

No. 697,784.

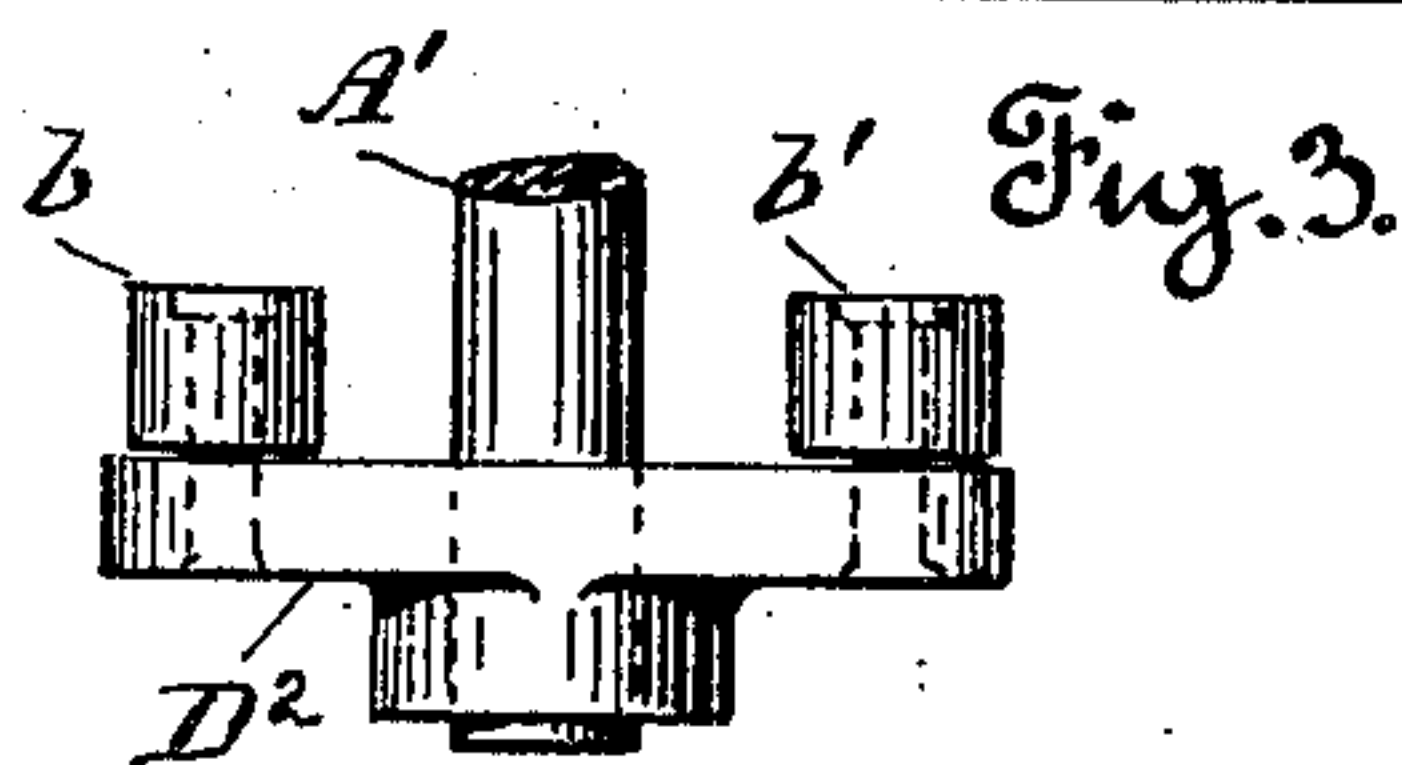
