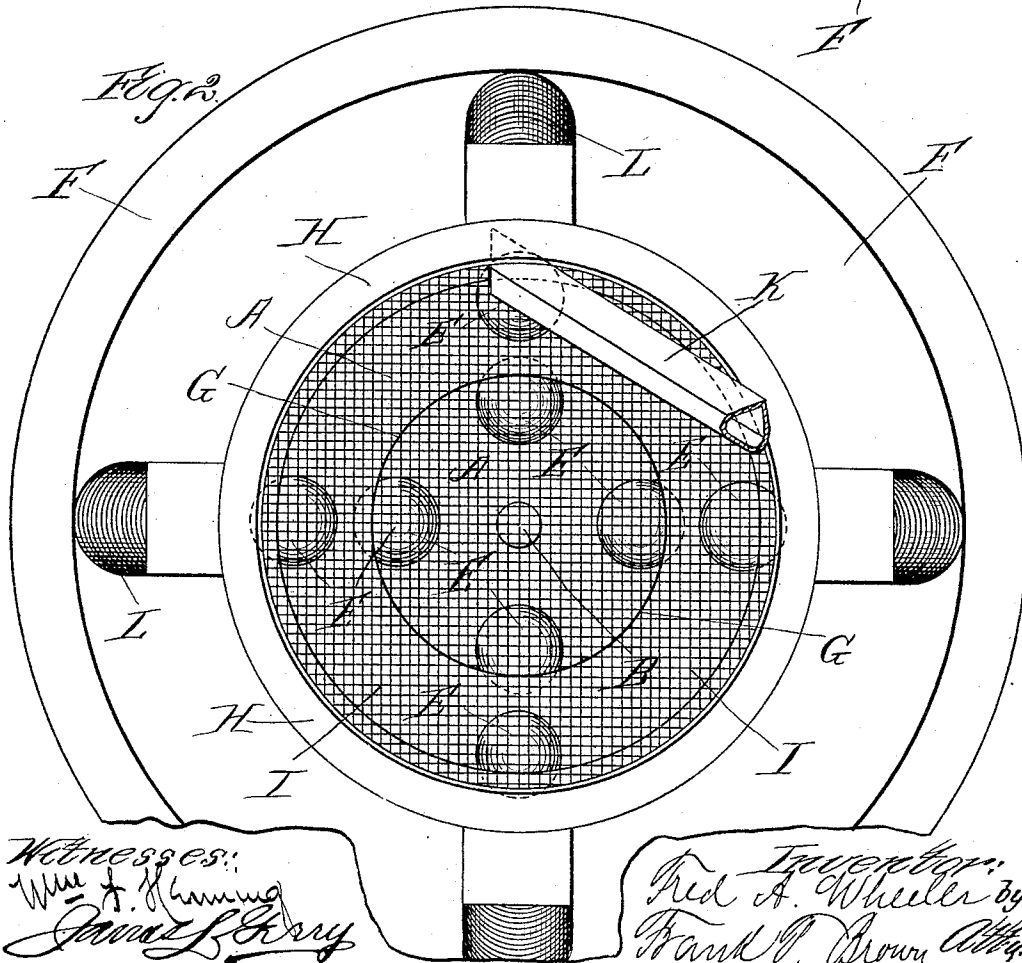
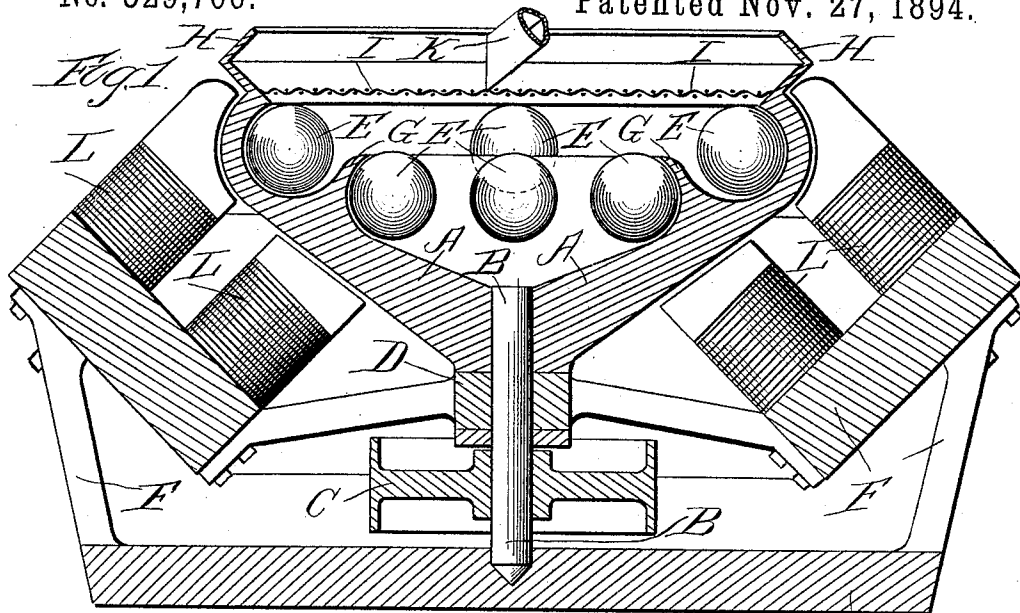


(No Model.)

