

A. J. SACKETT.
DISINTEGRATING MILL.

(Application filed Mar. 31, 1899.)

(No Model.)

2 Sheets—Sheet 1

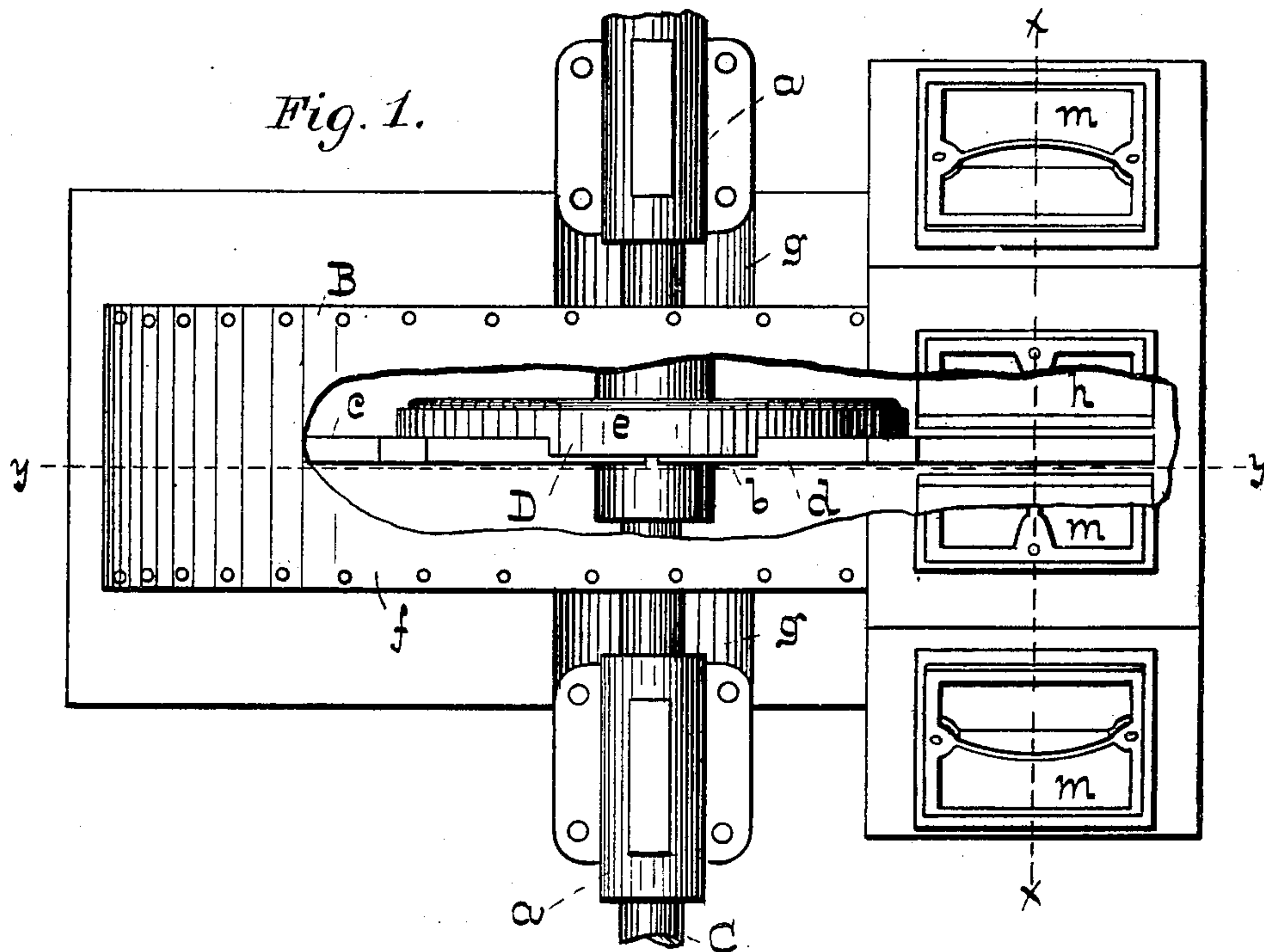
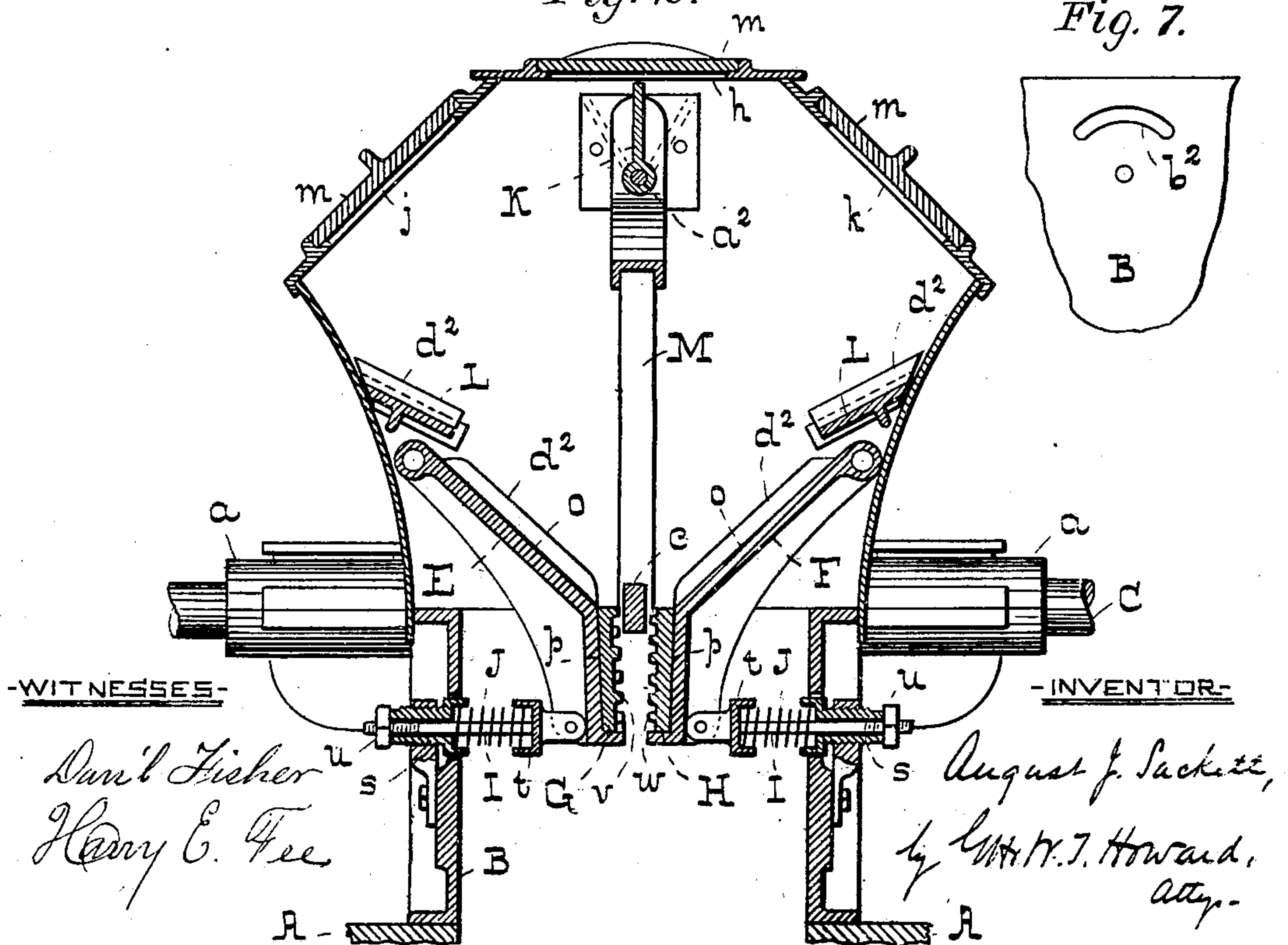


Fig. 2.

