

(No Model.)

2 Sheets—Sheet 1.

J. C. ANDERSON.

MACHINE FOR DISINTEGRATING CLAY, CLAY SHALE, &c.

No. 351,617.

Patented Oct. 26, 1886.

Fig. 1.

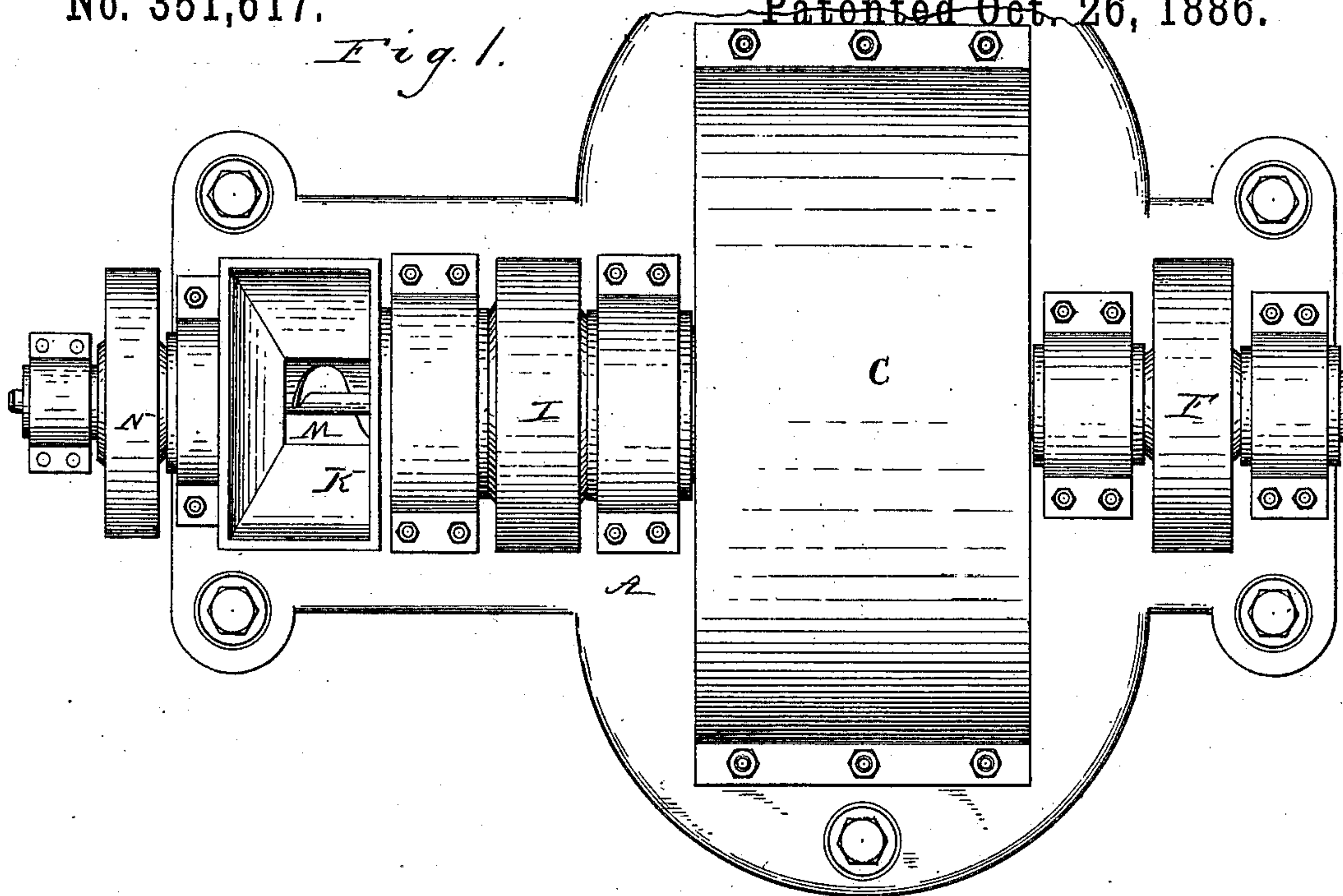
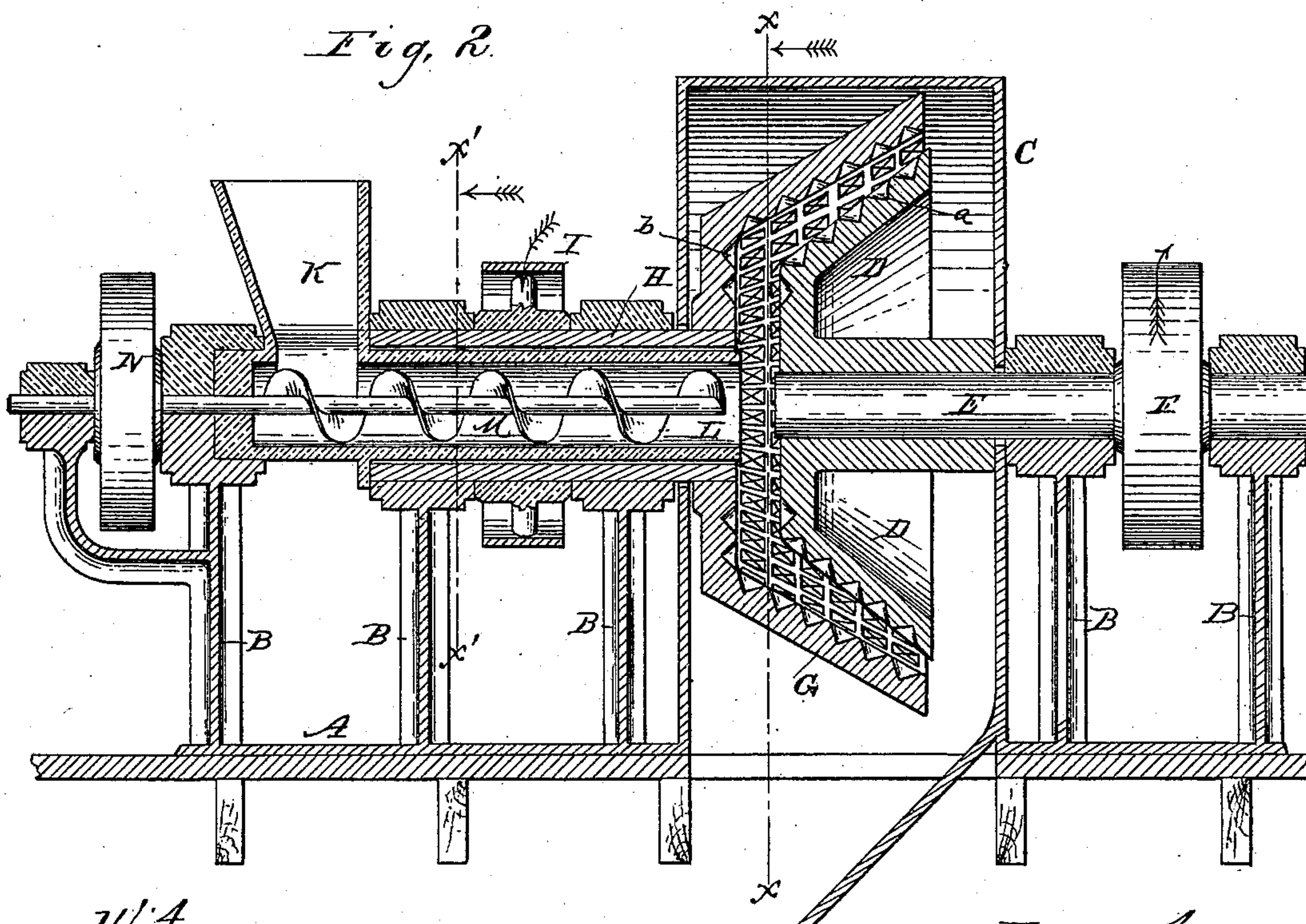


