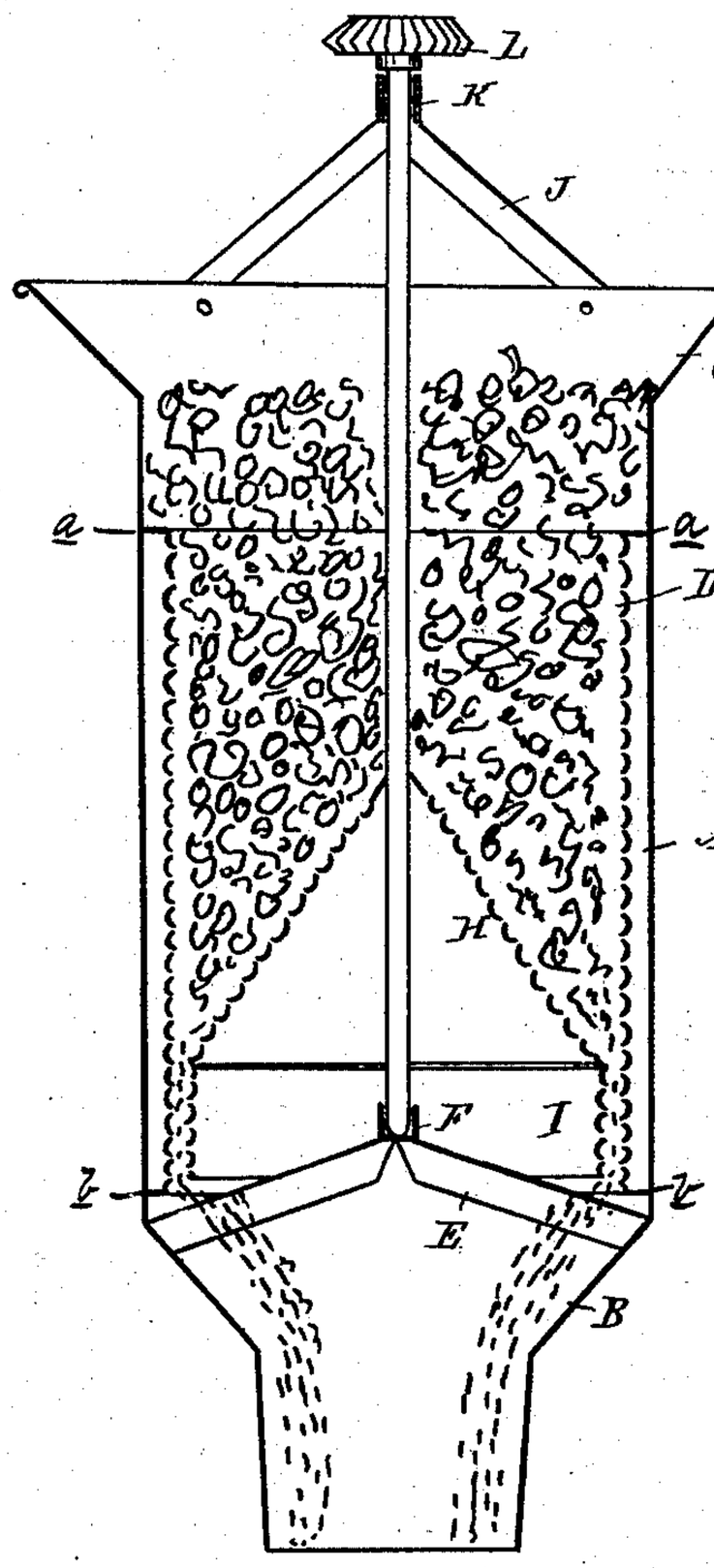
(No Model.)

F. L. SEBASTIAN.

HOP BREAKER.

No. 325,979. Patented Sept. 8, 1885.



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UNITED STATES PATENT OFFICE.

FREDRICH LOUIS SEBASTIAN, OF TOLEDO, OHIO.

HOP-BREAKER.

SPECIFICATION forming part of Letters Patent No. 325,979, dated September 8, 1885.

Application filed April 15, 1885. (No model.)

