

B. B. DOWNS.
Bag-Holders.

No. 151,863.

Patented June 9, 1874.

Fig. 1.

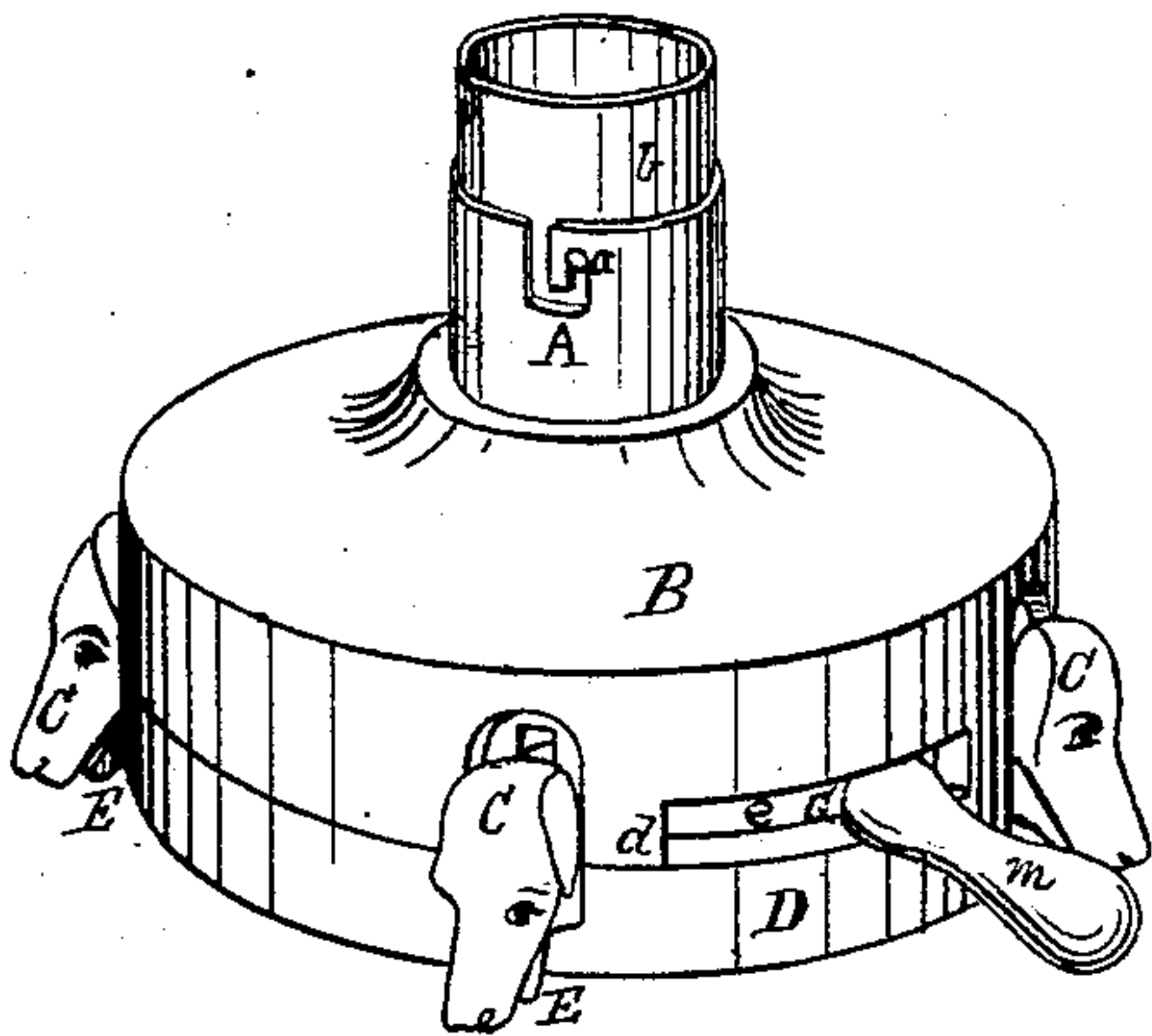


Fig. 2.

