

D. Poole.
Crushing & Grinding Gold-
N^o 10992

Quartz.

Patented
May 30, 1854

FIG. 2.

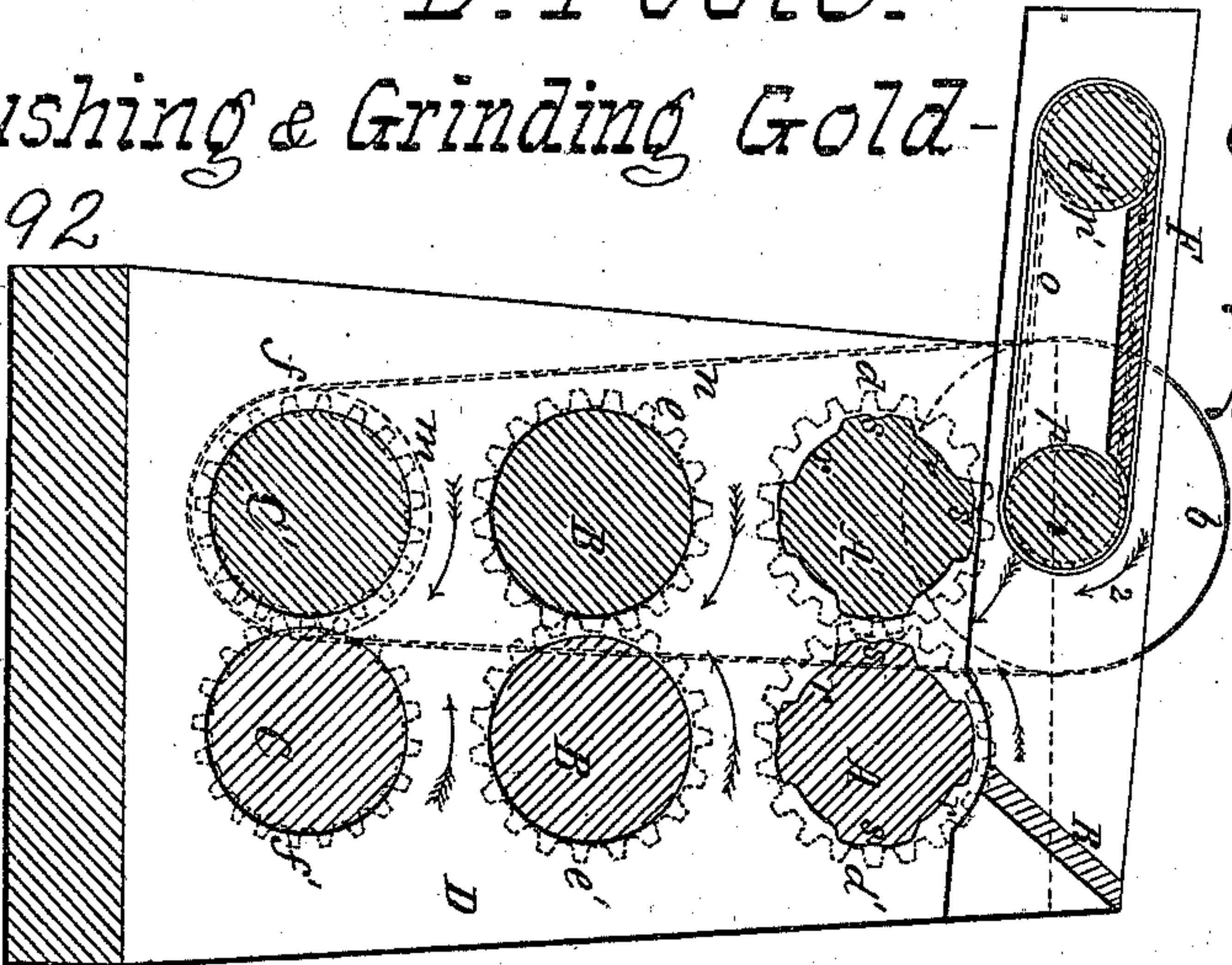
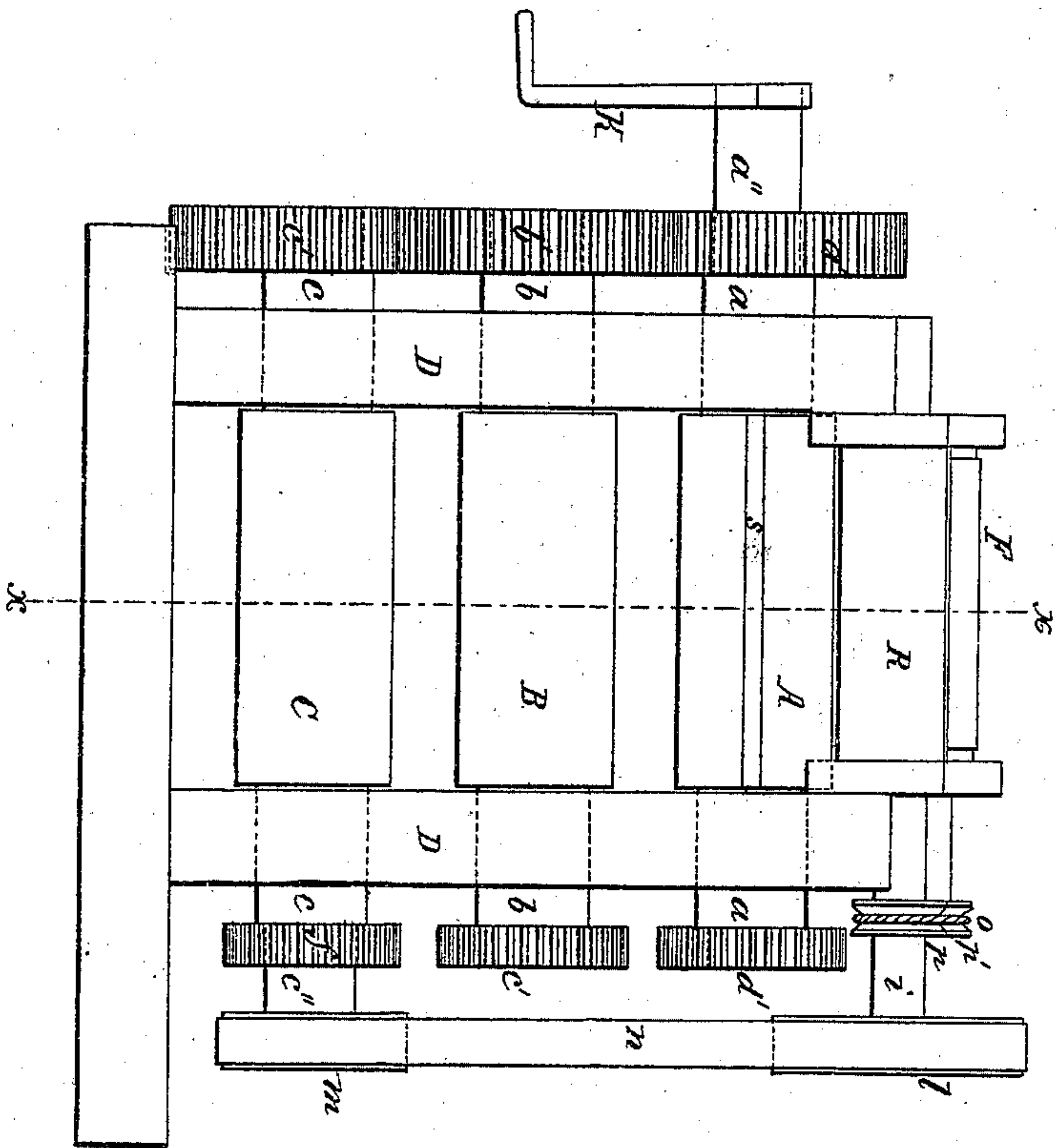


FIG. 1.



UNITED STATES PATENT OFFICE.