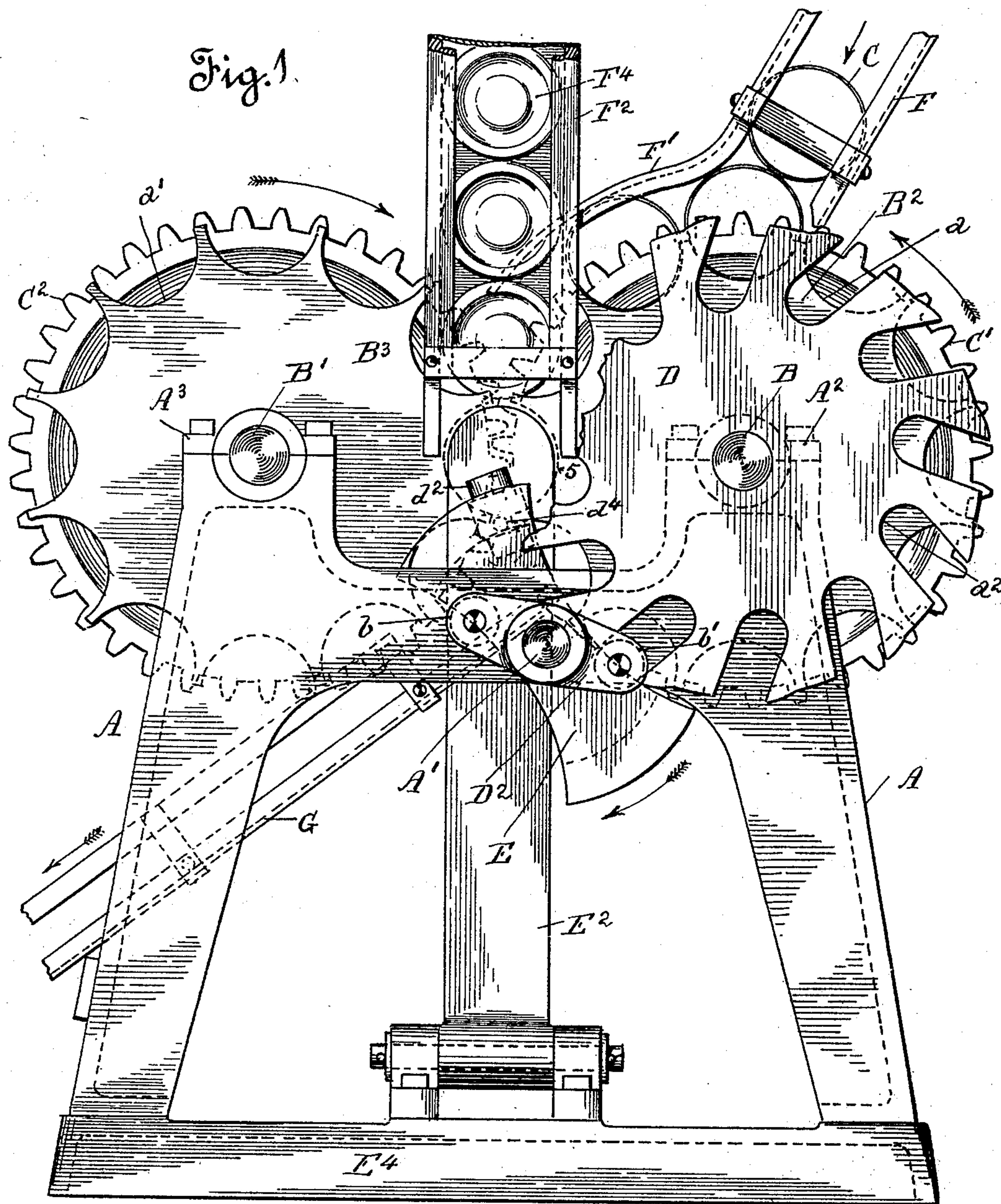
Patented Apr. 15, 1902.

