

(No Model.)

2 Sheets—Sheet 1.

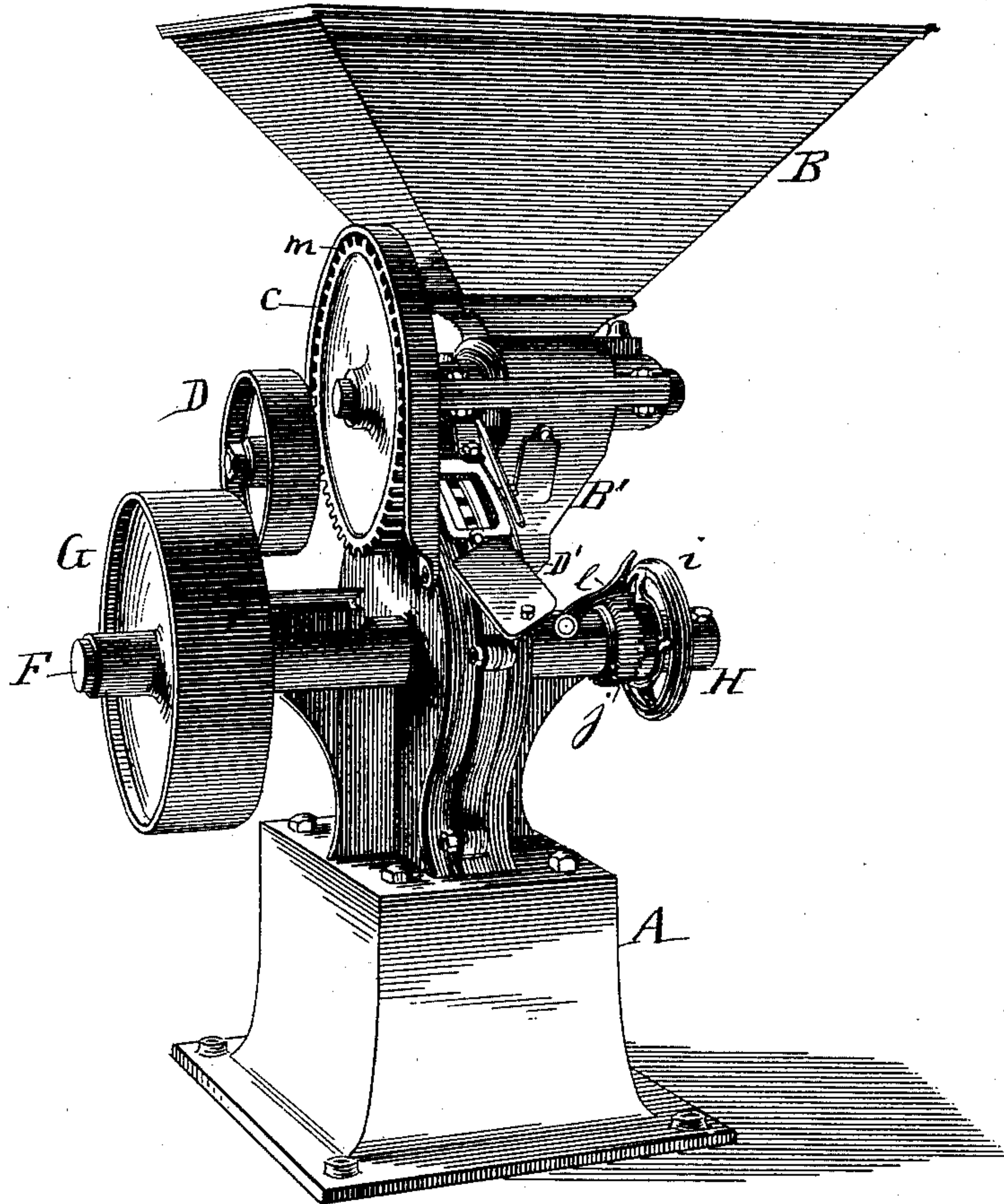
F. W. ANDRÉE.

BONE REDUCER.

No. 348,946.

Patented Sept. 14, 1886.

Fig. 1.