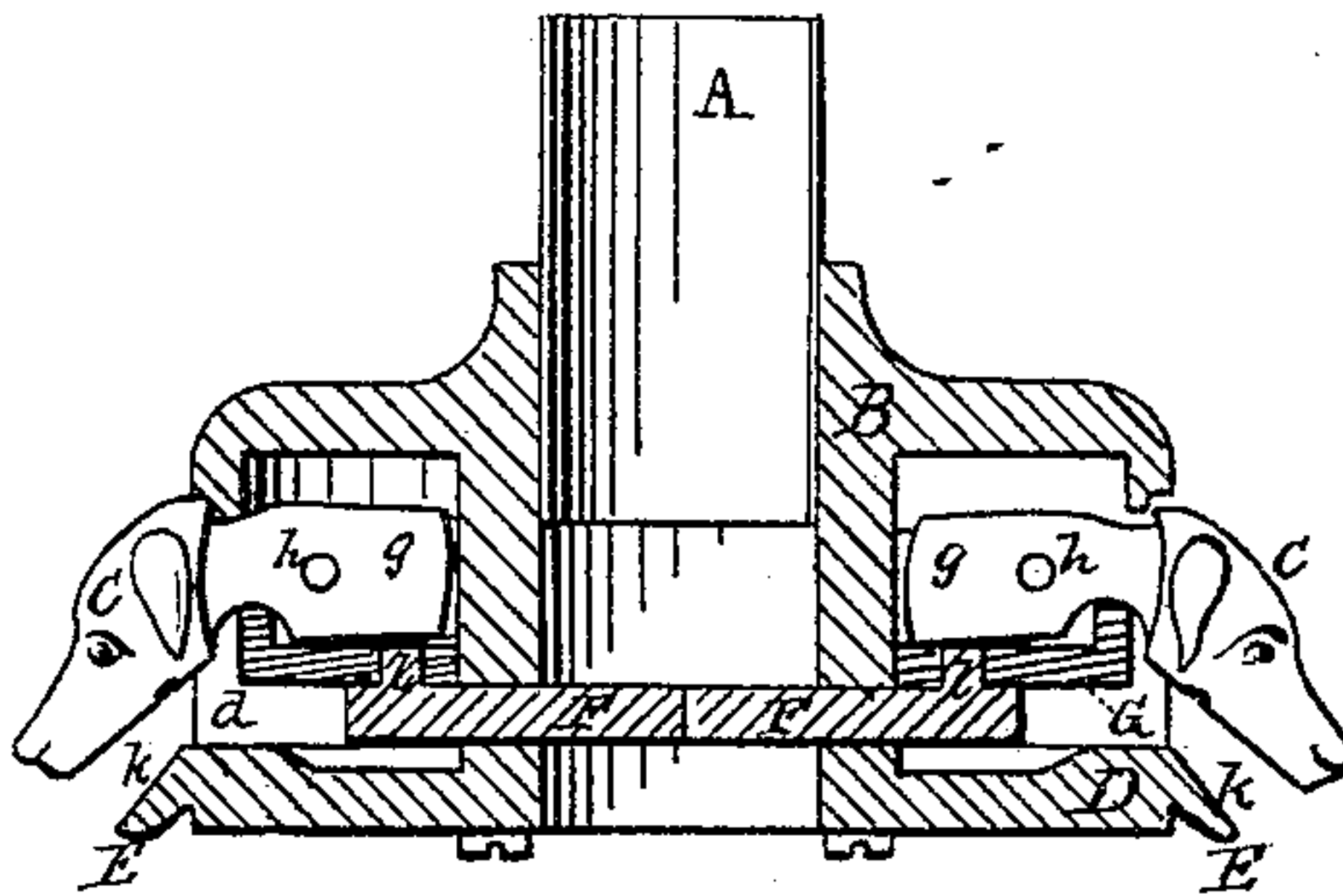


Fig. 3.

