

No. 661,993.

Patented Nov. 20, 1900.

T. R. JORDAN:
CRUSHING MACHINE.

(Application filed Oct. 27, 1897.)

(No Model.)

2 Sheets—Sheet 1.

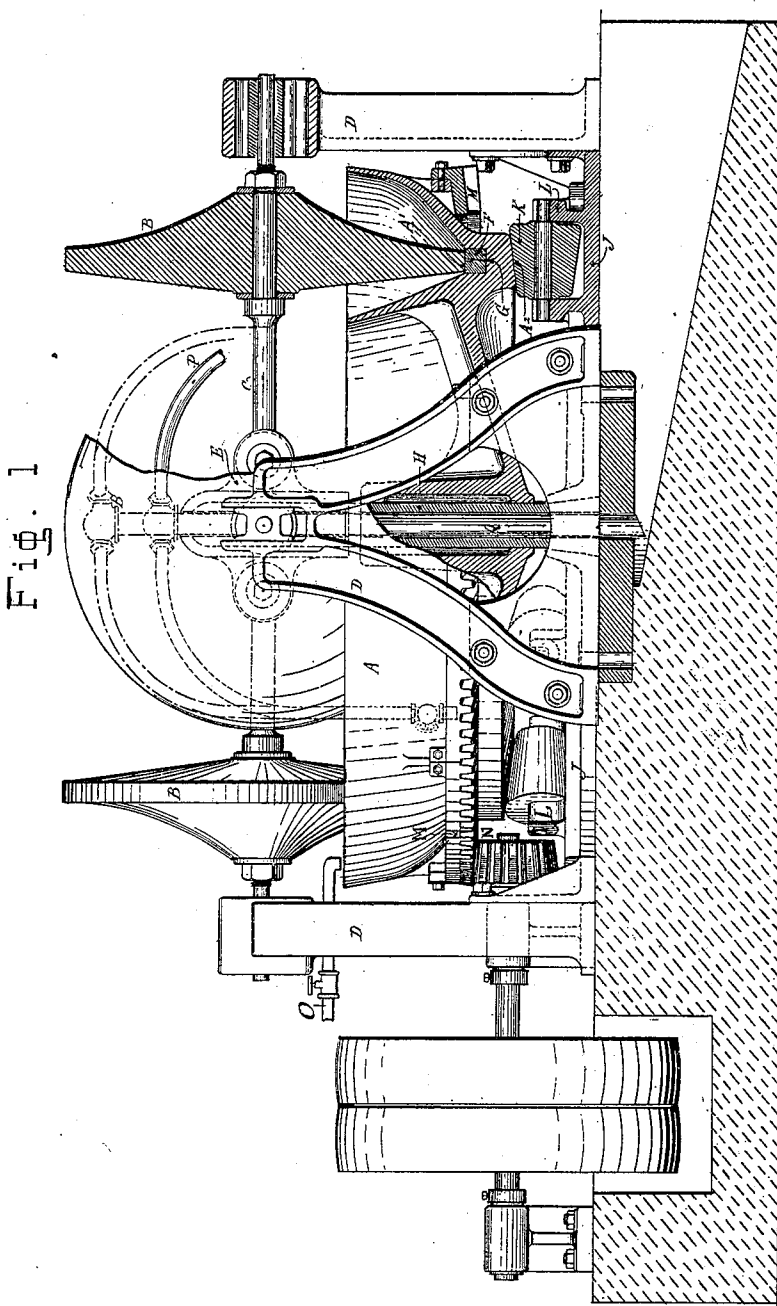


Fig. 1

WITNESSES:

