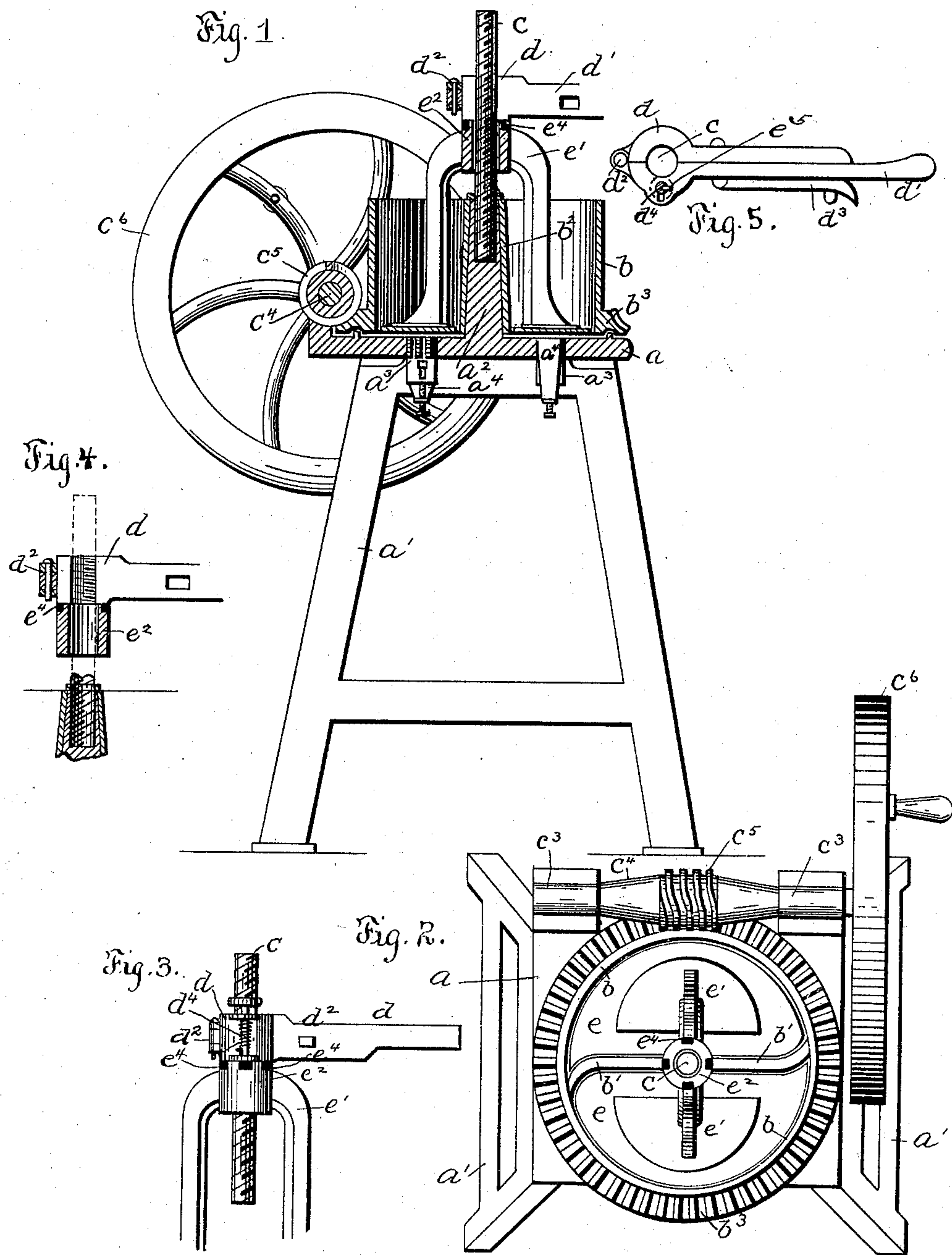


(No Model.)

L. W. GIBSON.
BONE CUTTING MACHINE.

No. 567,854.

Patented Sept. 15, 1896.



Witnesses

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UNITED STATES PATENT OFFICE.

LEWIS W. GIBSON, OF DETROIT, MICHIGAN.

BONE-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 567,854, dated September 15, 1896.

Application filed May 6, 1895. Serial No. 548,254. (No model.)

To all whom it may concern:

Be it known that I, LEWIS W. GIBSON, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Bone-Cutting Machine, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to a cutting or grinding machine comprising a cylinder, with means for rotating the one in relation to the other, a follower longitudinally slidingly secured within the cylinder, and means for feeding the follower toward the head to press the material to be ground against the cutters or grinders.

The invention consists, first, in the means employed for feeding the follower, whereby the latter may be made to move either automatically or by hand; further, in the peculiar construction, arrangement, and combination of parts, as more fully hereinafter described.

