

(No Model.)

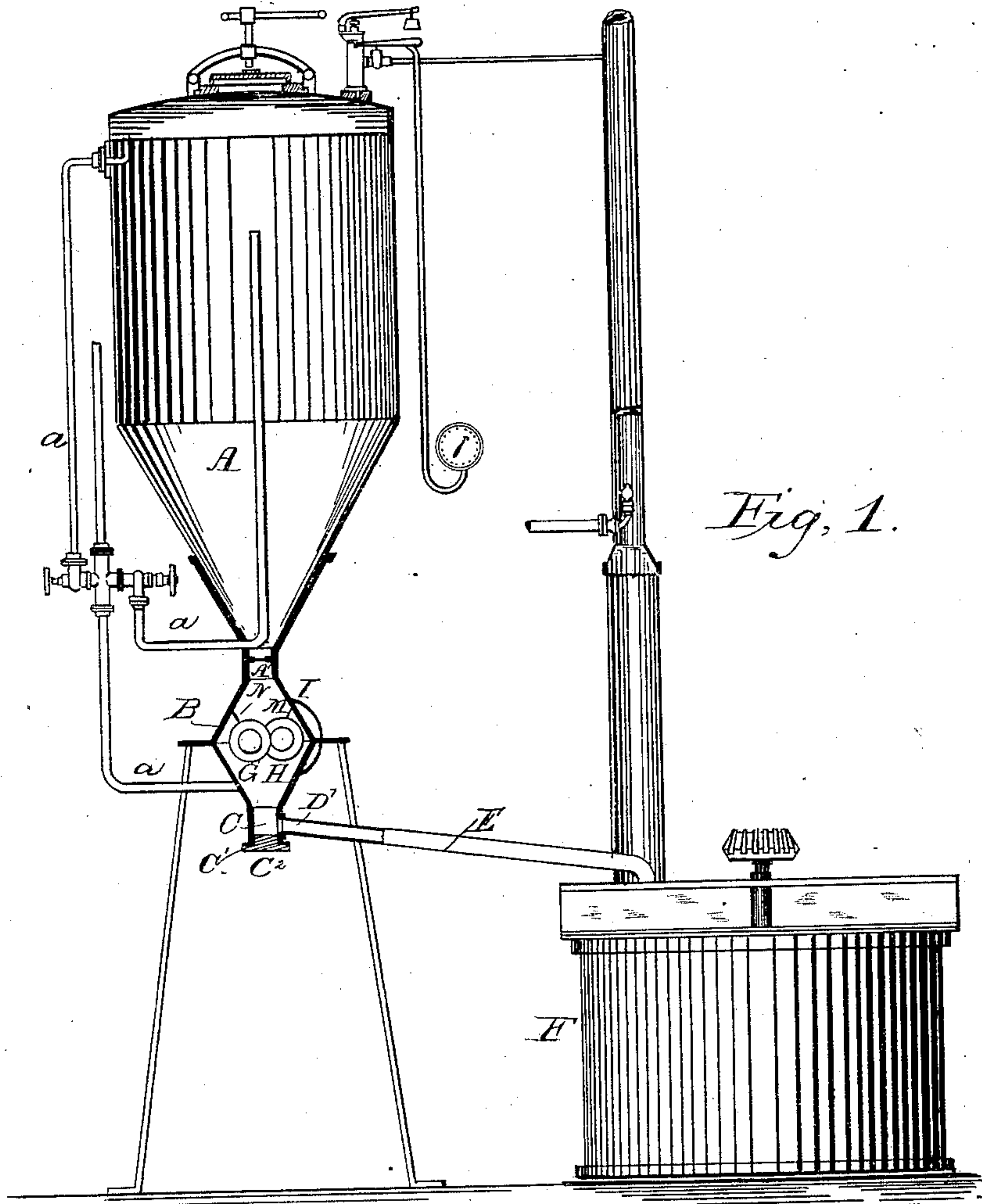
2 Sheets—Sheet 1.

E. KAUFFELD.

APPARATUS FOR CRUSHING AND GRINDING MALT AND OTHER VEGETABLE
SUBSTANCES.

No. 314,850.

