

(No Model.)

E. JOLICARD.
PULVERIZING APPARATUS.

No. 553,163.

Patented Jan. 14, 1896.

FIG. 1

FIG. 2

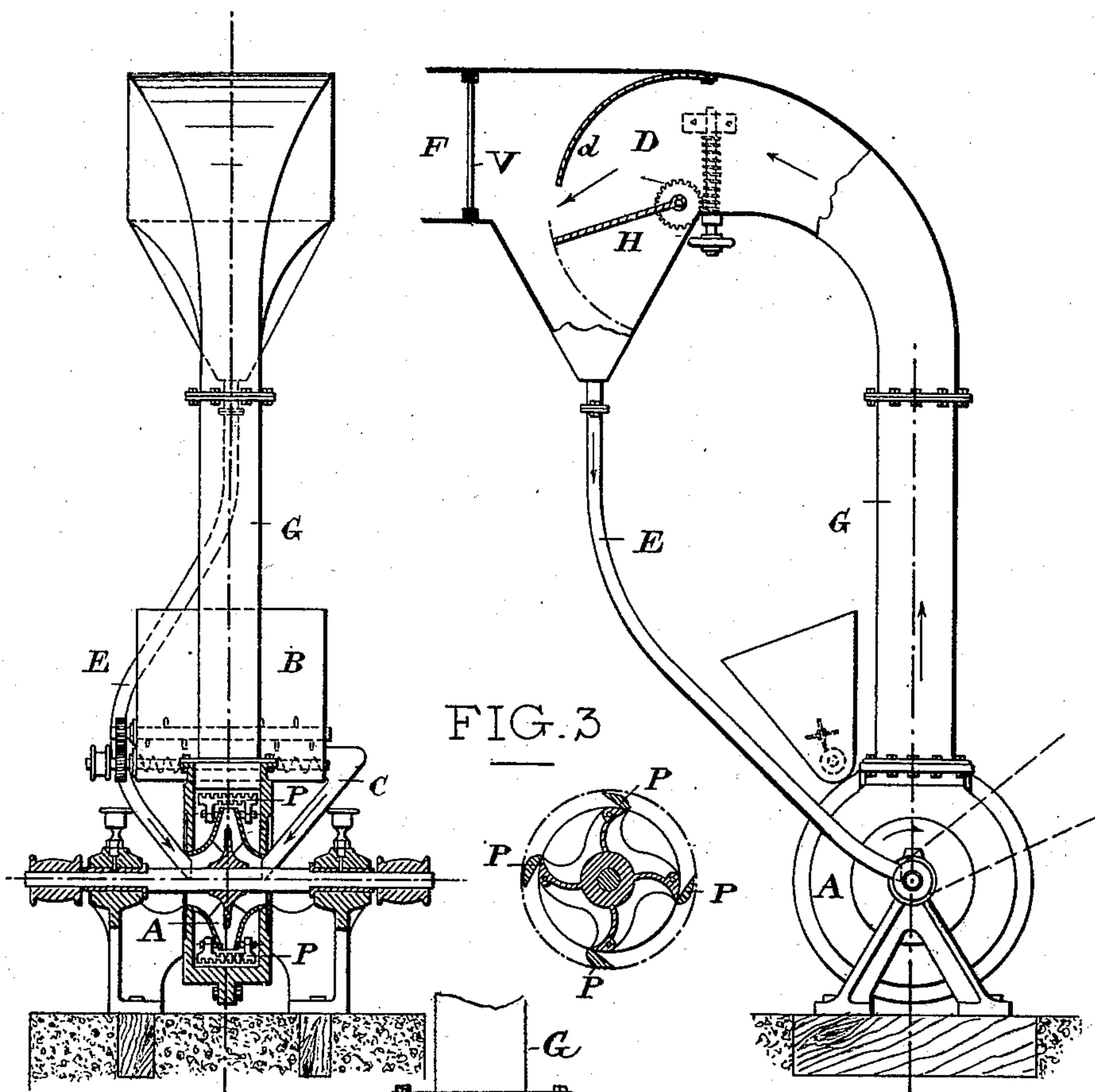


FIG. 4.

Witnesses

Emile Jolicard
Jean Germain

Inventor

Emile Jolicard

UNITED STATES PATENT OFFICE.

EMILE JOLICARD, OF LYONS, FRANCE.

PULVERIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 553,163, dated January 14, 1896.

Application filed August 28, 1894. Serial No. 521,516. (No model.) Patented in France January 25, 1894, No. 235,745.

