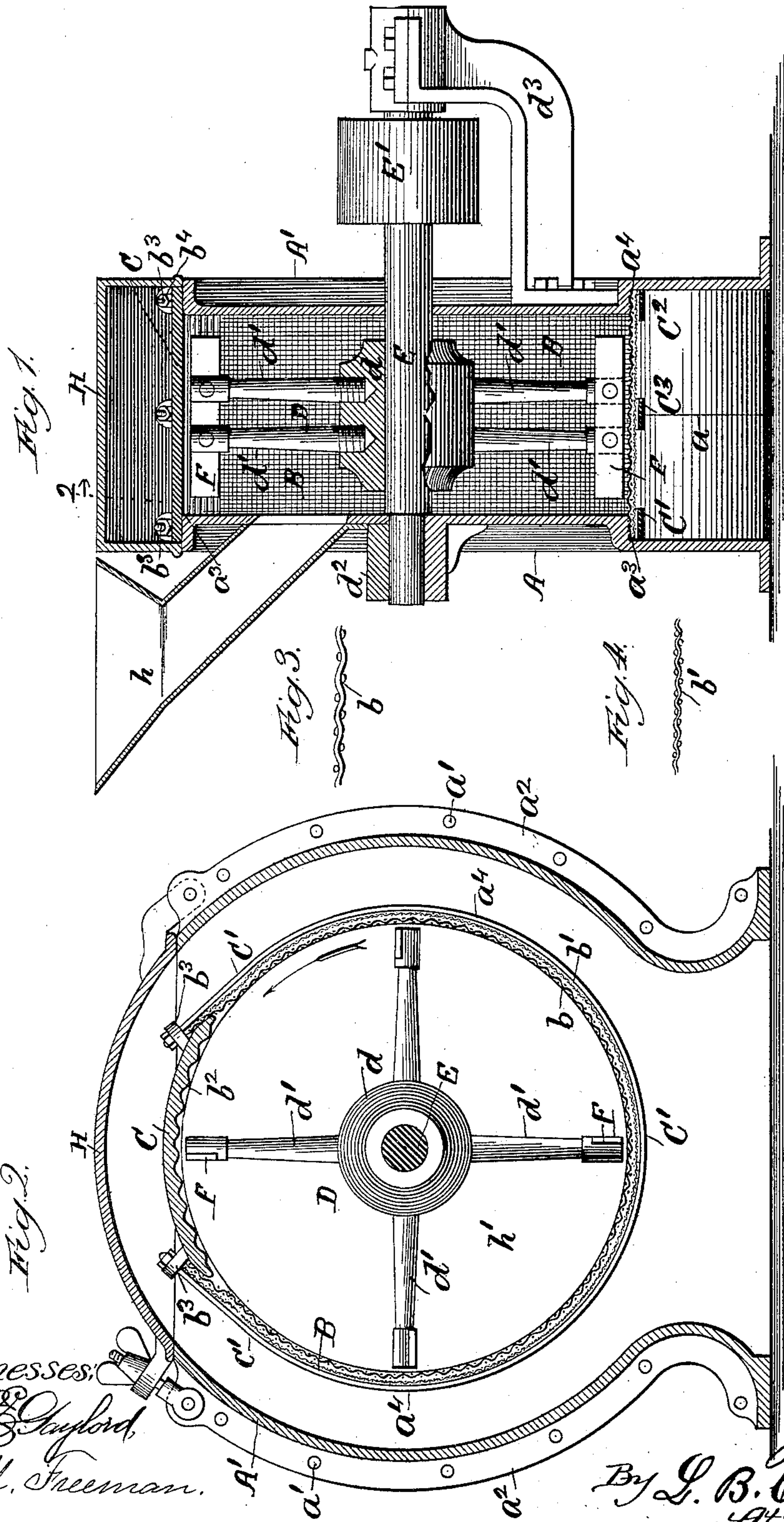


(No Model.)

J. GOOD.
GRINDING MILL.

No. 399,518.

Patented Mar. 12, 1889.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN GOOD, OF CHICAGO, ILLINOIS.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 399,518, dated March 12, 1889.

Application filed May 24, 1888. Serial No. 274,924. (No model.)

To all whom it may concern:

Be it known that I, JOHN GOOD, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grinding-Mills, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of this invention is to provide a simple and convenient apparatus for grinding or pulverizing hard substances—such as iron or other metals, bones, plaster, bark, the different kinds of grain, seeds, and the many different substances used in the preparation of drugs.

Figure 1 is a vertical transverse section of an apparatus embodying my improved features; Fig. 2, a vertical section in the plane 2, Fig. 1; and Figs. 3 and 4, samples of wire gauze or cloth having different-sized meshes.