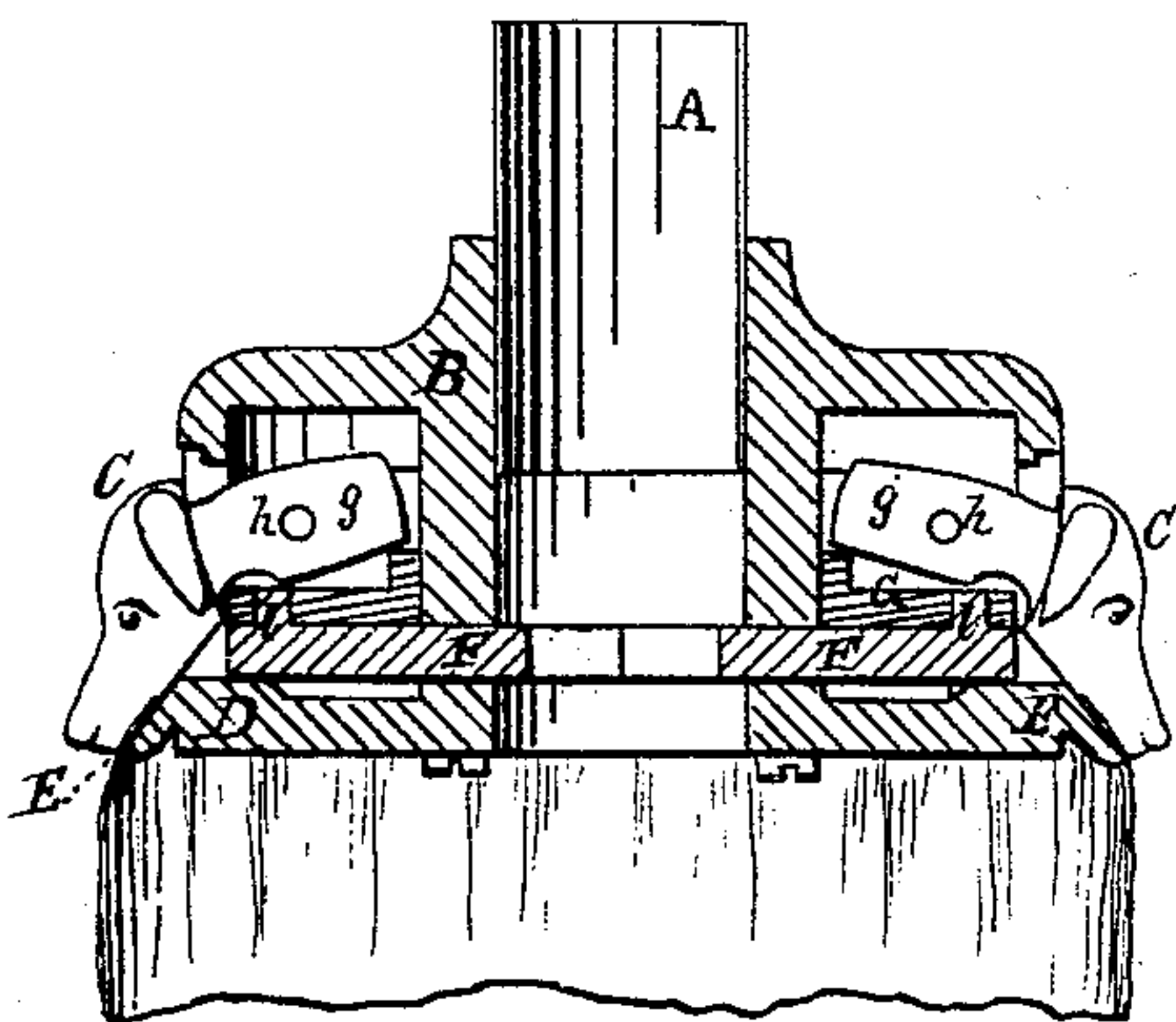


Fig. 4.

