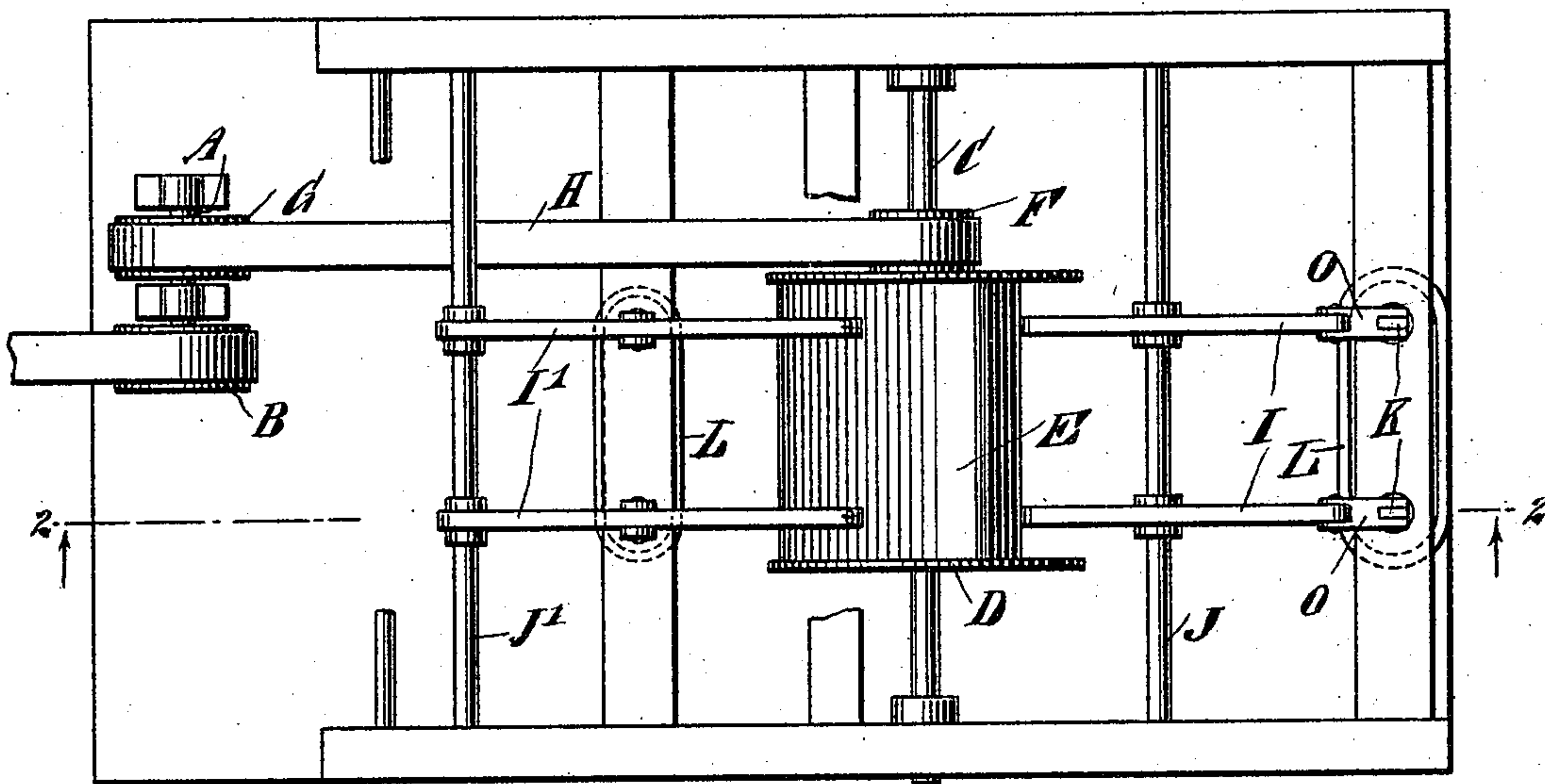
(No Model.)