DANIEL POOLE, OF MOUNT CARMEL, ILLINOIS.

QUARTZ-CRUSHER.

Specification of Letters Patent No. 10,992, dated May 30, 1854.

To all whom it may concern:

Be it known that I, DANIEL POOLE, of Mount Carmel, in the county of Wabash and State of Illinois, have invented a new and useful Improvement in Machines for Pulverizing Gold and Copper Quartz, called "Poole's Quartz-Masher"; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, forming part of this specification, in which—

Figure 1 is a front elevation of the machine. Fig. 2 is a vertical section on line $x\ x$ of Fig. 1, perpendicular to the axes of the rollers.

Similar letters of reference in the several figures denote the same part of the machine.

The nature of my invention consists in the construction of a peculiarly grooved roller hereafter to be described, and in the combination of a pair of said grooved rollers, with a series of cylindrical rollers used in pairs, for the purpose of crushing gold and copper quartz; the rollers being arranged as will be described, and the ore fed steadily to the upper pair by means of an endless apron connected with the machine and driven as will be hereafter set forth.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

In the drawing $A\ A'$, $B\ B'$, and $C\ C'$ are the rollers secured to shafts which rest in the side pieces D of the frame, as shown in Fig. 1, the shafts a , b , c , of the rollers A , B , C , being seen, while the shafts of A' , B' , C' are hid. Upon the shafts of the rollers A' , B , C' are the cog wheels a' , b' , c' , giving motion to the rollers A' , B , C' while by reason of the cog wheels d , e , f and d' e' f' , the several pairs of rollers are made to revolve inward as shown by the arrows in Fig. 2.

F is the endless apron upon which the ore is thrown; it passes over the shafts $i\ i'$, and has motion communicated to it by reason of the band n connecting the pulleys l , and m , the former on the shaft i and the latter on the shaft c'' of the roller C' . The shafts $i\ i'$ are connected by the band o over the

pulleys $p\ p'$. Motion is given to the entire machine by power applied to the shaft a'' of the roller A' to which in the drawing the crank K is secured.

The rollers $A\ A'$ are formed as shown in Fig. 2 with the broad grooves r and small grooves s running parallel to the axis of the roller, the bottoms of the broad grooves being concentric with the outer surface of the roller, and the corners of said grooves rounded off as shown in the drawing, the object of these grooves being to receive the stone and prevent the slipping up of the same under the crushing operation, as would obtain in the use of cylindrical rollers. All these rollers are made of chill cast iron, and of the requisite dimensions for the size of ore to be pulverized.

The operation of my improved machine is as follows: Power being applied to the crank K a rotary motion is produced in all the rollers as indicated by the arrows in Fig. 2, while at the same time the endless apron moves as shown by arrow 2 of the same figure. Ore being placed upon said apron, it is carried steadily over the shaft i to the rollers $A\ A'$ and by falling in between the broad grooves r is immediately crushed; the form of the groove preventing the slipping up which would take place if these rollers were cylindrical. The crushed ore on leaving the rollers $A\ A'$ enters between the pair $B\ B'$, where it is still farther crushed by passing through the space between them, and is by the action of the rollers $C\ C'$, completely pulverized and ready for the amalgamating process.

This machine is simple in its construction and effective in its operation, the broad grooves r having their bottoms concentric with the outer face of the roller, act as cylindrical rollers, while their sides prevent the slipping of the stone, thus obviating the disadvantages in the employment of cylindrical rollers for the first reception of the ore. The smaller grooves s serve to receive small stones which would be imperfectly crushed in the large grooves.

The employment of the endless feeder renders the supply of ore continuous and at the

same time affords the means of regulating the same, without deranging the effective and even action of the machine.

What I claim as my invention and desire
5 to secure by Letters Patent, is—

I claim the arrangement and construction of the machine substantially as herein described.

In testimony whereof, I have hereunto signed my name before two subscribing witnesses. 10

DANIEL POOLE.

Witnesses:

GEO. PATTEN,
JOHN L. SMITH.