H. C. BLACK.
CAN BODY ENDING MACHINE.

(Application filed June 14, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.

Stellvertreder,
Halter Fr. Cane!

Inventor.
Henry C. Black
by W. A. Acker
his atty.

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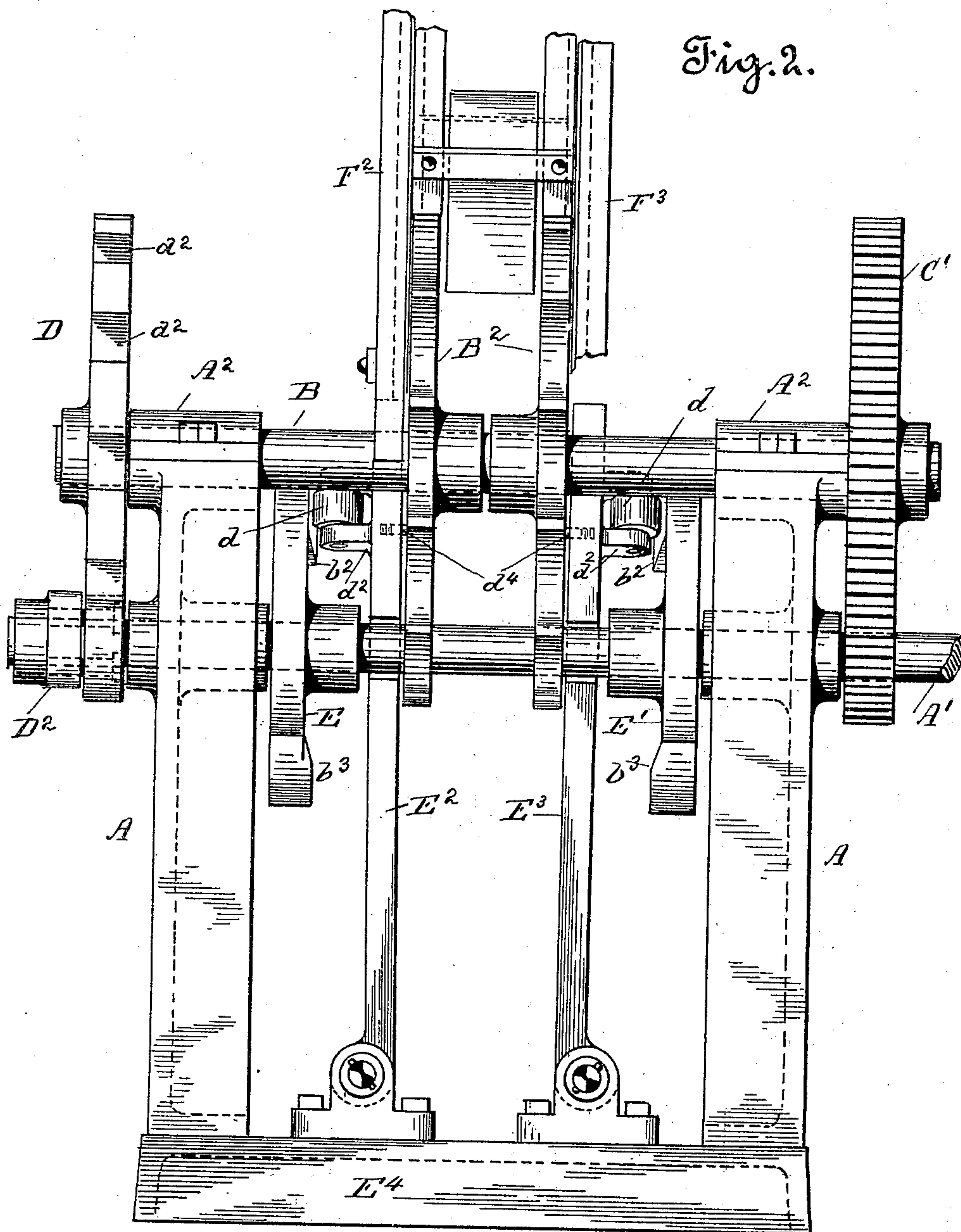
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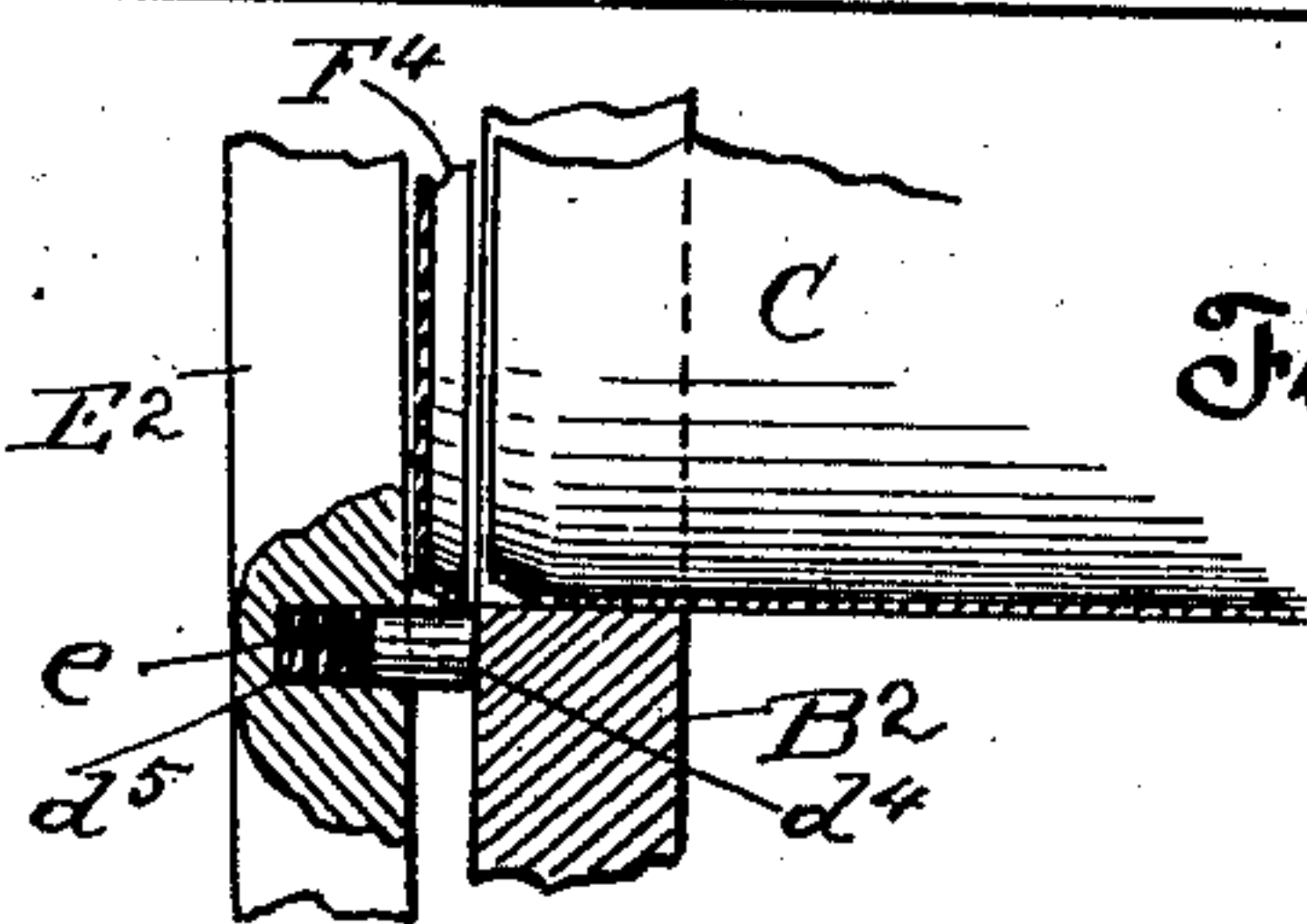
(No Model.)