Fig. 2.



Witnesses.

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By
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Fig. 3.

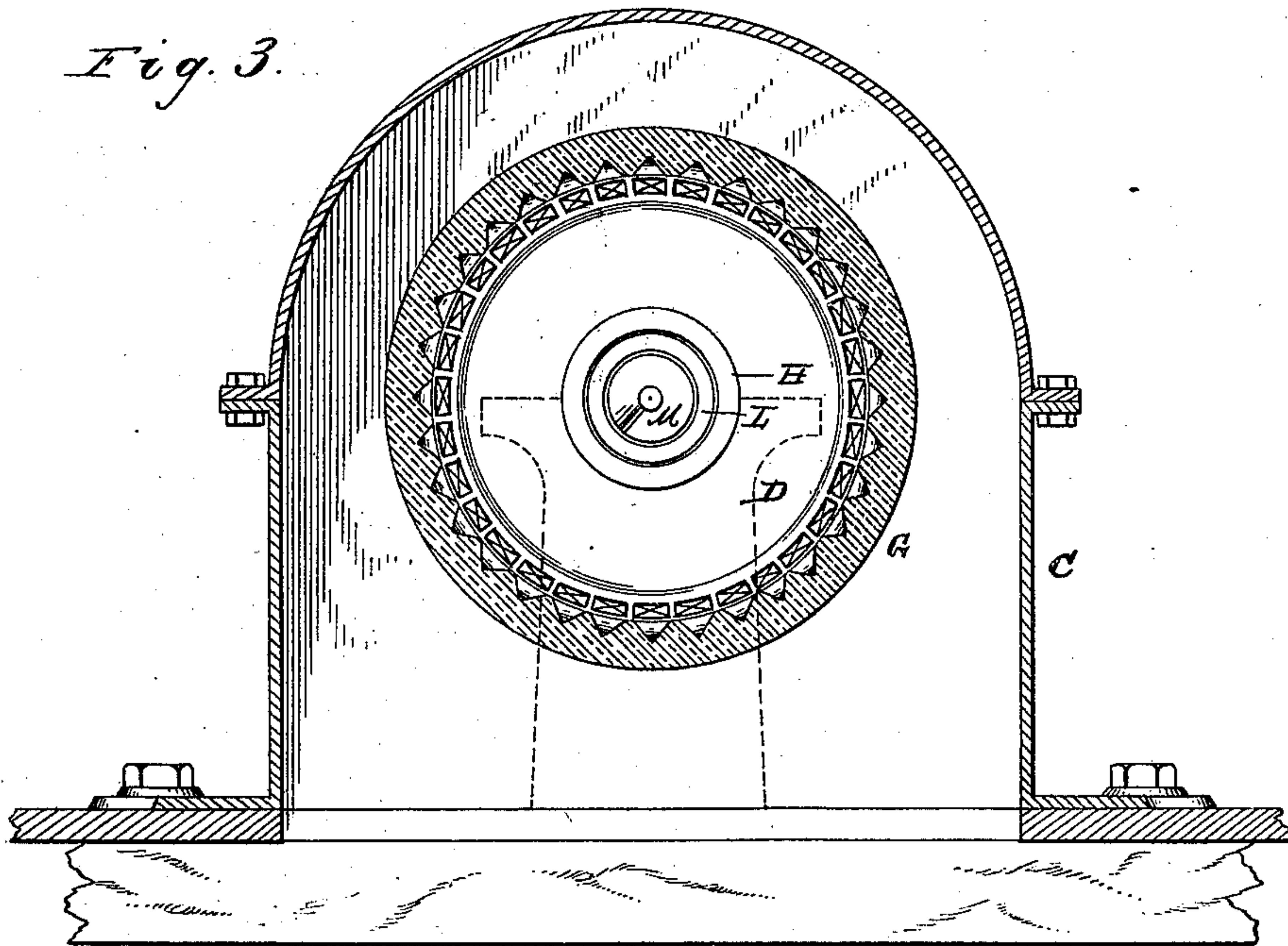


Fig. 4.