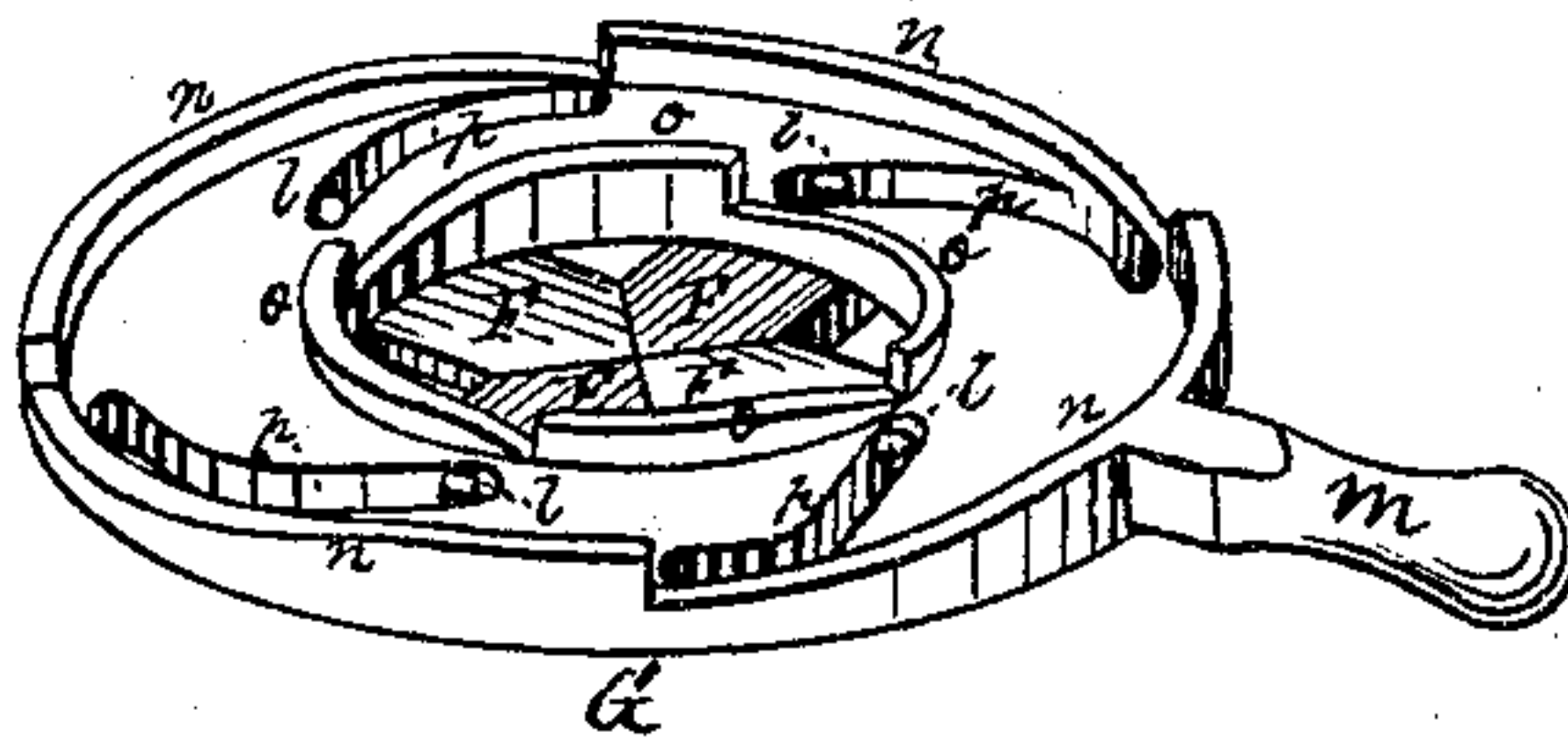


Fig. 5.