Patented Mar. 31, 1885.



Elias Kauffeld

INVENTOR

WITNESSES

Alva A. Moore,
Wm. Musser.

by Connolly Bros. & Co. Ligne

ATTORNEYS

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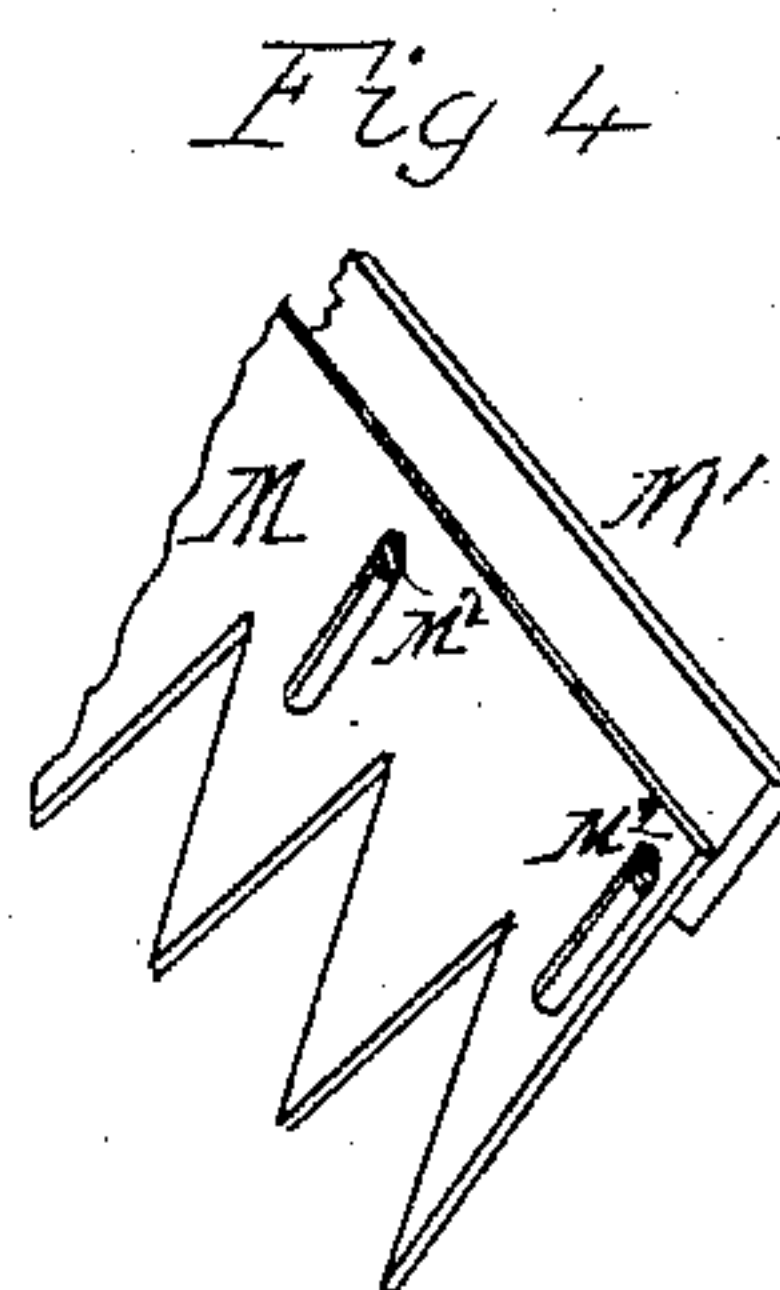
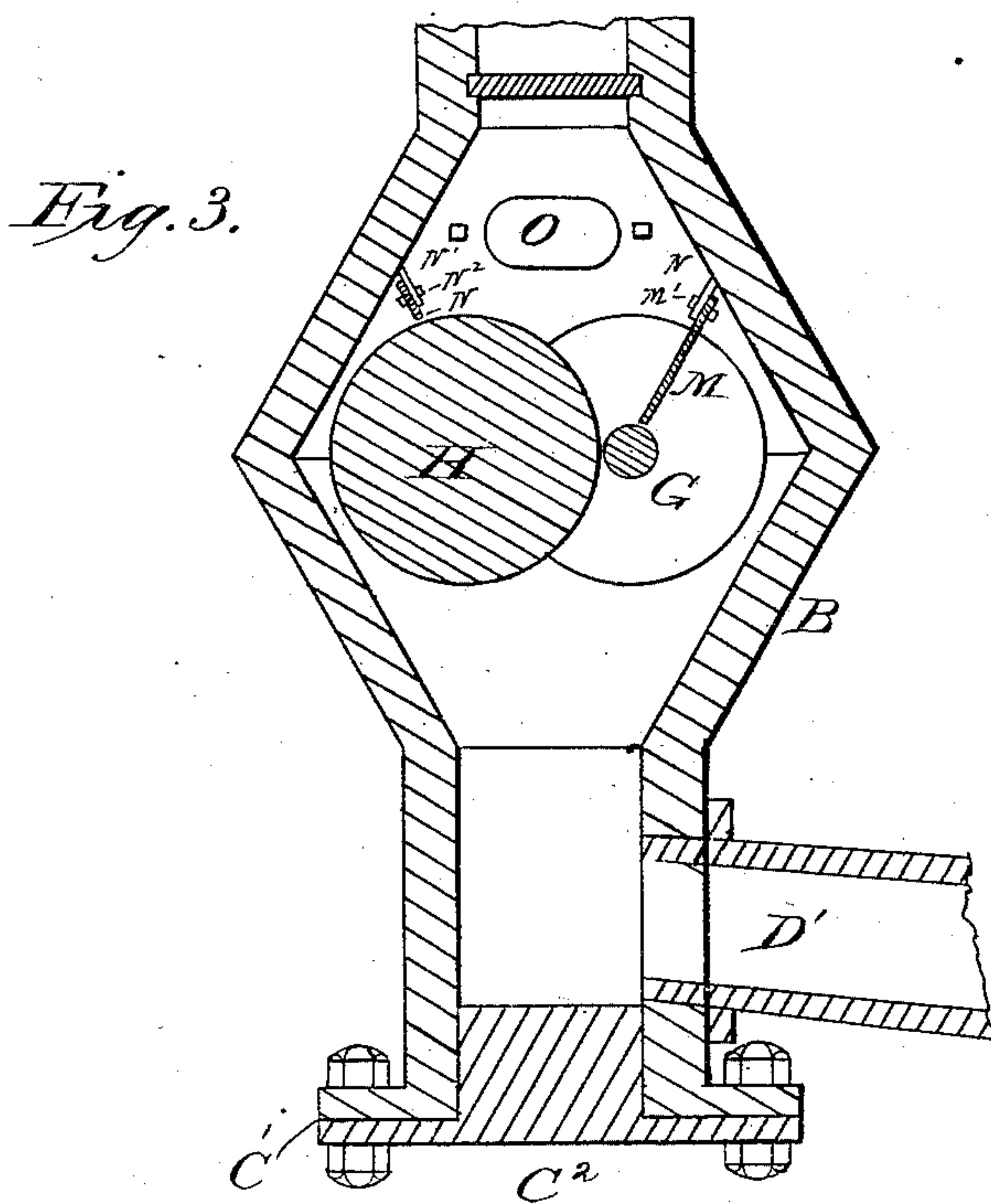