To all whom it may concern:

Be it known that I, EMILE JOLICARD, engineer, a citizen of the Republic of France, residing at Lyons, in the Republic of France, have invented certain new and useful Improvements in and Relating to Pulverizing Apparatus, (for which I have obtained a patent in France, No. 235,745, bearing date of January 25, 1894,) of which the following is a specification.

My invention relates to pulverizing apparatus.

In the pulverizing apparatus heretofore employed, whether they act by crushing, projection or by concussion of the materials against each other, it is needful either to sift the products leaving such apparatus for obtaining the desired degree of fineness or to utilize the suction-power of a separate fan for carrying away the said pulverized materials and cause them to be deposited in chambers wherein they are sorted according to their degree of fineness; but in either case a certain quantity of materials is produced which has not the desired degree of fineness and which it is necessary either to reject or to pass again to the pulverizing apparatus.

The apparatus which forms the subject of my aforesaid invention, by suitable regulation, enables me to collect only such materials as have the desired degree of fineness without any necessity for sifting or sorting them.

It is substantially composed of parts for effecting the pulverization of the materials and of parts of a centrifugal fan for producing a continuous current of air in the same direction and at a sufficient velocity for carrying away the pulverized materials. This apparatus constitutes a centrifugal fan turning at a great velocity, and at the periphery of which are arranged articulated beaters turning together in the same drum and effecting the crushing of the materials.

In the accompanying drawings, Figure 1 is a front view showing the pulverizing apparatus partly in section. Fig. 2 is a side view, partly in section, of the same apparatus. Fig. 3 represents a side view in section of the interior of my apparatus. Fig. 4 is an enlarged detail sectional view of the cylinder, the centrifugal fan and the articulated beaters.

A pulverizing apparatus constructed according to my invention comprises a fan A, formed of a movable part with a crown and bent vanes arranged in a drum of cast-iron.

Upon the periphery of the crown I fix articulated beaters P, Figs. 1 and 3, which may be varied in form and adapted to turn rearward, so as to leave space enough between them and the circular wall of the casing or drum in order that there may be no wedging action and stoppage in consequence of the introduction of very hard bodies with the material to be pulverized. These beaters P may be varied in number and provided, as shown in Fig. 1, with recesses forming teeth of dimensions which may be varied according to the nature of the material to be crushed and the degree of fineness required.

A hopper B receives the material to be pulverized and distributes it by an endless screw or conveyer into an inclined channel C, whence it passes into the pulverizer. The latter moving at a very great velocity, the material is immediately carried away, projected against the sides or walls, triturated by the beaters P and completely crushed by the repeated concussion of the grains with each other; then the mixture of air and dust obtained in this operation taking place at a great velocity escapes through a vertical pipe G and is conveyed to a device D for separating the grains. There it first impinges against a partition or baffle-plate *d*, which divides it, then as the device for separating the grains offers to the mixture of air and dust a larger and variable section according to the position of a movable plate H, there will take place a diminution in the velocity of the said mixture, which diminution has the immediate effect of separating therefrom the largest, and consequently the heaviest particles, which tend to fall into the funnel forming the lower part of the separator and return to the crusher, being forced into a return-pipe E by a portion of the air-current. The other portion of the air-current, which holds the finest materials in suspension, then passes through a conduit F, having at its front part a discharge-valve V. By diminishing the opening of this valve V only a small portion of the air-current will be allowed to pass into the said conduit F. The smaller this quantity of air the

smaller will also be the velocity of the same in the conduit F and the finer will be the pulverized particles carried away by it. Moreover, the fineness of the material is regulated
5 by the separator itself according to the position of the aforesaid movable plate H.

The general conduit F behind the discharge-valve V may terminate either in one or more dust-chambers, where the pulverized material
10 is deposited, and whence the air escapes through a cloth filter or to furnaces for pulverized fuel, for which my improved apparatus has been specially adapted, or to any other
15 apparatus for collecting or utilizing the dust produced.

What I claim is—

In a crushing and pulverizing apparatus the combination with the casing of a centrifugal fan rotating within the same, means for de-

livering the material to be crushed into the casing, articulated beaters secured upon the periphery of the centrifugal fan, a conduit for carrying away the crushed material by the blast produced by the fan, a deflector at the exit end of said conduit, a movable plate in
20 juxtaposition to said deflector, for regulating the strength of the blast at that point to control the fineness of material discharged from the apparatus and a return conduit for delivering the coarsely crushed material to the
25 casing to be again crushed, substantially as described.

In witness whereof I have hereunto set my hand this 7th day of August, 1894.

EMILE JOLICARD.

Witnesses:

XAVIER JANICOT,
JEAN GERMAIN.