Harvey Johnson
Wm. S. Topping

INVENTOR

Thomas Rowland Jordan

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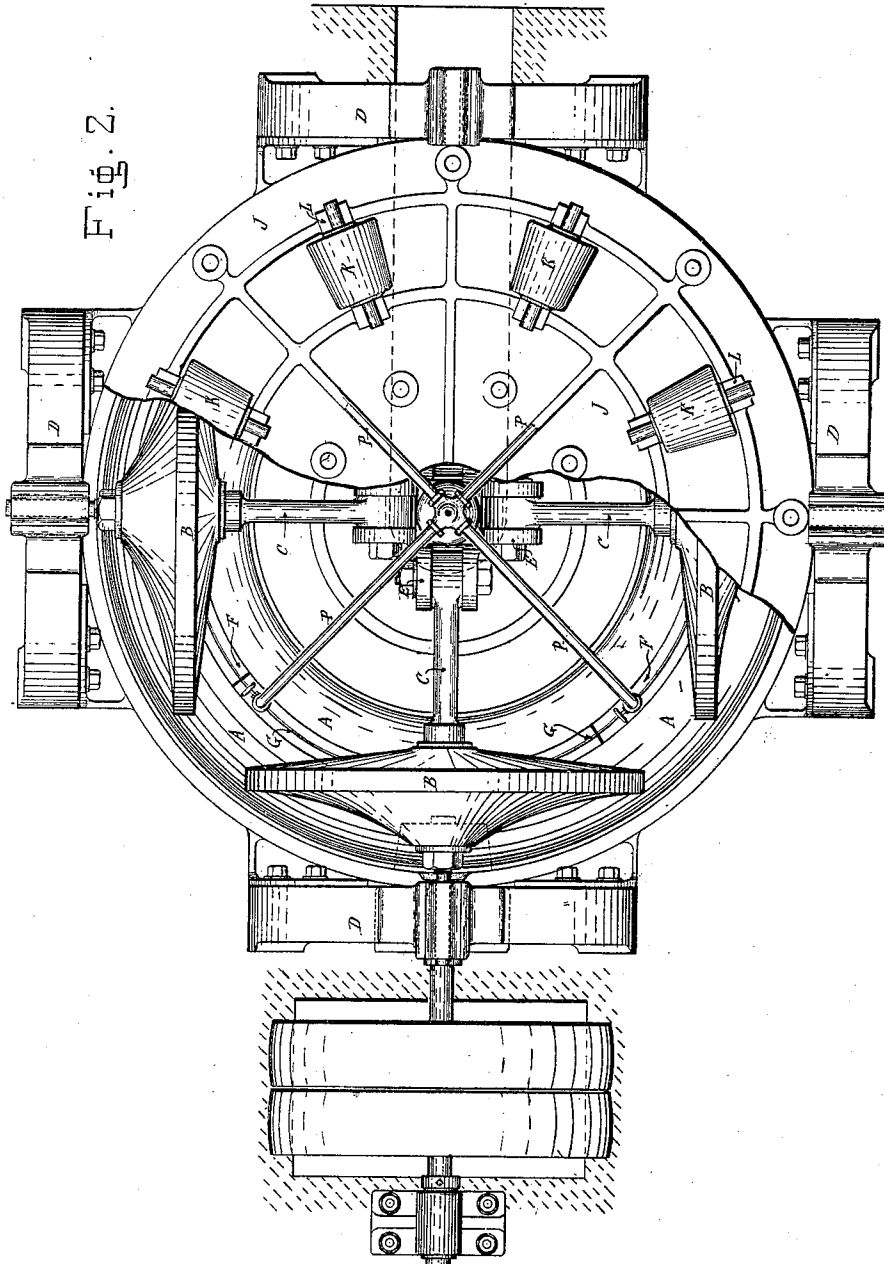


Fig. 2.

WITNESSES:

Harvey Johnson
Wm. Hopping

INVENTOR

Thomas Rowland Jordan

UNITED STATES PATENT OFFICE.

THOMAS ROWLAND JORDAN, OF NEW YORK, N. Y., ASSIGNOR TO THE
JORDAN GRAVITATION PROCESS COMPANY, OF NEW YORK.

CRUSHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 661,993, dated November 20, 1900.

Application filed October 27, 1897. Serial No. 656,511. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ROWLAND JORDAN, a subject of the Queen of Great Britain, and a resident of New York, in the county and State of New York, have invented a new and useful Improvement in Crushing-Machines, of which the following is a specification, reference being made to the accompanying drawings, in which—

Figure 1 is an elevation of the machine, and Fig. 2 is a plan thereof, both views being partly broken away.