I. MONTES DE OCA Y MELIAN.  
CRUSHING APPARATUS.

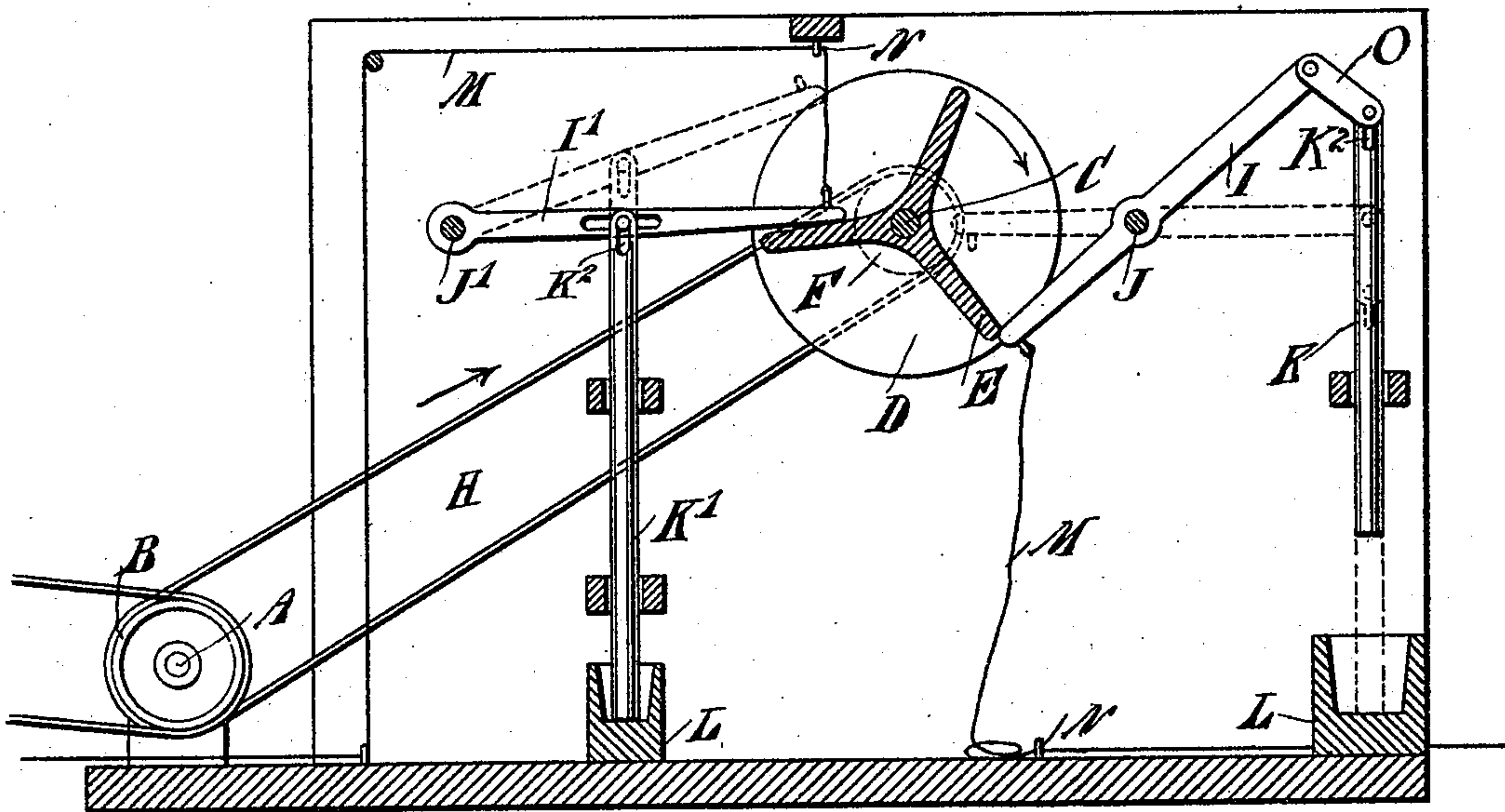
No. 574,754.

Patented Jan. 5, 1897.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

Edward Thorpe.  
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# UNITED STATES PATENT OFFICE.

IGNACIO MÓNTES DE OCA Y MELIAN, OF NEW YORK, N. Y.

## CRUSHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 574,754, dated January 5, 1897.

Application filed December 11, 1895. Serial No. 571,784. (No model.)

*To all whom it may concern:*

Be it known that I, IGNACIO MÓNTES DE OCA Y MELIAN, a subject of the King of Spain, temporarily residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Crushing Apparatus, of which the following is a full, clear, and exact description.

My invention relates to an apparatus designed primarily for crushing ores, such as gold-bearing ores, but which may also be employed for pounding other substances.

The object of the invention is to improve that class of ore-crushers which comprises stamps that are alternately lifted mechanically and then allowed to fall upon the ores.

The invention will be fully described hereinafter, and the features of novelty pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a plan view of the crushing apparatus, and Fig. 2 is a sectional side elevation of the same on the line 2 2 in Fig. 1.

In carrying out the invention I provide a shaft A, adapted to be driven from a suitable engine, and the shaft may be provided with a pulley B for receiving a driving-belt. A stationary shaft C, parallel to the shaft A, has loosely mounted upon it a sleeve D, provided with a series of substantially radial projections or arms E, and to the sleeve is also rigidly secured a pulley F, which has a driving connection with a pulley G on the shaft A by means of a belt H. The sleeve D is loosely mounted, so that it will not be necessary in the operation of the machine to revolve the shaft A and thus increase the weight of the parts which are to be driven.

On one side of the operating-shaft C is arranged a lever I, (or a series of such levers, as shown,) fulcrumed at J, and pivotally connected at its free end to a stamp K, held to reciprocate vertically. On the other side of the lever is located another lever I', (or series of levers,) fulcrumed at J' and pivoted to the vertically-reciprocating stamp K'. The two levers are of different lengths, so that the stamps will have different strokes

and different crushing power. As illustrated by the drawings, the stroke of one stamp is about double of that of the other stamp. Below the stamps are located the mortars or like receptacles L, adapted to contain the ores or other material to be crushed.

In order that either stamp or both stamps may be thrown out of action while the operating-shaft is revolving, I have provided means for raising the free end of the lever I, and also means for lowering the free end of the lever I, so that the said free ends will be removed from the path of travel of the arms E. Said means consist of flexible cords or like connections M, which are secured to the levers I and I', respectively, and extend through suitable guides N. Any appropriate devices, such as clamps, are provided for securing the flexible connections when the levers have been brought into an inactive position, as described.

It will be seen that the machine may be operated with one stamp only or with both. As the stamps have different crushing power they can be used for treating materials of different hardness, or the ores may be subjected to a preliminary crushing action by means of the more powerful stamp and then further pounded by means of the other stamp. The receptacles L are preferably of different sizes, as illustrated.

It will be understood that the stamps move in suitable guides, one guide (as shown in connection with the stamp K) being sufficient in many cases, while when a perfectly rectilinear movement of the stamp is desirable two guides are provided, as shown, in relation to the stamp K', or a practically rectilinear movement may be obtained with one guide by connecting the stamp K, as shown, with its lever I by means of an elongated ring or link O, as will be understood by reference to Fig. 2, which shows the relative positions of the lever ring or link and stamp at each end of a stroke.

In order that the rebound of the stamps after striking the material in the receptacles L may not injuriously affect the parts of the machine, the said stamps are provided with substantially vertical slots K<sup>2</sup>, in which the pins connecting them to the levers L or to the

rings or links O are adapted to move, so that during the rebound the stamps will move independently of the other parts of the machine.

The arms E of the sleeve D, while broadly 5 arms, are specifically radial webs, and the sleeve is provided with circular end plates or heads, respectively, at the ends of the webs.

Without limiting myself to the exact construction and arrangement of parts shown, I 10 claim as my invention and desire to secure by Letters Patent—

The combination with a frame, of a shaft mounted in the frame, a cam carried by the

shaft, two vertically-movable stamps, a mortar for each stamp, two levers fulcrumed on 15 the frame and respectively connected with the stamps, the levers being engaged and operated by the cam, and a cord connected with each lever and capable of holding the same out of engagement with the cam whereby the 20 operation of either stamp may be suspended, substantially as described.

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Witnesses:

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