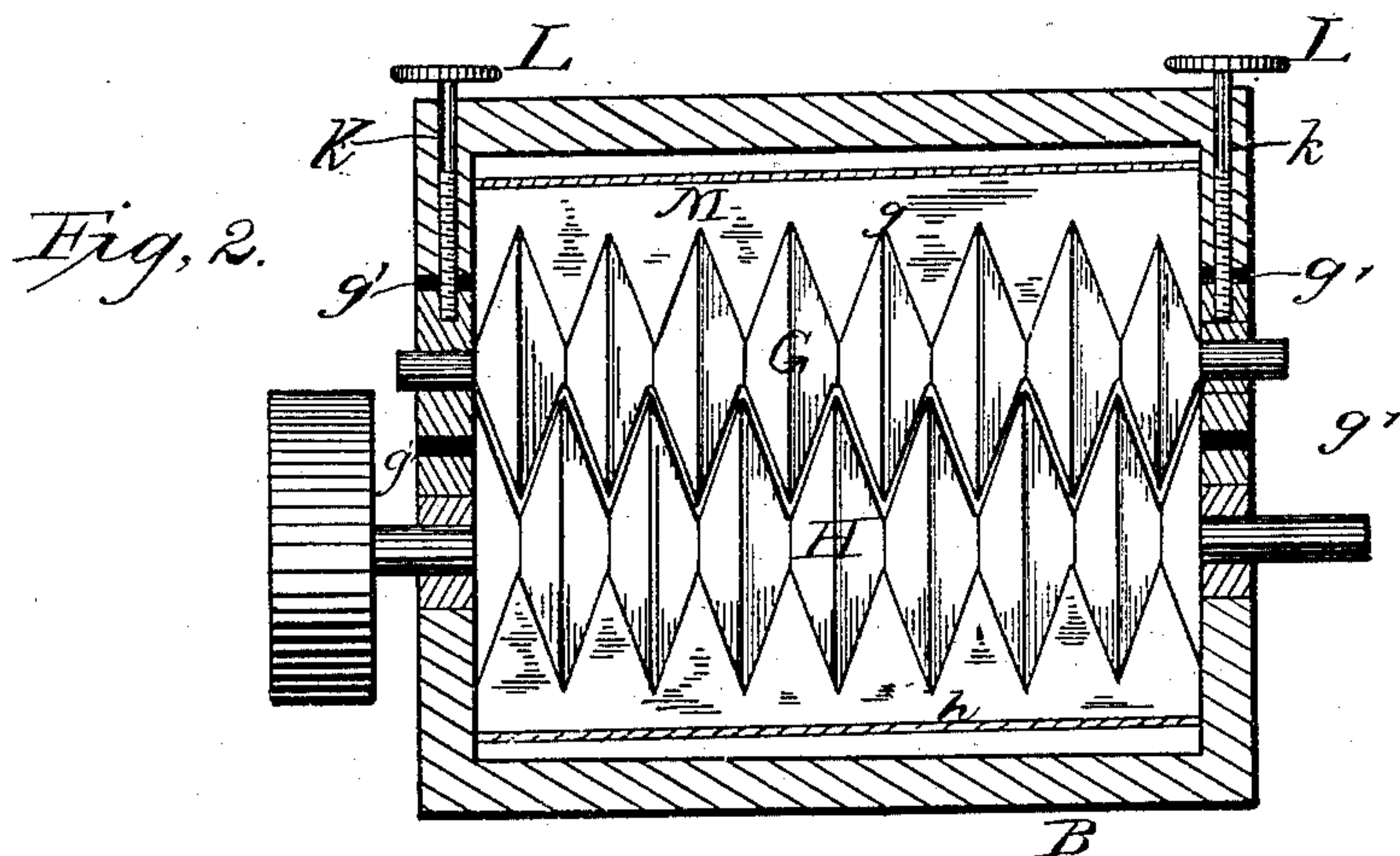
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UNITED STATES PATENT OFFICE.