The principal object of my invention is to crush or reduce ore, gravel, or sand to extreme fineness and where gold is associated with the material being crushed to bring the same into continuous contact with a body of mercury for the purpose of extracting the auriferous value therefrom.

To avoid the use of screens or sieves to regulate the fineness of the material leaving the machine, I employ outlet-pipes so constructed as to form a siphon for the purpose of conveying the water and fine sand from the machine to an outlet through the center of the main shaft H, the degree of fineness of the said sand being regulated by the level or distance from the crushing-path at which the inlet to said siphon is adjusted, the central outlet-pipe being a sliding fit in the central main shaft for this purpose.

In the drawings similar letters represent similar parts of my machine.

A is a revolving crushing-chamber, in which runners B are mounted on arms or spindles C. These spindles control the position of the said runners and are themselves retained in their relative position radially and their distance apart from each other by guides D. The said spindles C are mounted near the center of the machine on wrist-pins E, which, in conjunction with the guides D, admit of vertical motion to the said runners while retaining the spindles and the runners in the same relative position radially. The crushing-path at A' is formed by a narrow channel in which a false bottom F is placed. This false bottom may be formed of segmental sections and is provided with a groove or channel G for containing mercury. The surface of the periphery

of the runners is rather less in width than the surface formed by the false bottom.

The central main shaft H is mounted in the circular base-plate J. This base-plate casting carries coned rollers K, which support the revolving crushing-chamber A, and runners B, a rolling-surface being formed at A² under the said revolving crushing-chamber. The roller-spindles are provided with suitable journals in the base-plate castings at L.

On the under side of the revolving crushing-chamber segmental gearing is fitted at M and geared with a suitable pinion and driving-pulley at N to give rotary motion to the said crushing-chamber.

A water-pipe O supplies a regular quantity of water to the machine.

P Q are outlet-pipes forming the siphon for withdrawing the water and reduced ore from the machine, this siphon being fitted with suitable valves. The central pipe or long leg of the siphon fits closely the central tubular shaft or spindle, whereby the siphon is held in its vertically-adjusted positions, the adjustments being effected by raising and lowering the siphon by hand or by any suitable device. A plurality of branch pipes or short legs lead radially from the central pipe and extend into the pan at intervals. Siphon action is started by filling the siphon-pipe from attached water-supply tubes while in elevated position with water, after which the receiving ends of the siphon are brought below the surface of the water in the pan.

The action of this machine may be described as follows: The crushing-chamber of the machine being revolved by gearing M N, the runners resting on the false bottom F are caused to revolve about the spindles C. The material, which is supplied preferably by a suitable automatic feeder to the machine, passing under the said rollers is continuously reduced by the weight thereof. The inclination of the sides of the crushing-chamber retain the uncrushed material in the bottom of said chamber. This crushing-chamber is kept full of water while the machine is in action, and the ebullition, due to the revolving of the runners and the crushing-chamber, disturbs the fine sand, causing it to be suspended in

proportion to its fineness, the finest material rising to the highest level above the crushing-path. Thus by adjusting the distance of the outlet-opening from the surface of the crushing-path the fineness of the reduced material leaving the machine can be easily regulated.

Having specified and described the nature of my invention, I wish to claim and secure by Letters Patent—

1. In a crushing or reducing machine, the combination of a tubular spindle, a pan centrally mounted on the spindle and supported on rollers, said pan having an annular recess in its bottom, a false bottom removably seated in the recess having an annular groove for containing mercury, runners or rolls adapted to revolve on said false bottom, spindles on which the runners or rolls are mounted, said spindles being pivoted at one end and guided at the other end, and a vertically-adjustable siphon-pipe arranged within the tubular

spindle and discharging below the same, said pipe having a number of radial branches extending into the pan at intervals, whereby the depth from which the water and material are withdrawn may be regulated.

2. In combination with the pan of a crushing or reducing machine rotatably mounted on a tubular spindle, a vertically-adjustable siphon-pipe arranged within the spindle and discharging below the same, said pipe having a number of radial branches extending into the pan at intervals, whereby the depth from which the water and material are withdrawn may be regulated.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 26th day of October, 1897.

THOMAS ROWLAND JORDAN.

Witnesses:

HARDING JOHNSON,
WM. A. TOPPING.