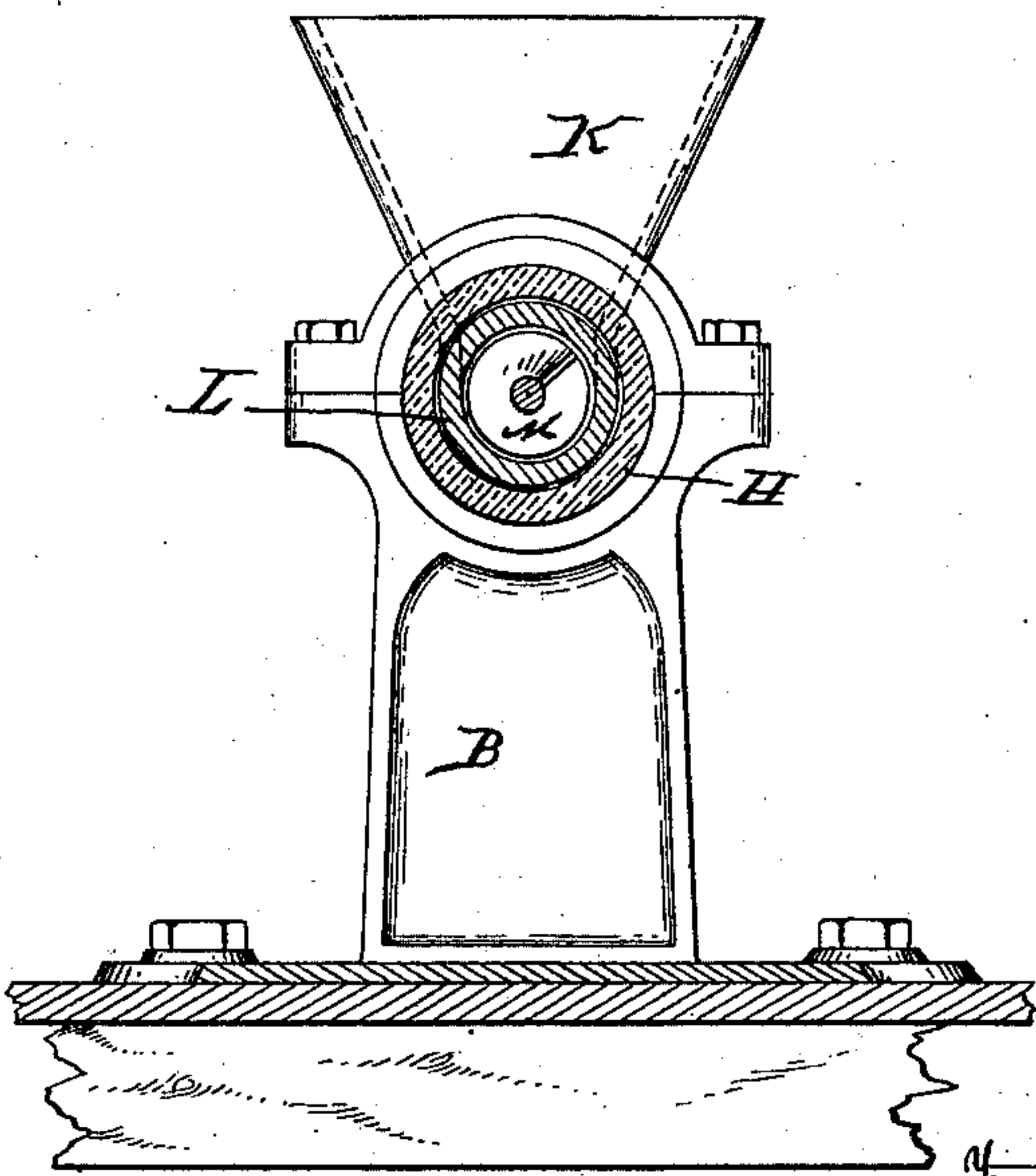


Fig. 5.