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Witnesses.

Stellvertende
Galter E. Vane



Inventor.
Henry C. Black
by N. A. Ackerson
his atty.

UNITED STATES PATENT OFFICE.

HENRY C. BLACK, OF OAKLAND, CALIFORNIA.

CAN-BODY-ENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 697,784, dated April 15, 1902.

Application filed June 14, 1901. Serial No. 64,548. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. BLACK, a citizen of the United States, residing at Oakland, county of Alameda, State of California, have
5 invented certain new and useful Improvements in Can-Heading Machines; and I do hereby declare the following to be a full, clear, and exact description of the same.

The object of the invention is to provide a
10 simple and inexpensive machine for the placing of tops and bottoms onto can-bodies, the invention residing more especially in the carriers which receive the can-bodies and hold the same during the operation of ending or
15 forcing the tops and bottoms thereon and in the mechanism for driving the carriers by a step rotation.

To comprehend the invention, reference should be had to the accompanying sheet of
20 drawings, wherein—

Figure 1 is a side view in elevation of the machine. Fig. 2 is an end view in elevation of the mechanism illustrated in Fig. 1 of the drawings. Fig. 3 is a detail top plan view of
25 the drive-cam, and Fig. 4 a broken detail part-sectional view of a portion of one of the can-body seats and of one of the fulcrumed presser-plates for applying the ends onto the can-body.

30 In the drawings the letter A is used to indicate the frame of the machine, and A' the drive-shaft working therethrough. Within bearing-boxes A² A³, attached to the frame, work the cross-shafts B B'. These shafts are
35 a distance apart, and upon each shaft a pair of disks B² B³ are secured. In the peripheries of the disks are cut or formed the semicircular seats or sockets a a', which seats or sockets during the rotation of the disks register,
40 so as to retain a can-body C therebetween. The disks B², I shall term the "receiving-disks" and disks B³ the "retaining-disks." These disks may be of any suitable diameter, the number of seats or sockets cut therein
45 depending upon the size of the said disks. I have shown the disks as being provided with twelve seats or sockets; but the number may be increased or decreased, as desired.

To one end of the shafts B B' the intermeshing gear-wheels C' C² are attached. By this
50 form of connection the rotary motion of cross-shaft B is transmitted to cross-shaft B'. To

the opposite end of cross-shaft B is secured the disk D, within the periphery of which the inclined slots a² are cut. This disk constitutes the drive-disk for the receiving and retaining disks, and the same has imparted thereto a step rotation by means of the cam D². Said cam is secured to the drive-shaft A' and carries the rolls b b', Fig. 3 of the
55 drawings, which rolls during rotation of the cam alternately work in and out of the slots a², cut in the periphery of the drive-disk D.

To the drive-shaft, inside of the frame A, are secured the wheels E E', which wheels on
60 their inner face are formed with the inclined cams b² b³. These inclined cams are arranged diametrically opposite and alternately engage with the rolls d, attached to lugs d², projecting from the presser-plates E² E³, which
65 presser-plates are fulcrumed at their lower end to the bed-plate E⁴ of the frame A. These presser-plates are normally held outwardly pressed by means of the pins d⁴, which pins
70 fit within a socket d⁵, formed in the inner face of the presser-plates, and are held outward by the pressure of spring e. The pins
75 d⁴ bear against the outer face of the receiving-disks B², Figs. 2 and 4 of the drawings.

The can-bodies C are fed to the machine
80 from the chute or runway F, the end of which terminates immediately above the receiving-disks. The lowermost can-body rests upon the peripheries of said disks until the same rotate, so as to permit of the can-body gradu-
85 ally seating itself within one of the seats a, after which the can-body is carried away from the feed-chute toward the opposing or retaining disks. During this travel of the receiving-disks the can-body is held within its seat
90 by means of the curved guard-plate F'. This guard-plate bears upon the can-body until it has been carried into the seat a' of the retaining-disks B³. The body will then be held
95 within the registering seats a a', it being "embraced," so to speak, by the receiving and retaining disks. As thus held the can-body is advanced by a step rotation of the disks until point 5 is reached, when the top and bottom or ends F⁴ are applied thereto.
100 These ends are fed to the machine by the runways F² F³, arranged at each side of the disks B² B³, so as to be in line with the seats a a' of the receiving and retaining disks when