To all whom it may concern:

Be it known that I, FREDRICH L. SEBASTIAN, of Toledo, in the county of Lucas and State of Ohio, have invented new and useful Improvements in Hop-Breakers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which forms part of this specification.

This invention relates to certain new and useful improvements in the construction and operation of a machine for breaking up hops preparatory to their use by the brewer.

The object of the invention is to so prepare the hops that very little time will be necessary to extract the properties of such hops when put into the hot liquor in the process of making beer, and thereby lessening the loss of the aroma in the steam arising from such liquor. By breaking the hops up I do not mean to be understood as grinding them to a powder, as if they were reduced to this condition they would be comparatively worthless to the manufacturer of beer.

The invention consists in the peculiar construction of the various parts of the breaker, and their combination and operation, as more fully hereinafter described.

In the drawing, A represents a cylinder terminating at its lower end in a funnel-shaped discharge, B, adapted to discharge the passing contents of the machine into a bin or into sacks. The top of this cylinder A may be provided with a hopper, C, which is necessary if the device is to be driven by artificial power. Secured to the inner wall of this cylinder is a grated or roughened cylinder, D, preferably made of sheet metal which has been subjected to the operation of a stamping-punch, which leaves the burrs or roughened surface upon the one side of the sheet, and in making this cylinder this roughened side is presented inwardly, and it is secured at the top and bottom to the wall of the cylinder A by the flanges *a b*, so that nothing entering through the hopper can pass directly down between the two cylinders.

In the bottom of the cylinder A there is secured a spider, E, and at the central intersection of the arms of this spider there is a socket, F, into which the shaft G is stepped. Upon this shaft there is secured the cone H, made of the same material as the cylinder D, but with the burrs or roughened surface produced by the stamping presented outwardly, and to the lower end of this cone there is secured the shortened cylinder I, the walls of which are made of the same material as the cones. The upper end of this shaft is secured by means of a suitable spider, J, carrying a box, K, or by any other analagous device by means of which the shaft may be securely held in its vertical position, and at the same time allow it, with the parts thereto attached, to be removed from the cylinder A.

The upper end of the shaft is provided with a beveled gear, L, by means of which motion is communicated to such shaft from any desired source of artificial power; or the pinion L may be supplemented by a crank, if it is desired at any time to give motion to the device by hand.

In practice, the parts being constructed and in place, substantially as described, the hops to be treated are emptied into the hopper and pass down into the roughened cylinder D, when a slow motion being communicated to the shaft gives a like motion to its attachments and breaks up the leaves of the hops as they pass over the face of the cone, being in their motion grated by the rotation of the shaft as they are brought into contact with the roughened surface of the inner cylinder, the dust arising from such operation having an opportunity of passing through the perforations in the walls of the inner cylinder, and down between the walls of the two cylinders, from which it may be removed in any convenient manner. The heavier parts or cores of the hops are not materially affected in their passage over the cone; but when they are carried into the space between the grated cylinder D and the vertical grated wall of the cylinder I, at the bottom of the cone, such thicker cores are broken up and the entire broken mass discharged through the spout B into a bin prepared for the purpose, or into sacks for removal and shipment.

What I claim as my invention is—

1. A hop-breaking device consisting of a stationary grated cylinder, a vertical revolving shaft, and a grated cone and vertical

grater carried by said shaft, whereby the hops as they pass through such device are broken by the slow revolution of the cone and vertical grater, as set forth.

2. A device for breaking hops, consisting of an outer cylinder, A, an inner grated cylinder, D, and a shaft, G, stepped centrally within the cylinder A and above its discharge end, and carrying a grated cone terminating in a shortened cylinder, the parts being constructed, arranged, and operating substantially as and for the purposes described.

3. A hop-breaking device consisting of the cylinder A, terminating in a spout, B, and having a hopper, C, upon its upper end, in combination with an interior grated cylinder having a space closed at the top between such last-named cylinder and the cylinder A, and grated cone terminating in a short grated cylinder at its bottom, and to which movement is given by the rotation of a shaft, G, to which such connection is attached, substantially as and for the purposes specified.

FREDRICH LOUIS SEBASTIAN.

Witnesses:
H. S. SPRAGUE,
E. J. SCULLY.