ELIAS KAUFFELD, OF PITTSBURG, PENNSYLVANIA.

APPARATUS FOR CRUSHING AND GRINDING MALT AND OTHER VEGETABLE SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 314,850, dated March 31, 1885.

Application filed June 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, ELIAS KAUFFELD, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain
5 new and useful Improvements in Apparatus for Crushing and Grinding Malt and other Vegetable Substances; and I do hereby declare that the following is a full, clear, and exact
10 description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to apparatus for grinding and crushing malt and other vegetable
15 substances preparatory to the process of fermentation.

Heretofore in the process of distilling it has been customary to provide a mill for grinding
20 malt in addition to the apparatus for reducing the grain or other substance to a pulpy condition.

My invention consists in combining with the boiler, in which the vegetable substances
25 are softened by the action of steam, a grinding and crushing device adapted to be used alternately to reduce the vegetable matter to pulp and to grind malt.

My invention further consists in the novel
30 construction of the grinding apparatus, as hereinafter fully described.

Referring to the accompanying drawings, Figure 1 is a sectional view of a mash or vegetable boiler with my improvements attached,
35 the mash-tub being shown in elevation; Fig. 2, a horizontal section of the crushing and grinding device, and Fig. 3 a vertical section of the same. Fig. 4 is a perspective view of a detail.

40 As the boiler and its appurtenances are of the ordinary construction and form no part of my improvement, I deem it unnecessary to particularly describe the same.

Referring to Fig. 1 of the drawings, A indicates the boiler, and *a a* the various steam-pipes connected thereto.

B designates the drum or casing of the grinding and crushing device, opening at its upper
50 end into the mash-boiler A, where it is provided with a gate, A', and at its lower end into

an elbow, C. Said elbow has an opening, C', at its lower end, closed by a plug, C², as shown, and a branch, D', at one side leads to the mash-tub F through the escape-pipe E.

G H are the grinding and cutting rolls, arranged within case B and operated by pulley I. 55

I will now particularly describe the construction and arrangement of my improved grinding and crushing device. Said device
60 comprises two grooved rollers, G and H, which are journaled in the sides of the drum B. The grooves in these rolls are cut very deep and their sides are at an acute angle, so as to leave sharp cutting-edges *g h* between, the cutting-
65 edges of one roll registering with the grooves of the other and leaving a very narrow space between. The roll G is movable toward and from roll H, the bearing of said roll G having
70 a slight range of motion horizontally in the casing B. Blocks of rubber *g' g'* are placed at each end of the journal-bearing of said roll G, so as to preserve a tight joint, and the said
roll is adjusted, when desired, by means of
75 screws K and hand-wheels L on the ends of said screws. The journals of roll H are fixed in the casing B, and the shaft of said rolls projects out through its bearing at each side, and is provided with a pulley or pulleys, by means
80 of which motion is communicated to said roll.

M and N designate plates which are secured inside the drum or casing B to flanges M' N' by bolts M² N² above the rolls G H and project in slightly toward the centers of the rolls,
85 so as to guide the material to be acted upon to the space between the rolls and to prevent any of it from passing down behind the same. These plates have their lower edges serrated to correspond to the shape of the grooves in the rolls, and they fit down tightly upon the
90 latter, so as to prevent any material from passing beneath their edges. The plate M, which is above the movable roll G, is bolted to the flange M' at its upper end by bolts running through slots, so as to be adjustable to
95 movement of the roll and be always in contact therewith. An opening, O, is formed in the side of the drum B, and is provided with a removable cover, the object of such opening being to permit inspection of the rolls and the
100

ready removal of any obstruction which might accidentally find its way to the rollers.

Operation: The boiler A being filled and its contents reduced in the usual manner, the
5 gate A' is opened and motion is communicated to the rollers through the medium of the pulley I. The material in the boiler then passes through between the rolls, which cut and crush it, reducing it to the desired pulpy condition,
10 and the material then passes off into the mash-tub through the escape-pipe E.

When it is desired to use the apparatus for grinding malt, the steam is turned off from the vessel A and the plug C² removed from opening C'. The malt is then introduced into the
15 vessel A and passes through gate A' into the drum B, motion being communicated to the rolls as before. The ground malt passes out through the opening C'.

20 The advantages of the improvements are, that the peculiar construction of the rolls permits of the device being used to cut and reduce vegetable matter and also grind malt.

The grooved rolls afford a very large grinding-surface, and the sharp edges between the
25 grooves serve to cut the material with ease and rapidity. The rolls being adjustable permits of their regulation to grind and cut up the material more or less finely, as desired.

I claim—

The combination, with the drum B and a
30 hopper or receptacle above the same, of a pair of circumferentially-grooved rolls, G H, one of which is adjustable relatively to the other, and a pair of serrated plates, M and N, secured to
35 the interior of the drum and forming a supplementary hopper, one of the said plates being adjustable, substantially as described.

In testimony that I claim the foregoing as
40 my own I have hereto affixed my signature in presence of two witnesses.

ELIAS KAUFFELD.

Witnesses:

JOS. B. CONNOLLY,
LOUIS MOESER.