F. A. WHEELER.
MACHINE FOR CRUSHING ORES, &c.

No. 529,766.

Patented Nov. 27, 1894.



Witnesses:
Wm. A. Fleming
James S. Berry

Inventor:
Fred A. Wheeler by
Frank P. Brown Atty.

UNITED STATES PATENT OFFICE.

FRED A. WHEELER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWENTY-THREE TWENTY-FOURTHS TO ALLEN E. WHEELER, EUGENE T. SPECHT, FREDERICK WEINHAGEN, WILLIAM HINRICHS, AND CHARLES A. ROHDE, OF MILWAUKEE, WISCONSIN, AND ROME V. WAGNER, OF CHICAGO, ILLINOIS.

MACHINE FOR CRUSHING ORE, &c.

SPECIFICATION forming part of Letters Patent No. 529,766, dated November 27, 1894.

Application filed January 13, 1894. Serial No. 496,825. (No model.)

To all whom it may concern:

Be it known that I, FRED A. WHEELER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Machines for Crushing Ore, &c., of which the following is a specification.

This invention relates to improvements in a machine for crushing ore, grinding various substances, mixing paints, compressing cotton seed, &c.

The invention consists substantially in the construction and arrangement illustrated in the accompanying drawings, mentioned in the subjoined specification, and more particularly pointed out in the claims.

Like letters refer to the same parts in both figures of the drawings, in which—

Figure 1, is a vertical section of a preferred form of my machine; and Fig. 2 is a plan view of the same.

The letter A designates a hopper or mortar which is preferably arranged vertically, or approximately so, and composed of any suitable material. It is mounted upon a spindle B which has a bearing formed for its lower end in any suitable frame F, and may have another bearing, such as D, surrounding it near the point of connection with the mortar, and serving to steady it. This hopper or mortar is intended to be revolved at a comparatively high rate of speed by any suitable engine, whether electric or other form; and in the drawings I have shown a pulley C through which motion is communicated to the spindle. Within this revolving hopper or mortar there is intended to be arranged one or more series of metal balls, or equivalent objects, E. In the drawings, two series are arranged, one adjacent to the inwardly curved top of the hopper or mortar, and another series at a lower point acting against a concave partition or ledge G formed within such hopper or mortar.

Just above the top of the hopper or mortar is arranged a trough H composed of a flange formed in one piece with the hopper, or bolted

thereto; and at the bottom of this trough there is placed a wire screen or foraminated plate I which serves to confine within the hopper all objects too large to pass through the meshes thereof. An inclined spout K extends down into the trough and scoops up the finer particles which sift through the screen, as they are being revolved by the motion of the hopper. Suitable magnets, either permanent or electric are arranged upon the frame outside of the hopper, with their poles closely approaching the sides of such hopper. These magnets should be made quite powerful, as it is found in practice that by them a crushing power of fifteen hundred pounds may be conveniently applied to the balls within the hopper.

The operation of the apparatus may be described as follows:—Rapid revolution is given to the hopper which at the time contains the material to be crushed or pressed and by centrifugal action such material is necessarily forced toward the rim or upper portion of such hopper, and thus subjected to the crushing or pressing action of the balls, which are being turned with great force toward the sides of the hopper, by means of the exterior magnets. As the material is crushed the finer particles will be forced upward through the screen into the trough where it will be delivered through the pointed scoop to any suitable receptacle.

It is manifest that many variations may be made in the specific construction described and illustrated without departing from the principle of the invention, and I therefore do not wish to be understood as limiting myself to such exact construction.

What I desire to claim and secure by Letters Patent is—

1. In a machine for crushing substances, the combination of a revolving hopper, pestles, and magnets acting upon such pestles; substantially as and for the purpose set forth.

2. In a machine for crushing substances, the combination of a revolving hopper or mor-

tar, a series of loose pestles, a foraminated cover to such mortar and a series of magnets the poles of which are arranged in close proximity to the walls of the mortar; substantially
5 as and for the purpose set forth.

3. In a machine for crushing substances, the combination of a revolving mortar or hopper a series of loose pestles, a foraminated cover for the mortar or hopper, a trough, and
10 a series of magnets having their poles in close proximity to the walls of the mortar; substantially as and for the purpose set forth.

4. In a machine for crushing substances, the combination of a revolving mortar or hopper provided with an interior circular division, a series of loose metal balls, and a series
15 of magnets with their poles arranged in close proximity to the walls of the hopper so as to

attract such balls; substantially as and for the purpose set forth. 20

5. In a machine for crushing substances, the combination of a revolving hopper or mortar provided with a circular interior partition, a series of metal balls within such mortar, a trough surmounting such mortar and provided with a foraminated bottom which serves
25 as a cover for the hopper; a scoop or spout projecting into such trough and a series of magnets having their poles supported close to the walls of the hopper and opposite the
30 path of the balls; substantially as and for the purpose set forth.

FRED A. WHEELER.

Witnesses:

JOHN S. GOODWIN,
MAURICE KANE.