In the drawings, Figure 1 is a vertical central section through my machine. Fig. 2 is a plan view thereof, the feeding device being removed. Fig. 3 is a detail of the upper part of the follower and feeding device. Fig. 4 is a sectional view of a portion of the feeding device and upper part of the follower, showing the feeding-screw in dotted lines; and Fig. 5 is an enlarged plan view of the feeding device, partly in section.

a' is a suitable frame upon which is mounted the head or plate a .

b is a cylinder or receptacle rotatorily secured above the head a , preferably by providing said cylinder with the central hub b^2 , secured to the wall thereof by the division-wall b' and journaled upon the pivot-post a^2 . This post is secured to or integrally formed with the head a , and preferably tapers from bottom to top.

b^3 is a peripheral worm-gear flange formed at the base of the cylinder b .

c^5 is a worm adapted to engage with said worm-gear and mounted upon the drive-shaft c^4 , which shaft is journaled on opposite sides of the worm in bearings c^3 , formed upon the head a .

c^6 is a fly-wheel upon the shaft c^4 , provided with a crank or other means of revolving the same.

c is a screw-threaded rod extending in axial line with the cylinder and secured to the post a^2 .

e is a platen or follower adapted to fit within the cylinder, so as to have a longitudinal sliding movement therein. This follower is slotted to pass on opposite sides of the division-wall b' and is provided with the upwardly-extending yoke-frame e' , having a centrally-apertured bearing e^2 sleeved upon the rod c .

d is a nut adapted to engage with the screw-threaded rod c above the bearing e^2 . This nut is provided with a handle d' , and is preferably made in two parts hinged together at d^2 , having a suitable latch d^3 for fastening the two sections together.

d^4 is a bolt slidingly secured in bearings on the nut d , being provided with a spring d^5 , tending to project it downwardly, and suitable means, such as the pin e^5 , adapted to engage with a shoulder for holding it in its retracted position.

e^4 are recesses formed in the upper face of the bearing e' , adapted to receive the end of bolt d^4 when projected and thereby lock the nut d to the yoke-frame e' .

The cutters or grinders are secured to the head a , and preferably consist of the knives a^3 , adjustably secured to lugs a^4 , their cutting edges projecting up through apertures in the head a .

The parts being thus constructed, their operation is as follows: The cylinder b being filled with the bones or other material to be ground, the follower d resting upon the same, and the nut d adjusted to bear against the bearing e^2 , motion may be imparted to the drive-shaft c^4 , and the cylinder b thereby rotated through the medium of the worm c^5 and worm-gear b^3 . If it is now desired to employ the automatic feed, the bolt d^4 is turned so as to disengage the pin e^5 from its retaining-shoulder, when the spring d^5 will project the bolt upon one of the recesses e^4 , locking the nut d to the yoke-frame e' , and as the latter revolves with the cylinder the nut will be turned down, the screw-threaded rod c pressing the follower against the material in the cylinder and the latter against the cutters. To stop the feed, the bolt d^4 may be withdrawn, disengaging the nut from the frame e' , when the former is free to be

turned by the handle d' . Thus either the automatic or hand feed may be employed as desired. The construction of the drive mechanism is such as to secure great power without undue strain upon any of the parts. Thus it will be seen that the cylinder is provided with a long bearing upon the post a^2 and is driven at the periphery. The drive-shaft c^4 is journaled at each end with the worm c^5 between the two bearings, and to counteract the downthrust of the worm an antifriction-roll is preferably placed below the gear-flange b^3 .

What I claim as my invention is—

1. In a cutting or grinding machine, the combination with a rotary cylinder, a stationary cutter or grinder head in axial line therewith, and means for rotating the cylinder, of a screw-threaded rod rigidly secured to said head and passing through the axis of the cylinder, a rotary follower longitudinally slidingly secured within said cylinder and loosely sleeved upon said screw-threaded rod, a nut engaging with said screw-threaded rod, and means for detachably locking said nut to one of said rotary members, substantially as described.

2. In a cutting or grinding machine, the combination with a cylinder, a cutter or grinding head in axial line therewith, and means

for rotating the one in relation to the other, of a follower within said cylinder and having a longitudinal sliding engagement therewith, a screw-threaded rod mounted in the head and passing axially through the cylinder, a screw-threaded nut engaging said rod, a catch carried by said nut, and a shoulder or shoulders on the follower adapted to be detachably engaged by said catch, substantially as described.

3. In a cutting or grinding machine, the combination of a stationary head, a post extending therefrom, a cylinder provided with a central hub, rotatorily secured upon said post, a screw-threaded rod forming an extension of said post, a follower longitudinally slidingly secured within said cylinder having an outwardly-extending yoke-frame sleeved upon said screw-threaded rod, the nut d' engaging said rod, the spring-bolt d^4 adapted to lock said nut to the yoke-frame, the peripheral gear b^3 upon the cylinder, the drive-shaft c^4 , the worm c^5 thereon and the journal-bearings c^3 upon opposite sides of the worm, substantially as described.

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Witnesses:

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