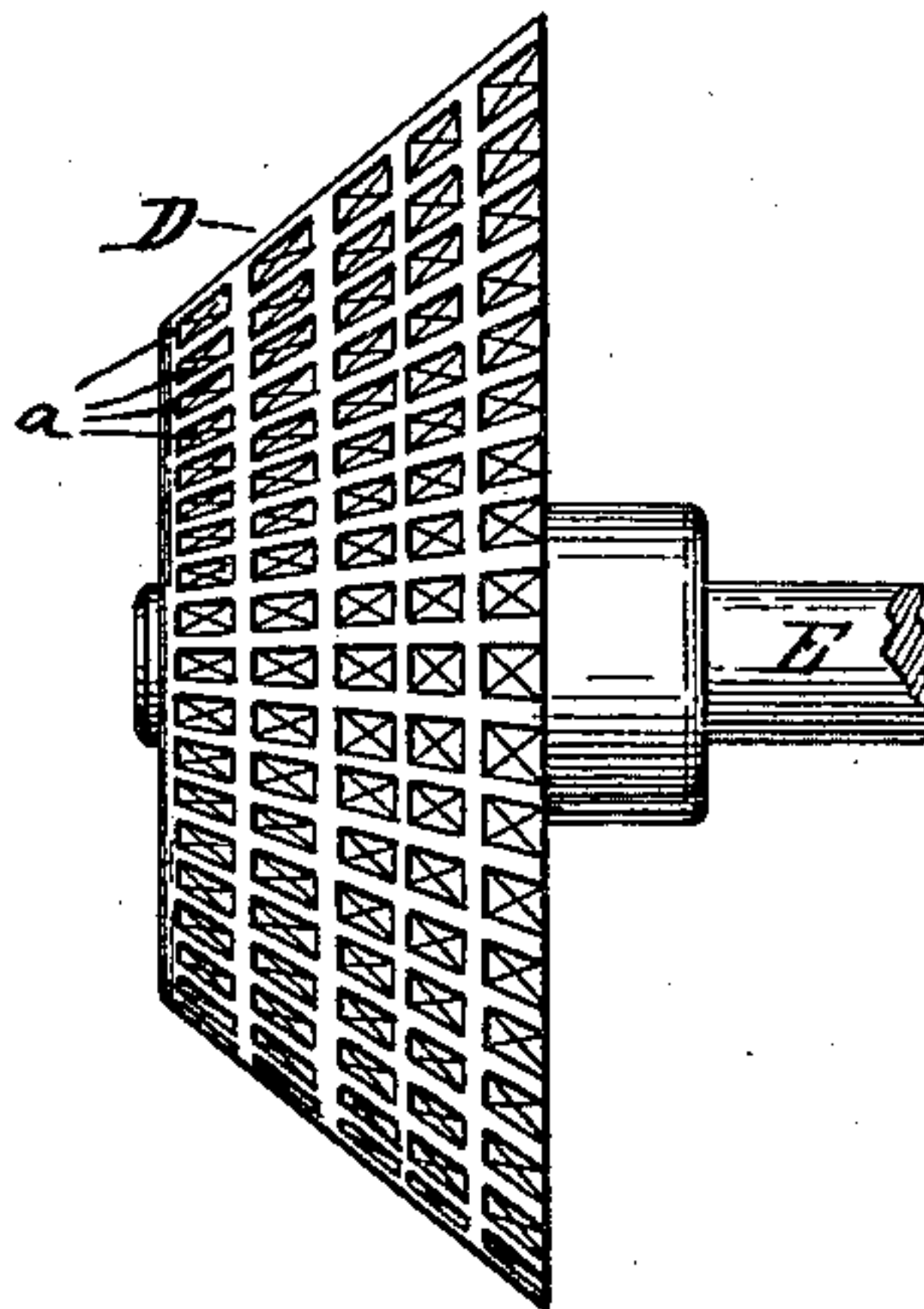


Fig. 6.

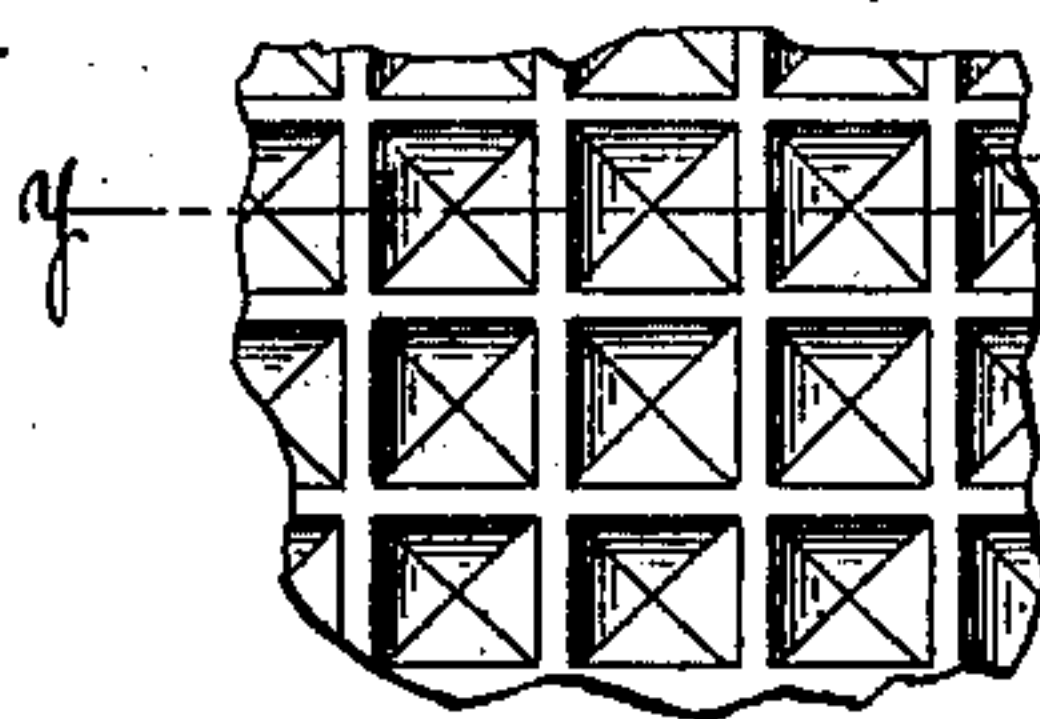


Fig. 7.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES C. ANDERSON, OF HIGHLAND PARK, ILLINOIS.