The outer cylindrical casing or shell forming the inclosing-sides consists of the two separable parts A A' coming together on the central line, a . These parts or sides are provided with perforations a' in the flanges a^2 , for the insertion of the bolts necessary to secure the parts together. The two parts forming the casing are provided on their inner sides with the annular shoulders $a^3 a^4$.

B is a gauze cylinder arranged on the inside of the inclosing-casing, and is ordinarily composed of wire-cloth, the edges of which overlap and have a bearing on the shoulders $a^3 a^4$, as shown in Fig. 1. The gauze cylinder is composed of two thicknesses or layers having meshes of a different size, the inner layer being formed of the heavier and coarser mesh, b , and the outer layer of the finer mesh, b' , as shown in Figs. 3 and 4. This gauze cylinder does not quite come together at the top, but is connected by means of the solid curved plate C, having the inner corrugated surface, b^2 . This plate is provided near each end and outer surface with a number of perforated lugs, b^3 , for the insertion of the screw-threaded ends of the bands C' C² C³, encircling the outer surface of the gauze cylinder. The bands C' C² securely clamp the edges of the gauze cylinder on the shoulders or annu-

lar bearing-surfaces $a^3 a^4$, while the central band, C³, serves to stay or stiffen this part of the structure. The bands are tightened or adjusted by means of the screw-threaded nuts b^4 .

The grinding or reducing wheel D consists of the hub d , rigidly mounted on the driving-shaft E, a number of arms, $d' d'$, arranged in pairs and having the inner ends inserted in said hub, while the outer ends are provided with the cross-bars F, extending at right angles and rigidly secured thereto. These beater-bars come out close to the gauze surface, and are usually made of steel, as the wear on them is great. The driving-shaft E is provided at one end with a journal-bearing in the box d^2 , the opposite end being supported in a suitable bearing on the end of the bracket-arm d^3 , bolted to the opposite side of the casing.

E' is the band-pulley mounted on the driving-shaft.

H represents a hinged cover, which permits of convenient access to the interior of the apparatus for the purpose of making repairs or examination.

The material to be ground is fed in through the spout h , communicating with the interior space, h' , inclosed by the gauze cylinder, and when reduced to the proper degree of fineness in accordance with the size of the meshes in the wire-cloth passes out at the bottom. Of course the nature of the material and the degree of fineness to which it is to be reduced will determine what the size of the meshes shall be in the wire-cloth used in the construction of the gauze cylinder.

The object of using two or more thicknesses of wire-cloth in the construction of the reducing-cylinder is for the purpose of increasing the attrition or abrading surfaces and adding to the durability of the finer or screening cylinder.

It was found by actual working that the gauze cylinder was worn out at the top much sooner than at any other point of its circumference. This was remedied by the use of the corrugated plate C, the corrugated surface assisting in the process of reduction.

By means of this apparatus almost any substance or material may be reduced to powder or any less degree or grade of fineness by using

wire-cloth having meshes of the required size for the screening-surface. The wearing parts are easily and conveniently replaced.

Perforated sheet metal may be used in place of the wire-cloth, or both combined.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a grinding-mill, the combination, with the inclosing-casing constructed in two parts and provided on the interior with the annular shoulders, as described, of the wire-gauze cylinder, the edges of which overlap and have a close bearing on said shoulders, the corrugated plate, the clamping-bands for securing said cylinder in proper position relative to the inclosing-casing and said corrugated plate, and the beater-arms, as described, substantially as and for the purpose set forth.

2. In a grinding-mill, the combination, with the inclosing-casing provided on the inner side with the annular shoulders $a^3 a^4$, of a wire-gauze cylinder arranged on the interior of the inclosing-casing, and having the edges

overlap said shoulders, the clamping-bands $C^1 C^2$, having screw-threaded ends, the curved corrugated plate C, provided with lugs b^3 , the screw-threaded nuts engaging with the correspondingly-threaded ends of the clamping-bands, and the beater arms and bars, as described, all arranged and operating in the manner and for the purpose set forth.

3. In a grinding-mill of the character described, the combination, with the inclosing-casing provided on the inner sides with annular shoulders $a^3 a^4$, of the wire-gauze cylinder B, the curved corrugated plate C, provided with the perforated lugs b^3 , the clamping-bands encircling said gauze cylinder and having the ends adjustably secured in said lugs, the reducing-wheel D, rotating inside of the gauze cylinder, and the driving-shaft upon which said wheel is rigidly mounted, substantially as and for the purpose set forth.

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