Witnesses
Frank J. Blanchard.
M. J. Gayett

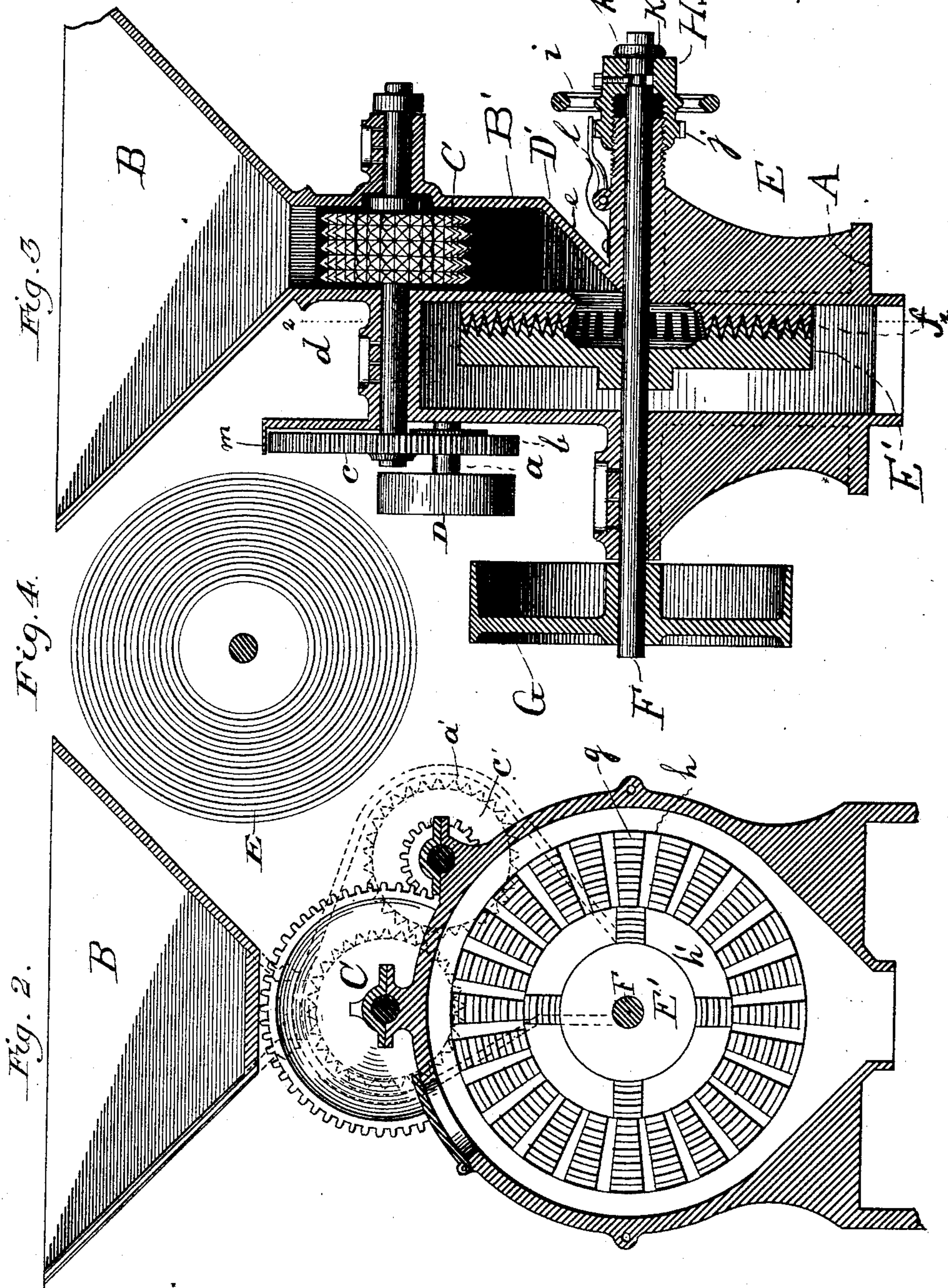
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Franz Wilhelm Andree'
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UNITED STATES PATENT OFFICE.

FRANZ WILHELM ANDRÉE, OF CHICAGO, ILLINOIS.

BONE-REDUCER.

SPECIFICATION forming part of Letters Patent No. 348,946, dated September 14, 1886.

Application filed January 30, 1884. Renewed July 21, 1886. Serial No. 208,655. (No model.)

To all whom it may concern:

Be it known that I, FRANZ WILHELM ANDRÉE, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bone-Reducers, of which the following is a specification, reference being had therein to the accompanying drawings—

My invention relates to an improved apparatus for reducing bones.