they fully register. The bottom of the line of ends held within the respective chutes rest upon the pins d^4 , projecting from the presser-plates $E^2 E^3$, being held in position between the said plates and the wall of the receiving and retaining disks. By the time the can-body has been brought into horizontal alignment with the held can ends the wheels $E E'$ will stand in such position as to place the cams b^2 into engagement with the rolls d of presser-plates. As the cams b^2 are carried past the rolls d by the rotation of the wheels $E E'$ the said rolls d ride upon the inwardly-inclined cams and gradually throw the upper end portion of the presser-plates inward and force the ends F^4 held thereby onto the can-body C , held within the seats $a a'$. The moment the cams b^2 are carried beyond the rolls d the pressure of the springs e forces the presser-plates outward or away from the disks $B^2 B^3$. The presser-plates remain in their outward position until again forced inward by the inclined cams b^3 bearing against the rolls d . After the ends have been applied to the can-body the disks $B^2 B^3$ are moved by the step rotation so as to gradually open the closed seats and permit the ended can-body to fall from within its seat in the receiving-disks into the discharge chute or runway G , by means of which they are conveyed to any suitable place of deposit.

The drive-shaft is driven by means of a belt working over a belt-wheel, (not shown,) or any other suitable form of drive mechanism may be employed. This shaft, with the wheels and inclined cams thereon, is a continuously-rotating one, although the motion imparted to the receiving and retaining disks is a step rotation. This rotation is procured, as stated, by the rolls $b b'$, alternately working in and out of the slotted drive-disk. By this step rotation the disks holding the can-body are brought to a state of rest sufficiently long to permit the ends to be applied to the held can-body, as described.

The receiving and retaining disks constitute oppositely-operating mechanism for receiving the can-bodies and holding the same during the operation of applying ends thereto.

By reason of the absence of header and retaining jaws movably secured to the oppositely-operating mechanisms I am enabled to dispense with the delicate adjustment heretofore required in connection with machinery of this class.

Having thus described the invention, what is claimed as new, and desired to be protected by Letters Patent, is—

1. In a can-body-ending machine, the combination with the oppositely-operating disks, of seats formed in the periphery of said disks,

the drive-shaft, means whereby a step rotation is imparted to the oppositely-operating disks, the fulcrumed presser-plates for applying the ends to the can-bodies, devices carried by the drive-shaft whereby the presser-plates are operated to apply the ends, and means for supplying the can-bodies and ends to the machine.

2. The combination in a can-body-ending machine, of the oppositely-operating disks, of a series of can-body seats formed in the periphery of each disk, of means for imparting a step rotation to the said disks, and devices whereby the ends are forced onto the can-body during the step rotation of the said disks.

3. The combination with the oppositely-operating disks which receive and hold the can-bodies during the operation of ending the same, of a series of can-body-holding seats formed in the periphery of each disk, a peripheral slotted drive-disk, devices for imparting a step rotation to the oppositely-operating disks through the medium of the said drive-disk, and means whereby the ends are applied to the can-body during the step rotation of the disks.

4. The combination with the oppositely-operating disks, of means for imparting a step rotation thereto, the fulcrumed presser-plates for forcing the ends onto the can-body held and carried by the oppositely-operating disks, and means by which the presser-plates are actuated during the step rotation of the said disks.

5. In a can-ending machine, the combination with the oppositely-operating disks which receive and hold the can-bodies, the drive-shaft, devices actuated by the drive-shaft for imparting a step rotation to the oppositely-operating disks, the fulcrumed presser-plates by means of which the ends are applied to the held can-body, and cam devices carried by the drive-shaft for operating the presser-plates.

6. The combination with the oppositely-operating disks for receiving and holding the can-bodies during the operation of ending the same, of means whereby a step rotation is given to said disks, the spring-pressed fulcrumed presser-plates for applying the ends onto the can-bodies, and means for actuating the presser-plates during the step rotation of the receiving and holding disks.

In witness whereof I have hereunto set my hand.

HENRY C. BLACK.

Witnesses:

N. A. ACKER,
D. B. RICHARDS.