

W. H. & I. SCOVILLE.

Quartz Pulverizer.

No. 30,162.

Patented Sept. 25, 1860.

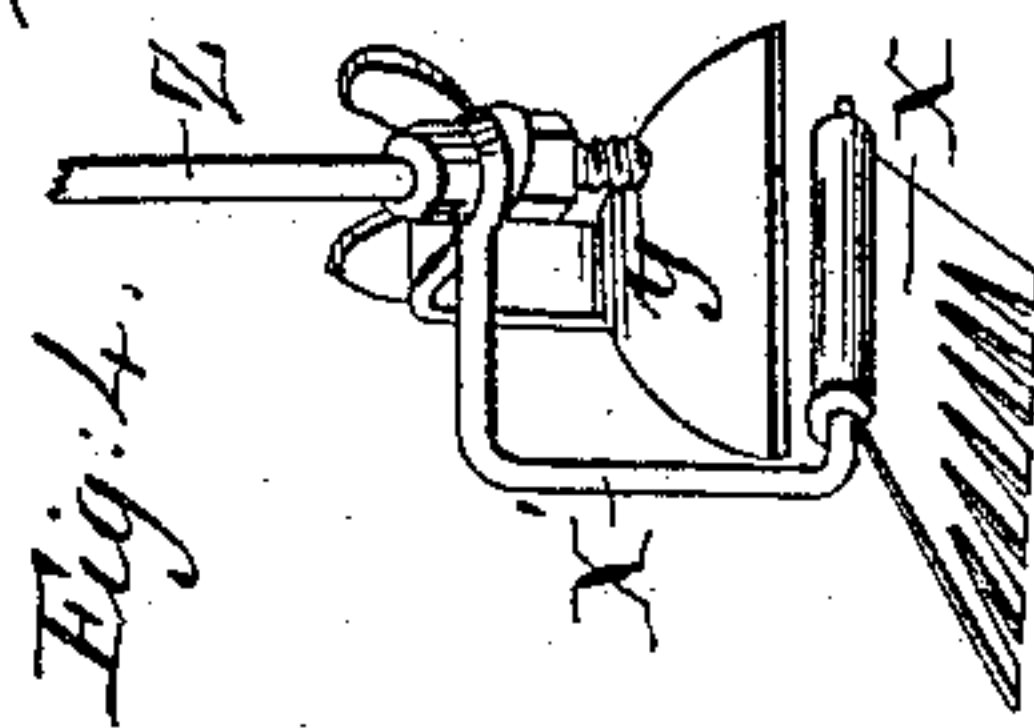
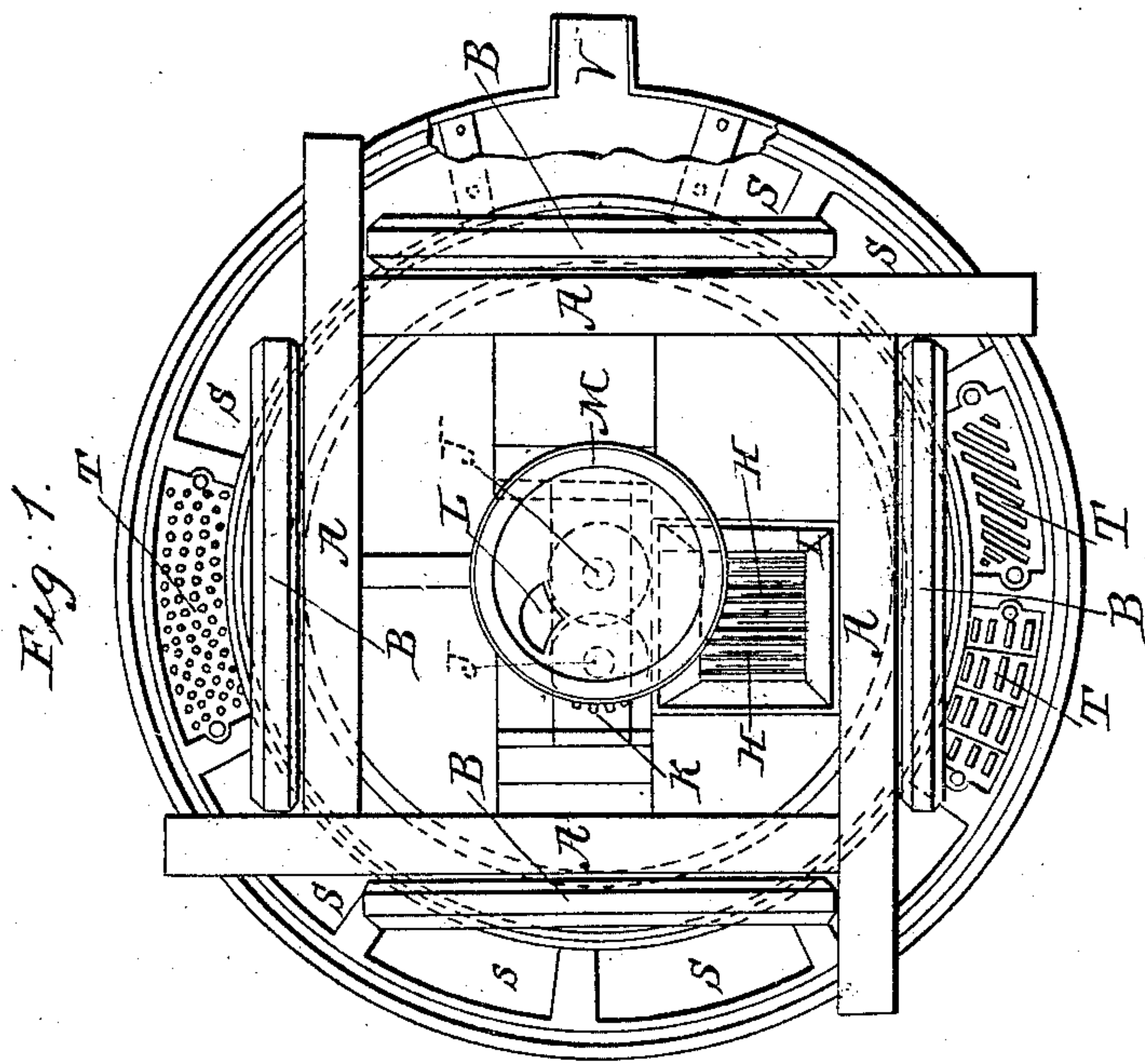