Fig. 7.



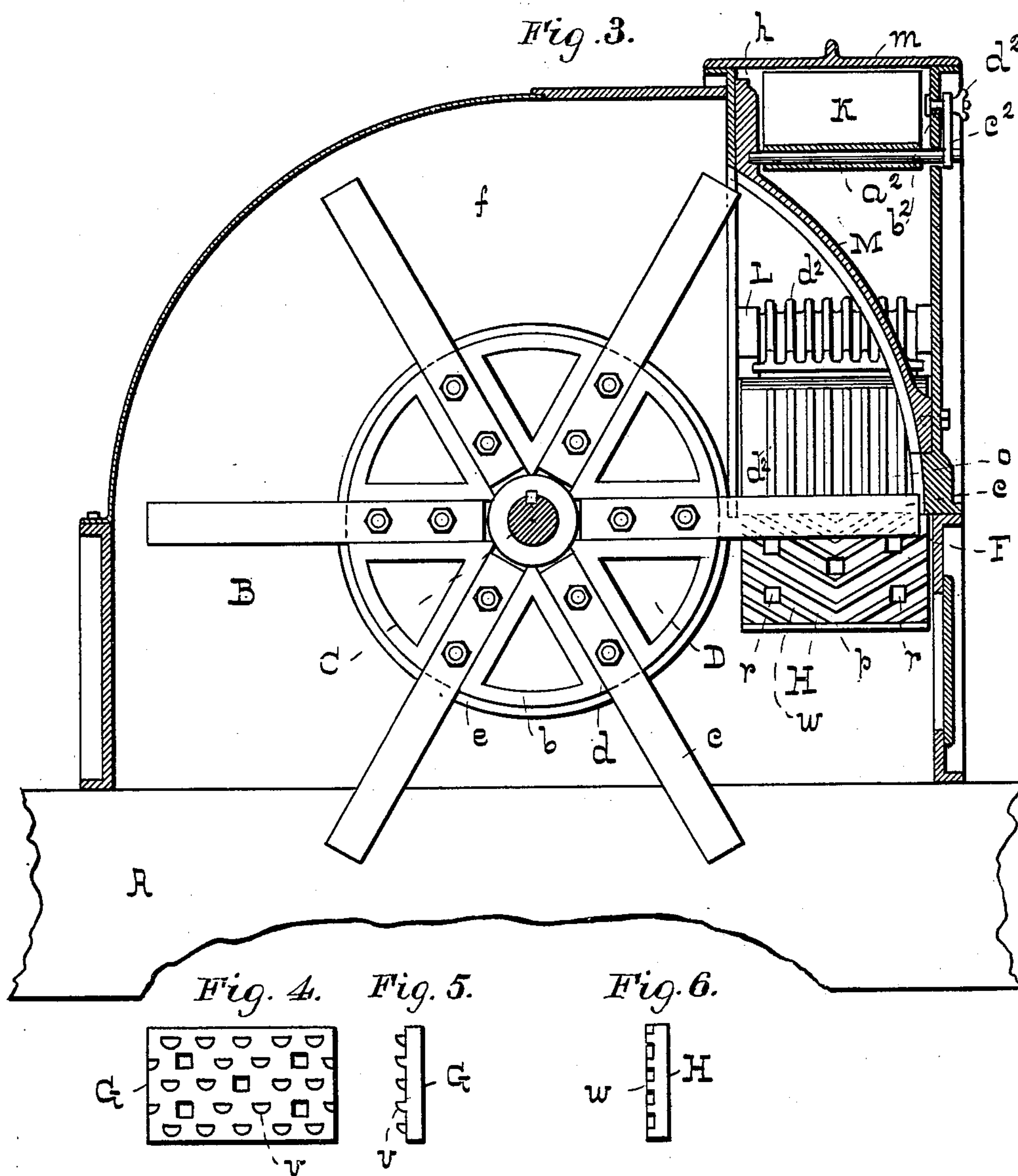
No. 678,983.