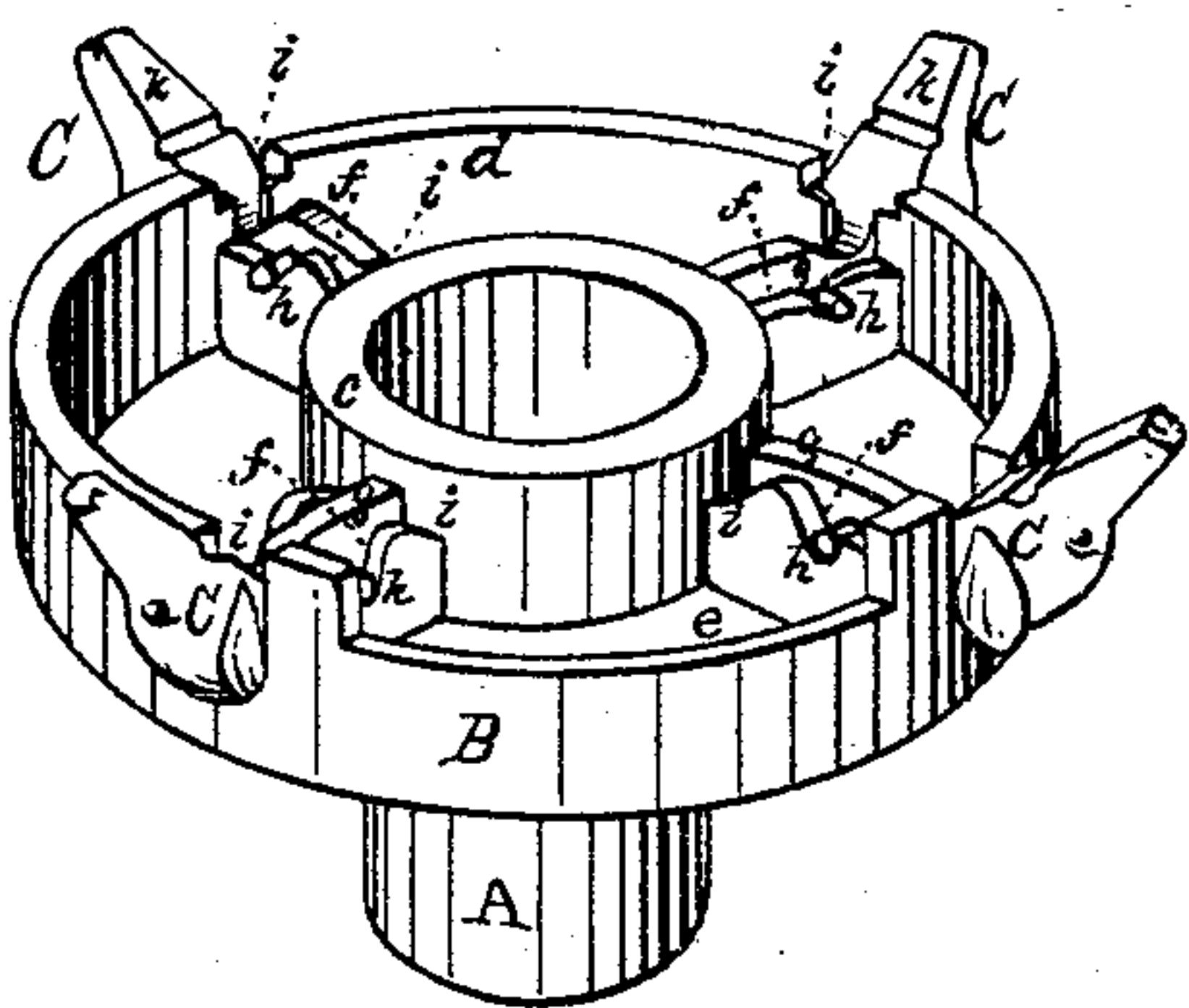
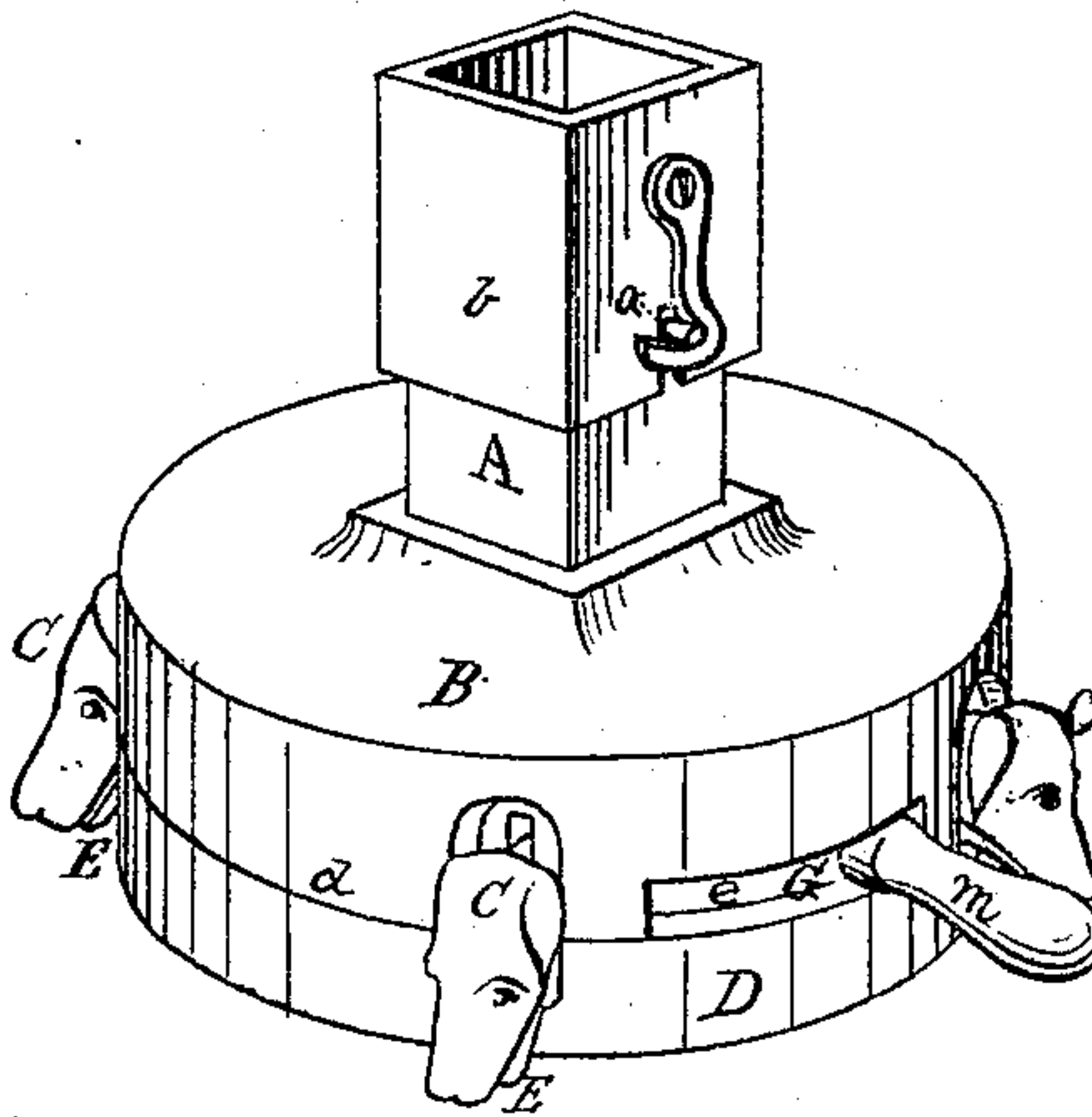


