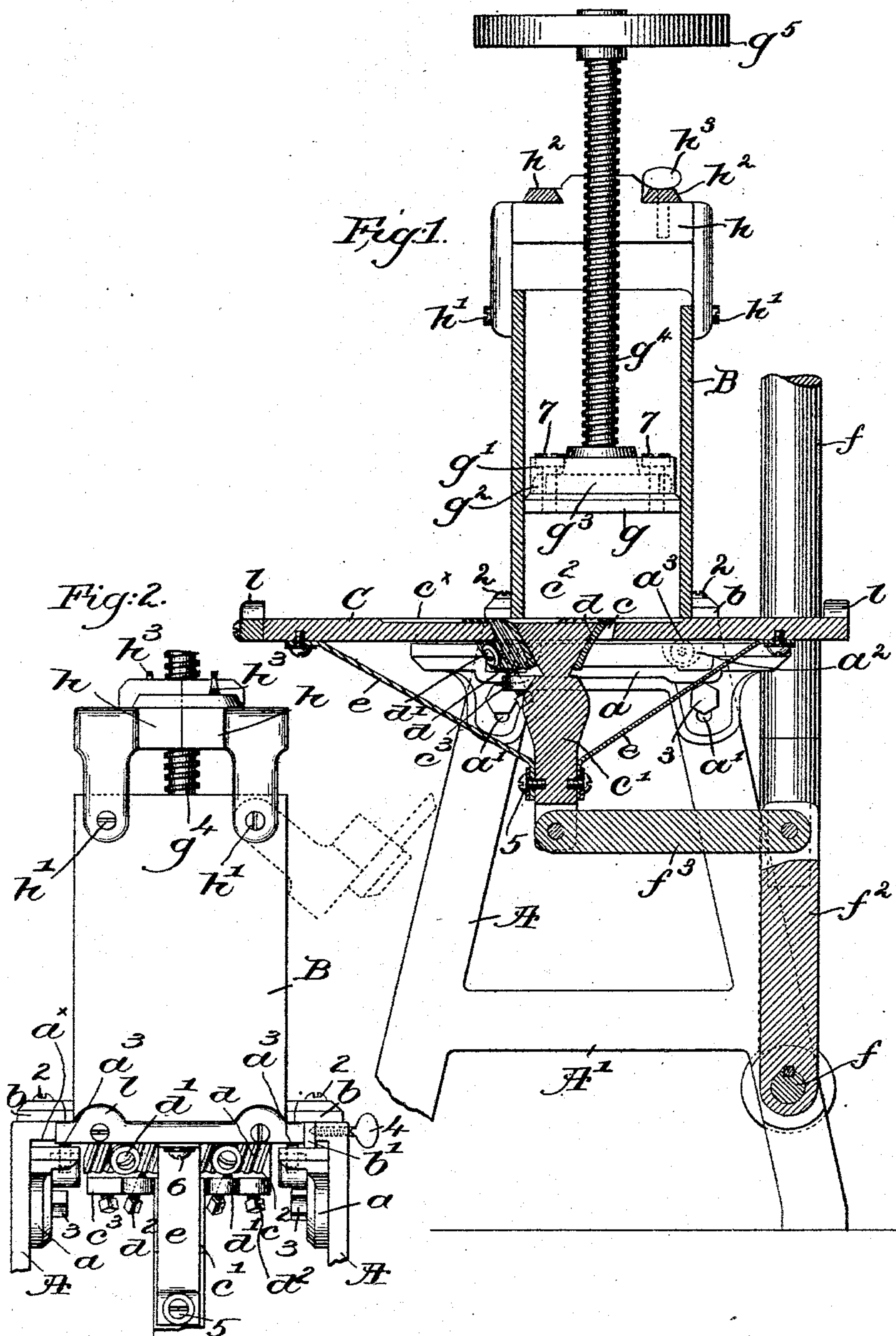


(No Model.)

C. J. CALLAHAN.
BONE CUTTING MACHINE.

No. 533,703.

Patented Feb. 5, 1895.



Witnesses.

Edward F. Allen.

Thomas J. Dimmond.

Inventor:
Cornelius J. Callahan
by Crosby & Gregory Attys.

UNITED STATES PATENT OFFICE.

CORNELIUS J. CALLAHAN, OF MILFORD, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO J. L. LILLEY, OF SAME PLACE.

BONE-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 533,703, dated February 5, 1895.

Application filed January 2, 1894. Serial No. 495,429. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS J. CALLAHAN, of Milford, county of Worcester, State of Massachusetts, have invented an Improvement in Bone-Cutting Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object the production of a strong, simple and durable machine for cutting bone or other hard substances, rapidly and effectively into small chips or portions, and in accordance therewith my invention consists in various details of construction to be hereinafter described and particularly pointed out in the claims.

Figure 1 in vertical section represents a bone cutting machine embodying my invention, and Fig. 2 is a detail, in end elevation, of the hopper and cutter carrier.

I have herein shown the operating parts of the machine as mounted upon suitable legs or standards A, connected by braces A', and to the top of the standards I have secured by suitable screws or bolts 2 the flanged base b of a hopper B, open at its top and bottom.

Brackets a, slotted at a', are adjustably secured to the inner sides of the standards by bolts 3 extended through the slots, said brackets having recesses a² therein, see dotted lines Fig. 1, in which are pivoted friction rolls a³, the peripheries of the rolls projecting slightly above the tops of the brackets.