MACHINE FOR DISINTEGRATING CLAY, CLAY-SHALE, &c.

SPECIFICATION forming part of Letters Patent No. 351,617, dated October 26, 1886.

Application filed August 6, 1886. Serial No. 210,205. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. ANDERSON, a citizen of the United States, residing at Highland Park, in the county of Lake, State of Illinois, have invented certain new and useful Improvements in Machines for Disintegrating Clay, Clay-Shale, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in machines for reducing clay, clay-shale, and other material.

The object of my invention is to provide a double-coned machine for reducing clay, clay-shale, and other material in which the two cones revolve in opposite directions, so that there will be formed two currents of the material, the collision or impact of which reduces the particles without serious wear and tear to the other parts of the machine.

My invention consists of two independently-revoluble cones, (one working within the other,) the inside of the larger cone being provided with a series of cells, while the outside of the smaller cone is provided with similar cells, the object of which is to hold the material which lies next the cones so that it will not slip or wear the faces of the cones while the material to be reduced is carried in opposite directions by centrifugal force, and the reduction is effected by the impingement or contact of the two oppositely-moving currents of the material.

My invention consists, further, in certain details of construction, which will be more fully described hereinafter, and pointed out in the claims.

Referring to the drawings, Figure 1 is a top or plan view of my improved machine. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical sectional view on the line xx of Fig. 2. Fig. 4 is also a sectional view on the line xx' of Fig. 2. Fig. 5 is a side view of the smaller cone, showing the cells in the periphery thereof. Fig. 6 is a detached portion of the cone shown in Fig. 5, with the cells formed therein. Fig. 7 is a sectional view of the same on the line yy of Fig. 6.

A indicates the base of the machine, on which is secured a series of supporting-standards, B, and C indicates the housing for the oper-

ating mechanism, which will be more fully hereinafter described.

D indicates a cone or frustum of a cone mounted on the shaft E, which shaft is mounted in suitable bearings in the standards B, said shaft being provided with a band-pulley, F, by which it is rotated in the direction of the arrow, as shown in Fig. 2. The outer surface of the cone D is provided with cells a , which are by preference square or rectangular at their upper edge, and taper to a point at their lower extremities.

G is a hollow cone or frustum of a cone having the hollow trunnion H, which is mounted in suitable bearings in the standard B, said trunnion being provided with the band-wheel I, by which it is rotated in a direction the reverse of the cone D, heretofore described. The interior of the cone G is provided with cells b , which are of the same or essentially the same construction as those described in regard to the cone D. The hollow trunnion, which forms the bearing or support for the cone G passes through the end wall of said cone, and forms an opening through which the material to be reduced is fed into the cavity between the two cones.

K is a feed-hopper mounted on the brackets or supports B, which has a projection, L, that extends through the hollow trunnion H, and in which is located or mounted the feed-screw M, said screw being driven by the band-pulley N.

It will be noticed that the trunnion H surrounds the projection or tube L, and that the action of the feed screw or conveyer M tends to wear the extension L, instead of acting directly on the interior of the hollow trunnion, as has heretofore been practiced, thus preventing the trunnion from being rapidly worn away or destroyed.

As before indicated, the material to be reduced is fed centrally into the space between the two cones, and the walls of the cones are gradually contracted at their outer or larger ends, so as to narrow the channel through which the material is driven by the centrifugal action of the rapidly-revolving cones, by which means the flow of the material is retarded, and a more thorough reduction of the material is insured.

By forming a series of cells on the two reducing-surfaces of the cones the material is held or clutched by said cells, and two oppositely-traveling currents of the material are set up, which impinging the one against the other, a rapid and effectual disintegration of the material takes place without wearing or injuring the surface of the cones to any great extent.

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

1. In a machine for reducing clay, clay-shale, and other material, the cones D G, having cells in their outer and inner surfaces, respectively, said cones being adapted to be

driven in opposite directions and to receive the material through a central feed-opening, as described.

2. In a machine for reducing clay, clay-shale, and other material, the feed-hopper K, provided with the extension or tube L, in which the conveyer or feed-screw is located, in combination with the trunnion H and cones D G, whereby the rapid destruction of the trunnion is obviated, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

J. C. ANDERSON.

Witnesses:

F. L. BLAKE,

OSCAR A. V. RUNNGREN.