Fig. 2.

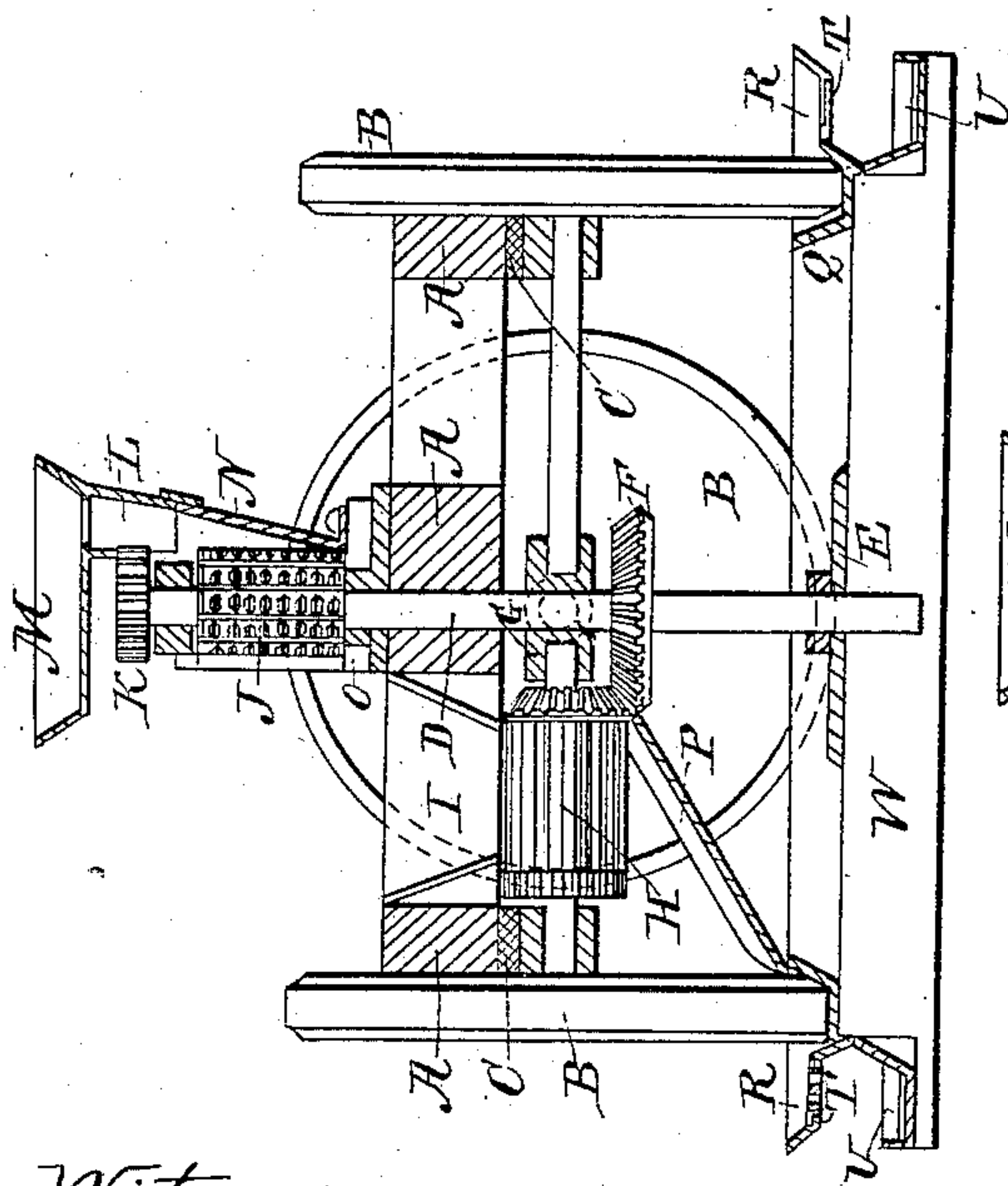
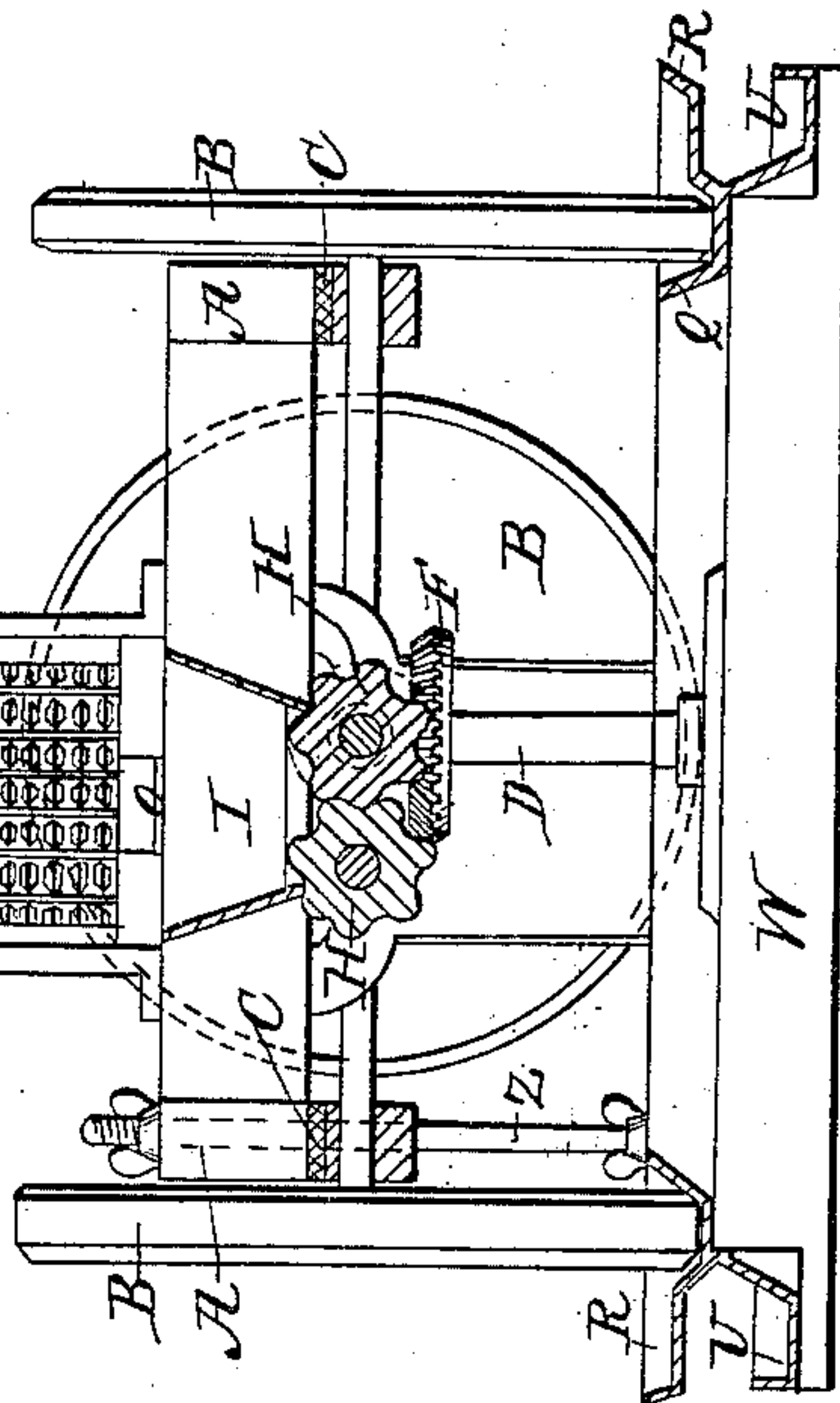


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM H. SCOVILLE AND IVES SCOVILLE, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN QUARTZ PULVERIZERS AND AMALGAMATORS.