A reciprocating cutter carrier C, forms a movable bottom for the hopper B, and rests upon the friction rolls a³, as clearly shown in the drawings, between them and the lower edges of the hopper.

As best shown in Fig. 2 the carrier is held from lateral movement by the inturned top a^x of one of the standards, and by an adjustable bearing b', held in place by the top of the other standard and adjusted by set screws 4. The carrier is slotted diagonally at c, and a depending lug c' secured to or forming a part of the carrier, between the slots c, is beveled at its opposite faces, as at c², parallel to said slots, to receive the cutters d, herein shown as corrugated or notched, and held in place by set screws d', extended through slots,

not shown, in the cutters, and into the lug c', and the cutters may be adjusted when worn or ground down by adjusting screws d² acting upon their lower edges and extended through projections c³ on the lug c'.

Referring to Fig. 1, it will be seen that the cutters are oppositely turned, so that the machine will operate at each movement of the carrier C, the slot c being wide enough to form clearance spaces for the cutters.

Braces e extend from the lower end of the lug c' to the bottom of the carrier, attached to the lug and carrier respectively by suitable fastenings 5 and 6, the top of the carrier being depressed below the edges of the cutters, as at c^x, to present the material thereto in a thorough manner.

An operating lever f is secured to a rock shaft f' having its bearings in the standards A, and an arm f², rigidly attached to the rock shaft, is connected by a link f³ to the lug c', whereby movement of the lever f back and forth will cause the cutter carrier to be reciprocated underneath the hopper B. The hopper is provided with a follower g, see Fig. 1, easily movable up and down in the hopper, to the top of which follower is secured by screws 7 a cap g', hollowed out at g², see dotted lines, to receive loosely the flanged base g³ of a threaded rod g⁴ having fast upon its upper end a hand wheel g⁵.

The threaded rod g⁴ is guided and supported in a two-part bearing h, h, the two parts being pivoted at h' to the sides of the hopper B, so that they may be swung down, as shown by dotted lines Fig. 2, when it is desired to remove the follower g to fill the hopper. Each part h of the bearing is provided with an ear h², which rests upon the top of the other part of the bearing when in closed position shown in full lines Figs. 1 and 2, and a locking pin h³ passed through the ear of one part into the top of the other part holds them securely together. Each part h has therein one-half of the threaded bearing for the threaded shank g⁴.

To operate the machine the follower is removed and the hopper B nearly filled with the bones or other material to be cut, after which the follower is replaced, resting on the top of the contents of the hopper. The two

parts *h, h*, of the bearing are then brought together and locked, and the cutter carrier *C* is reciprocated by the lever *f* and intermediate connections, as described, the cutters acting upon the bottom of the mass of material and cutting it into small chips or pieces, which fall through the openings *c* into any suitable vessel. As the material is cut or chipped the hand wheel *g*⁵ is rotated to turn the threaded rod *g*⁴ in its bearing and thereby cause the follower *g* to descend, pressing the material upon the cutter carrier with an easily regulated force, the follower descending until all the material has been acted upon by the cutters. Limiting stops *l* may be secured to the ends of the cutter carrier, to limit its movement in either direction and prevent displacement.

Vertical adjustment of the cutter carrier is accomplished by means of the adjustable brackets *a*, and lateral wear is taken up by the adjustable bearing *b'*, as described.

I am aware that vegetable cutters have been constructed with a hopper for the material, to co-operate with a reciprocating cutter carrier, and I do not broadly claim such construction.

I claim—

1. In a machine for cutting bones, &c., a reciprocating cutter-carrier, cutters secured thereto, means to reciprocate said carrier, and a stationary hopper located above the cutter-carrier, combined with a follower positively movable up and down in said hopper, a rotatable threaded rod connected at its lower end to and to move with the follower, and a separable threaded bearing for the rod, and secured to the hopper, the cutter-carrier being operative independent of said threaded rod, and vice versa, substantially as described.

2. In a machine for cutting bones, &c., a reciprocating cutter carrier, an open ended stationary hopper located above the carrier, and

vertically adjustable bearings for said carrier, combined with a follower movable in the hopper, an actuating screw therefor, and a two-part stationary bearing for and in which the screw is rotated, the parts of the bearing being pivotally connected to the hopper at its top and adapted to be thrown back when the hopper is to be loaded, substantially as described.

3. A stationary hopper, its follower, standards to which the hopper is rigidly attached, and a reciprocating cutter carrier, combined with an adjustable lateral bearing for the carrier, friction rolls to bear upon its under side adjusting devices for said rolls, and means to reciprocate the carrier, substantially as described.

4. The reciprocable cutter carrier, diagonal slots therein for the cutters and to provide clearance spaces therefor, a lug depending from the carrier between the slots and beveled at its opposite ends to receive the cutters, and a cutter projecting through each slot, combined with means to adjust the cutters, independently, a stationary hopper located above the cutter carrier, and means connected to said lug to actuate the cutter carrier, substantially as described.

5. In a machine for cutting bones, &c., a stationary hopper, its follower, means to positively raise and lower it and a cutter carrier reciprocable below the hopper, combined with a lateral bearing for the carrier, bearings for its under side, and means to adjust said lateral and under side bearings, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CORNELIUS J. CALLAHAN.

Witnesses:

JESSE A. TAFT,

GEO. E. SAWYER.