The object of the invention is to obtain a simple and effective apparatus for the purpose named; and to that end it consists of the novel construction and combination of parts, as will be described and claimed.

Reference is made to the accompanying drawings, in which Figure 1 is a view in perspective of the apparatus complete; Fig. 2, a central vertical section of Fig. 1; Fig. 3, a section on line 2 2 of Fig. 2, and Fig. 4 a face view of plate E.

Like letters refer to like parts in each view.

A represents the base of the apparatus, upon which the operative parts are mounted.

Upon the upper part of the casing there is mounted a feed-hopper, B, into which the un-reduced bones are fed. Upon being fed into hopper B the bones fall between reducing-rolls C C', provided with diamond-shaped teeth a', as shown, inclosed within the casing B' and mounted as now described. Roll C is mounted on a shaft, a, to which is keyed a pulley, D, through which motion is imparted to said shaft and roll.

Keyed upon shaft a is a cog, b, which in its revolution meshes with a cog, c, keyed to a shaft, d, upon which the roll C' is mounted. Cog b is smaller than cog c, and consequently roll C is revolved at a greater speed than is roll C', whereby, in addition to crushing the bones, these rolls serve to tear them apart. In practice I have found it desirable to rotate roll C at about four times the speed of roll C', although it will be understood that their relative speeds may be varied. Upon passing rolls C C' the partly-reduced bones are discharged down an inclined chute, D', formed with the casing, and are fed to the reducing-plates E E', now to be described. Plate E is a circular plate, secured by suitable means, as shown in Fig. 3, to a partition, e, formed

on the interior of the casing, and forming one of the walls of the chute D'. Plate E is provided with unbroken rows of teeth f, arranged parallel on the face of the plate from about its center outwardly to its periphery, and said plate is provided at its center with an opening, through which the partially-reduced bones are fed to plate E'. This last-named plate, which is also circular in form, is keyed to a shaft, F, which has suitable bearings in the casing of the apparatus, and to one end of which is keyed a pulley, G, through the medium of which motion is imparted to said shaft and plate. This plate is provided with rows of teeth g, which, in conjunction with those of stationary plate E, serve to reduce the bones to the desired fineness. The rows of teeth g, with which plate E' is provided, instead of forming continuous circles around the face of said plate, are at intervals broken to form spaces h, as shown in Fig. 2. As the center of the plate is moved, the spaces above-described are enlarged to form spaces h', as shown in the same figure. The opposite end of shaft F from that to which pulley G is keyed has bearing in a block, H, which is screw-threaded on its interior. Block H is screwed onto a screw-threaded extension of the casing, and carries a hand-wheel, i, and a ratchet, j, as shown in Fig. 3.

Passed through an opening in block H is a pin, K, the inner end of which enters a groove, k, formed on shaft F, and prevents such shaft from moving endwise, except when the block H is moved. A pawl, l, mounted upon the casing, engages with the ratchet j, described as forming part of block H. By the arrangement of the parts last described the plate E' can be adjusted nearer to or farther from the plate E as it is desired to produce finer or coarser reduced bones, by simply turning the hand-wheel of block H in the proper direction. A guide, m, may be arranged to cover the cog c, if desired, and the casing of the apparatus may be made in as many parts as desired, all suitably joined and held together in the best manner; but these details being of minor importance need not be more fully described.

The operation of the apparatus is as follows: The plate E' being adjusted with respect to the plate E by the means described,

the bones are fed to the fast and slow crushing-rolls C C' and pass from them in a partially-reduced state to the plates E E'. The partially-reduced bones are first fed to the spaces h' of the plate E', and being carried around are further reduced. Upon being brought to a sufficient degree of fineness they enter into spaces h, and are gradually reduced between the plates E E', until they are sufficiently fine to escape therefrom, after which they are discharged into any suitable receptacle.

What I claim is—

The combination, with the stationary plate

E, open at its center and provided with breaking or cutting teeth, as described, of the revolving plate E', provided with broken parallel rows of cutting-teeth g, arranged on the face of the plate from about the center outwardly to its periphery, substantially as described.

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

FRANZ WILHELM ANDRÉE.

Witnesses:

M. J. CLAGETT,
LOUIS NOLTING.