Specification forming part of Letters Patent No. 30,162, dated September 25, 1860.

To all whom it may concern:

Be it known that we, WILLIAM H. SCOVILLE and IVES SCOVILLE, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Quartz Pulverizers and Amalgamators; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a plan; Figs. 2 and 3, central vertical sections, and Fig. 4 a detached view of the scrapers.

Similar letters of reference in each of the several figures indicate corresponding parts.

The nature of our invention consists in the arrangement of a double trough and gutter, in combination with four crushing and driving wheels, two grinding-rollers, and two breaking-rollers, the various parts of the machine being connected and placed in relation to each other as hereinafter described, for the purpose of constituting a combined quartz mill and amalgamator.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A combined double trough R U and gutter Q are placed concentric with the ground-plate W of the machine. The two troughs are placed one above the other, and the bottom surface of each is formed of plates, which can be removed and others substituted, if desired. The bottom of the upper trough is also provided with a circular gutter Q along the inner curb of said trough. The bottom plates of the upper trough are made with a series of recesses, some of which (marked S) serve for the retention of the quicksilver, while the others are perforated in the manner of sieves or grates, as seen at T, for the purpose of allowing the material which has, in a manner hereinafter to be described, been reduced to the proper degree of fineness and amalgamated, to drop through into trough U, where a complete amalgamation of all the particles is produced by the action of a stirrer X. The circular gutter Q serves as the path for four wheels B, which have their bearings attached to a frame A. The form of the wheels and

gutter is such that the head of the wheels exactly fits the gutters.

D is a stationary center shaft, to which a bevel-wheel F is keyed. A bevel-wheel G, fastened to a fluted roller H, (the roller being keyed to the shaft of one of the wheels B,) takes into the bevel-wheel F. Another fluted roller H is arranged near the other roller H upon an independent shaft, and the two fluted rollers are geared together. A serrated roller J is arranged upon the upper portion of the shaft D and is geared, together with another similarly-serrated roller J, upon an independent shaft which has its bearings in brackets extending from frame A. Above the rollers J J there is a hopper M, which receives the pieces of quartz to be crushed. When the frame A is revolved by levers attached to it or any other suitable means, the frame A, with all its appurtenances, will revolve around the center shaft D, the wheels B traveling in the gutter Q. As springs C are inserted between the bearings of the driving-wheel shafts and the frame A, the weight of the whole apparatus will be equally distributed upon the four wheels. As the machine revolves, the quartz drops from hopper M, through spouts L N, onto and between the revolving breaking-rollers J J, and as it issues from between them it passes over the inclined plane O and through spout I onto and between the revolving grinding-rollers H H, by means of which it is reduced to a small size. The material as it passes out from between the rollers H H finds its way over incline P into the gutter Q, where it is reduced to powder by the action of the four wheels B. When the machine is in rapid motion, the wheels B fitting perfectly the gutter, the same being full or partially full of water mixed with the pulverized material, the said material will be necessarily raised up in a great swell before each wheel, and from reaction against the inner curb of the trough Q R will be thrown or washed over onto the horizontal and recessed plane, forming the bottom of the portion Q of the trough Q R, where it is stirred and spread out and carried around over the recessed and perforated plates by the scraper Y. This scraper Y, attached to arm Z, extending from frame A, travels round in the trough R and mixes the material with

the mercury contained in the recessed plates S and gradually allows it to drop through the perforated plates T into the lower trough U. All particles washed over onto said plane which are too large to pass through the perforated plates are constantly scraped back into the gutter, where they are repulverized. A toothed drag X, hung to a rod X', extending from arm Z, travels in the trough U and serves to stir the material and complete the amalgamation. The amalgamated material finds its way finally out of trough U through a spout or spouts, of which one is represented at V.

The whole is a very complete and compact machine, doing all the work of crushing and amalgamating in a highly-effective manner.

What we claim as our invention, and desire to secure by Letters Patent, is—

The arrangement of a double trough R U and gutter Q, in combination with four crushing and driving wheels B B B B, two grinding-rollers H H, and two breaking-rollers J J, the various parts of the machine being connected and placed in relation to each other substantially as and for the purposes set forth.

WM. H. SCOVILLE.
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Witnesses:

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