Patented July 23, 1901.

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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

AUGUST J. SACKETT, OF BALTIMORE, MARYLAND.

DISINTEGRATING-MILL.

SPECIFICATION forming part of Letters Patent No. 678,983, dated July 23, 1901.

Application filed March 31, 1899. Serial No. 711,210. (No model.)

To all whom it may concern:

Be it known that I, AUGUST J. SACKETT, of the city of Baltimore and State of Maryland, have invented certain Improvements in Disintegrating-Mills, of which the following is a specification.

This invention relates to certain improvements in a mill for disintegrating dried oyster-shells, bones, and other hard substances, and particularly to that class of disintegrators which comprise a rotary disintegrating device constructed in part of beaters adapted to pass between the adjacent surfaces of two plates which coact with the beaters in reducing the materials fed thereto, as will hereinafter fully appear.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a top view of the improved disintegrating-mill, with a part of the casing or shell thereof torn away to show the interior. Fig. 2 is a section of Fig. 1, taken on the dotted line *x x*. Fig. 3 is a section of Fig. 1, taken on the dotted line *y y*. Figs. 4 and 5 are respectively a face and an end view of a plate forming a part of the mill. Fig. 6 is an end view of another plate used in the mill. Fig. 7 is a detached view of a part of the casing.

Referring now to the drawings, A A are sills upon which the mill is erected.

B is the casing or shell of the mill, secured to the sills and provided with journal-boxes *a* for the shaft C, which passes through the casing and has an ordinary driving-pulley at one end thereof. The pulley is not shown.

D is a rotary disintegrating device consisting of a hub or central disk *b*, keyed to the shaft C, and radially-extending beaters *c*, bolted in pockets *d*, formed in the disk. The central disk or hub *b*, which for convenience is made of cast-iron, is bound by a wrought-iron or steel band or ring *e* to strengthen it.

The part *f* of the casing B has a width considerably less than the distance between the journal-boxes *a*, and a portion of the shaft C at each side of the casing is therefore exposed. This construction provides for the escape of dust, which passes through the space between the shaft and the casing around it, and thus prevents to a considerable extent

abrasion of the shaft-journals. The portion of the escaping dust which is too heavy to pass off clear of the mill collects in a trough *g* under the shaft, formed by making the surface of the casing at that point concave, as shown in Fig. 1.

At the end of the mill where the materials to be ground are introduced the casing is flared outwardly or extended laterally and provided with a feed-opening *h* at the top and angularly-placed feed-openings *j* and *k* arranged at opposite sides of the machine. Each of these openings has a removable door or plate *m*, as shown.

E and F are hinged pendent plates situated in the feed end of the casing, each having an inclined surface *o*, terminating at its lower end in a vertical surface *p*, to which the disintegrating-plates G and H are secured by bolts *r*. In the main these disintegrating-plates are alike, but they differ in the character of their outer surface or dress, as and for a purpose hereinafter described. The distance between the opposing surfaces of the plates G and H is slightly greater than the thickness of the beaters *c*, which pass between them in the rotation of the disintegrating device.