Fig. 6.



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UNITED STATES PATENT OFFICE.

BURAGE B. DOWNS, OF EAU CLAIRE, WISCONSIN.

IMPROVEMENT IN BAG-HOLDERS.

Specification forming part of Letters Patent No. **151,863**, dated June 9, 1874; application filed May 9, 1874.

To all whom it may concern:

Be it known that I, BURAGE B. DOWNS, of Eau Claire, county of Eau Claire, in the State of Wisconsin, have invented a certain new and useful Bag-Holder and Gate for Flouring-Mills, Granaries, &c., of which the following is a specification:

My invention relates to that class of apparatus which engages with and sustains a bag in a distended condition for receiving flour or grain, without that liability of injury to the bag which is incident to the use of hooks or analogous bag-perforating devices. My invention consists in combining several jaw-clamps arranged to engage with the bag at different points at its mouth with means for simultaneously opening and closing the jaws. Also, in combining a sectional gate and the several jaws with a cam-plate, which, on being rotated, will simultaneously close the jaws and open the gate, or close the gate and open the jaws, according to whether the bag is to be or has been filled; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear and accurate description of a bag-holder and gate embodying the several features of my invention.

Referring to the drawings, Figure 1 represents, in perspective, an apparatus embodying all the features of my invention attached to a spout, chute, or mill-feed box. Fig. 2 represents the same in cross vertical section with the gate closed and bag-jaws open. Fig. 3 represents the same with bag-jaws closed and gate open. Fig. 4 represents, in perspective, the cam-plate which actuates the jaws and the gate. Fig. 5 represents, in perspective, the top plate with the upper members of the bag-jaws. Fig. 6 represents a bag-holder and gate with a square neck and attaching device.

A denotes the neck of the bag-holder. It is represented as tubular in form, and is provided with the pin-stops at *a*, which engage with slots in the neck or the chute *b*, after the manner of a bayonet-clasp. When adapted to square spouts or chutes, the neck will also be square, and of corresponding dimensions, and connected thereto by means of hooks and pins in a manner well known. It is of value that the bag-holder be thus provided with a neck,