In order that the disintegrating-plates may be to some extent yielding, so as to prevent injury to them or to the beaters should too great a strain be placed upon them, owing either to the character of the material worked or by the accidental introduction, with the raw materials, of some practically unbreakable substance, the said plates are supported laterally by bolts I, which pass through smooth holes *s* in the sides of the casing and are held in their extreme inward position by springs J, coiled about the said bolts and confined endwise between the casing and collars T on the bolts. The adjustment of the said plates with reference to the beaters is effected by nuts *u* on the bolts I, the nuts being accessible from the exterior of the casing. The strength of the coiled springs J is such that the disintegrating-plates will offer the proper resistance to outward movement in ordinary grinding or breaking of the materials fed to the mill, but will be compressed when the said plates are under extraordinary strain, and thereby allow of the outward move-

ment of one or both of the plates and the passage of obstructing substances through the mill without being ground or reduced to the condition of the other materials.

5 It will be seen that the materials to be ground may be introduced into the casing through the upper openings h or by way of either of the side openings J and K and that the beaters c are double acting, the disintegrating operation being performed at both
10 sides of the beaters or between the beaters and either of the disintegrating-plates.

To enlarge the scope and usefulness of the mill, I provide the disintegrating-plates with
15 different operative or grinding surfaces or dress. The plate G has on its surface a series of projections v , which are staggered in their positions, one with another, as shown in Fig. 4, and the materials which pass between them
20 and the beaters are merely broken. The plate H instead of the staggered projections has a series of V-shaped ribs w , as shown in Fig. 1, and these, in connection with the beaters, shear the materials, and the produc-
25 tion in this case is of finer grade than in the other.

In cases where the product of the mill may consist of both fine and coarse material mixed the crude materials are introduced through
30 the opening h and allowed to fall to both sides of the beaters. The crude materials may, however, be conducted exclusively to either side of the beaters from the upper opening h by the adjustment of the deflector
35 K , which is hinged centrally of and immediately under the upper opening h to either side, as shown by the dotted lines in Fig. 2. The shaft a^2 of this deflector projects through a hole to the outside of the casing, where it
40 is provided with a lever c^2 , carrying a bolt which passes through a curved slot b^2 in the casing. This bolt has a head at one end and a thumb-nut d^2 at the other. When the thumb-nut is slackened, the deflector may be
45 moved in either direction, and when set it is secured by means of the thumb-nut. When the deflector is in a central position, as shown in Fig. 2, and the materials are introduced at the center of the opening h , they pass
50 equally to both sides of the beaters; but by altering the position of the deflector any proportion of the materials fed to the mill may be carried to either side of the beaters.

$L L$ are fixed inclined plates secured over the hinged ends of the pendent plates E and
55 F to prevent the crude materials when introduced through the side openings from passing between the hinged plates and the casing, and both sets of fixed plates are provided with a series of ribs d^2 to prevent lat-
60 eral scattering of the materials as they roll down their surfaces toward the beaters.

To prevent the materials from becoming jammed between the ends of the beaters and the inner surface of the casing, I cover the
65 beaters with a guard M , which is concentric with the path described by the ends of the beaters and secured to the casing, as shown in Figs. 2 and 3.

I claim as my invention—

1. In a disintegrating-mill, the combination of a casing having a feed-opening at each side thereof, a rotary disintegrating device comprising beaters which extend from a central hub or disk, situated within the casing,
75 and yieldingly-held flat disintegrating-plates between which the said beaters pass, the said disintegrating-plates having different dress or character of disintegrating-surface, substantially as specified. 80

2. In a disintegrating-mill, the combination of a casing; a rotary disintegrating device comprising beaters which extend from a central hub or disk situated within the casing, an inclined hinged plate at each side of
85 the beaters carrying a vertical disintegrating-plate at its lower end, fixed plates which overlap the upper ends of the hinged ones to prevent the passage of the materials introduced into the mill, between the hinged
90 plates and the sides of the casing, substantially as specified.

3. In a disintegrating-mill, a casing, a rotary disintegrating device comprising beaters which extend from a central hub or disk,
95 situated within the casing, hinged inclined plates carrying at their lower ends vertical disintegrating-plates, the said inclined surfaces having ribs which lead to the disintegrating-surfaces, substantially as specified. 100

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Witnesses:

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