for in stores or granaries having several bins for grain of different kinds, with a chute from each bin, but one bag-holder will be absolutely requisite, and can be changed from spout to spout, as may be desired. B denotes the top plate of the bag-holder, to which is rigidly attached the neck A. The top plate is provided with a flange, *d*, with the face of which the bottom plate engages in close contact, except at space *e*, where, for a short distance, said flange is cut away. The top plate is provided with, in this instance, four radial channels, *f*, having open ends through the flange *d*. C denote the movable members of the bag-holding jaws. Although two of these will hold a bag practically well, I prefer four, as shown. The jaws C are mounted on the ends of levers *g*, which occupy the channels *f*, and are pivoted therein at *h*, so that the levers may be freely vibrated at both ends in a line at right angles to the plane of the top plate. The sides of the radial channels *f* are cut away at their outer and inner ends adjacent to the flange *d* and the central annular shoulder *e*, as indicated at *i*. D denotes the bottom plate, which is united to the top plate by means of bolts which pass upward from below, adjacent to the delivery-aperture, into the annular shoulder *e* of the top plate. The immovable jaws E of the bag-holder are rigidly attached to the bottom plate at points coincident with the movable jaws C, and *k* denotes the holding-faces of the jaws. Each of the immovable jaws, although inclined, project radially from the bottom plate, so that a bag on being drawn up over them may be readily held in position while the jaws are being closed. F denotes in each instance one of four sections composing the gate. The upper surface of the bottom plate is provided with radial channels, in which the sections F are fitted to slide to and from the center of the delivery-aperture in the center of the plate. Each section is pointed at its inner end, so that when those ends of the four sections are in contact with each other, they wholly close the delivery-aperture. Near the outer end each section is provided with a pin, as at *l*, through which motion is imparted to the sections, as hereafter described.

It will be seen that the several sections meet

at the center of the delivery-aperture, and flour or middlings are much less liable to clog therein than if the gate moved wholly across the opening. It is not essential that there be four sections, as two or three can as well be employed, and in either case they will meet at the center, and may be actuated in the same manner.

G denotes the cam-plate, by means of which the several jaws and the gate-sections are simultaneously actuated. It is circular in form, and is interposed between the top and bottom plates. It has a circular opening at the center, which is fitted to the exterior of the annular shoulder *c* of the top plate, said shoulder serving as an axis on which the cam-plate may partially rotate. An actuating hand-lever, *m*, on the cam-plate, projects outward through the space *e* in flange *d* of the top plate. The jaw-actuating portion of the cam-plate consists in the four cam-surfaces *n* at the outer periphery of the plate, and the four cam-surfaces *o*, surrounding the circular opening at the center. These cam-surfaces are simple inclined planes, having a length, in each case, equal to one-quarter of the circumference of the circles occupied by them respectively, and have a width or thickness which is somewhat less than the space *i* at each end of the radial channels *f* in the top plate. The inclined planes *n* and *o* rise in opposite directions, and the highest point of any one of the outer set is opposite the lowest point of the corresponding plane of the inner set.

When the cam-plate is in position, the faces of the inclined planes or cams are in contact with both ends of the levers *g* of the movable jaws C; and, when the plate is moved in one direction, the cam-planes *n* lift the jaws C, and the inner cam-planes allow of this movement by receding from contact with the inner ends of the levers. When moved in the opposite direction, the inner cam-planes *o*, by contact with the inner ends of the levers, raise those ends, and force down the jaws C into proper contact with the fixed lower jaws E, the outer planes *n*, meantime, so retiring as to admit of this movement.

The gate-sections are simultaneously moved by the cam-plate by means of the cam slots or

grooves *p*, through which the pins *l* on the sections F project. Each cam-groove occupies two lines, one of which extends from the lowest point of one of the cam-planes *o* toward the periphery of the cam-plate, and also toward the lowest portion of the corresponding cam-plane *n*, terminating at a short distance from the end of said cam-plane. The other line extends therefrom, in a circular line, to the end of said cam-plane. The first line of the cam-groove or slot gives movement to the sections; and the circular-line portion admits of the continued rotary movement of the cam-plate for the purpose of more fully controlling the jaws.

The several jaws may have their holding-surfaces slightly serrated; or, if perfectly plain, they will maintain a good hold upon the bag, if sufficient pressure be applied. These jaws, by being arranged to hold the bag in its circular or natural position, enable the bags to be well filled before removal, instead of requiring additional hand-filling after the bag is detached, as is necessary when the neck of the bag is in an elongated position while held by the jaws.

In granaries or feed-stores, where spouts or chutes are employed for conveying grain, feed, &c., from elevated bins to the salesroom, square spouts are frequently employed; and, with such, a square-necked bag-holder is requisite, as shown in Fig. 6. A swinging hook and pin serve to secure the bag-holder in position.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. Two or more jaw-clamps, arranged to engage with the bag, at different points at its mouth, with a cam-plate, which simultaneously opens and closes the jaws, substantially as described.

2. The combination of a delivery-gate, with bag-holding jaws, and the cam-plate, for simultaneously actuating the gate and the jaws, substantially as described.

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