

(No Model.)

J. B. FOOTE.
CAN HEADING MACHINE.

No. 494,674.

Patented Apr. 4, 1893.

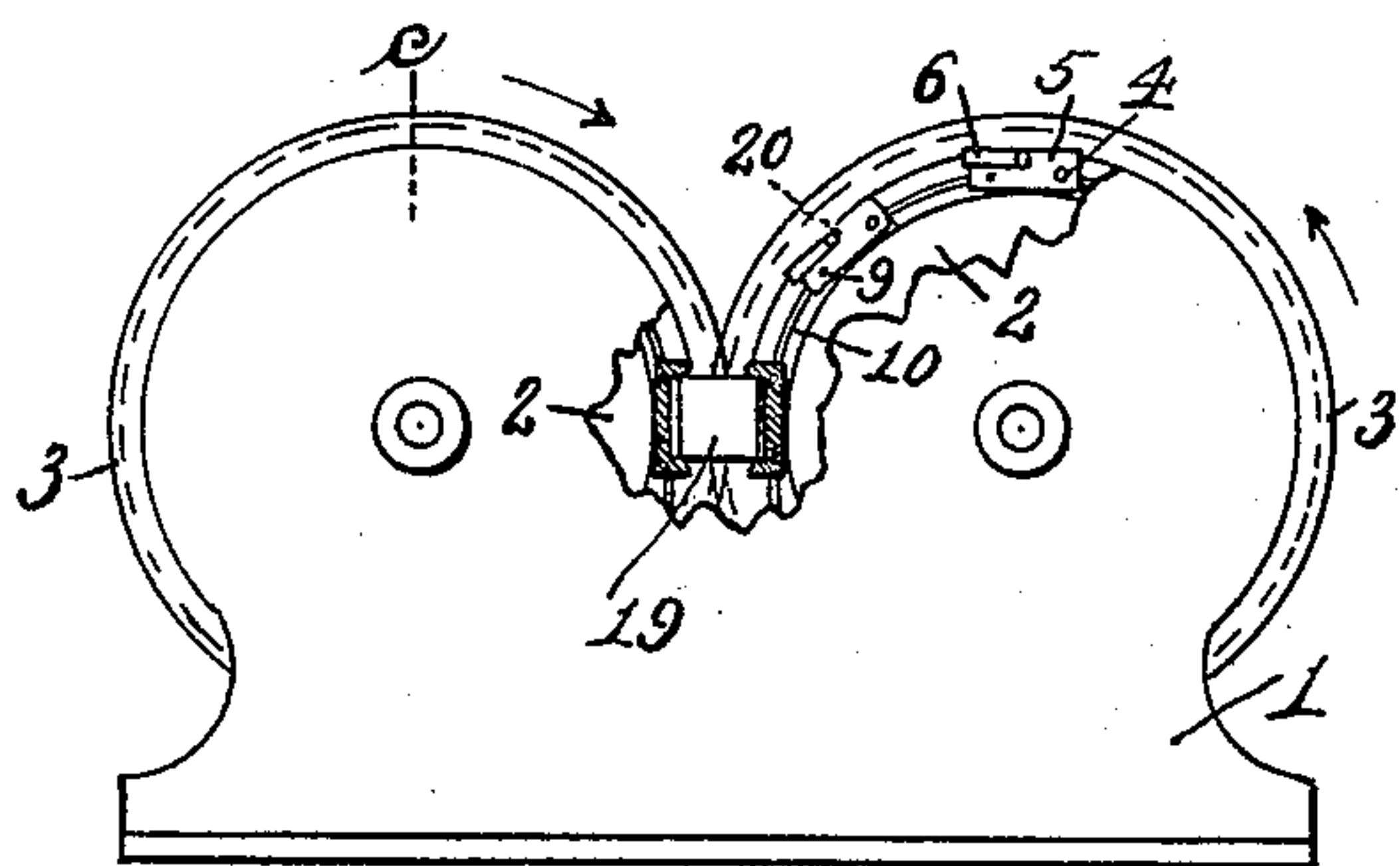


Fig. 1.

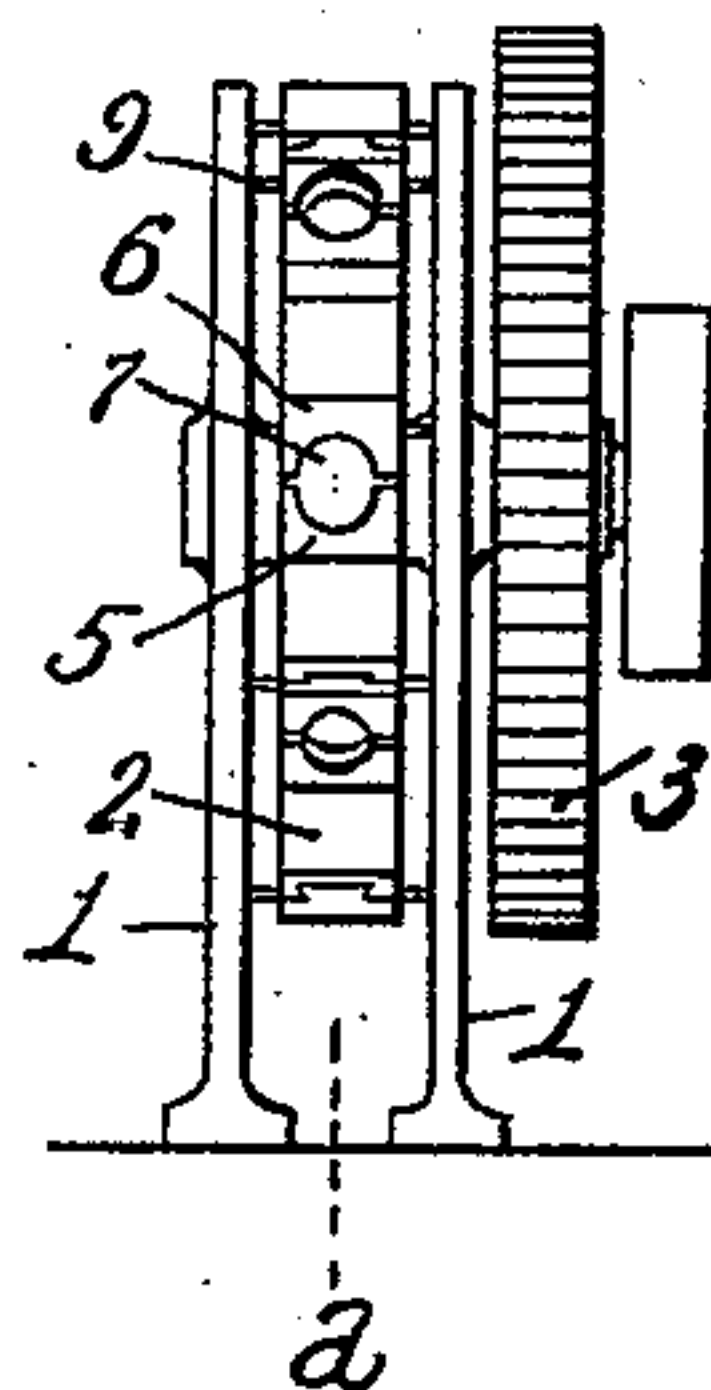


Fig. 2.

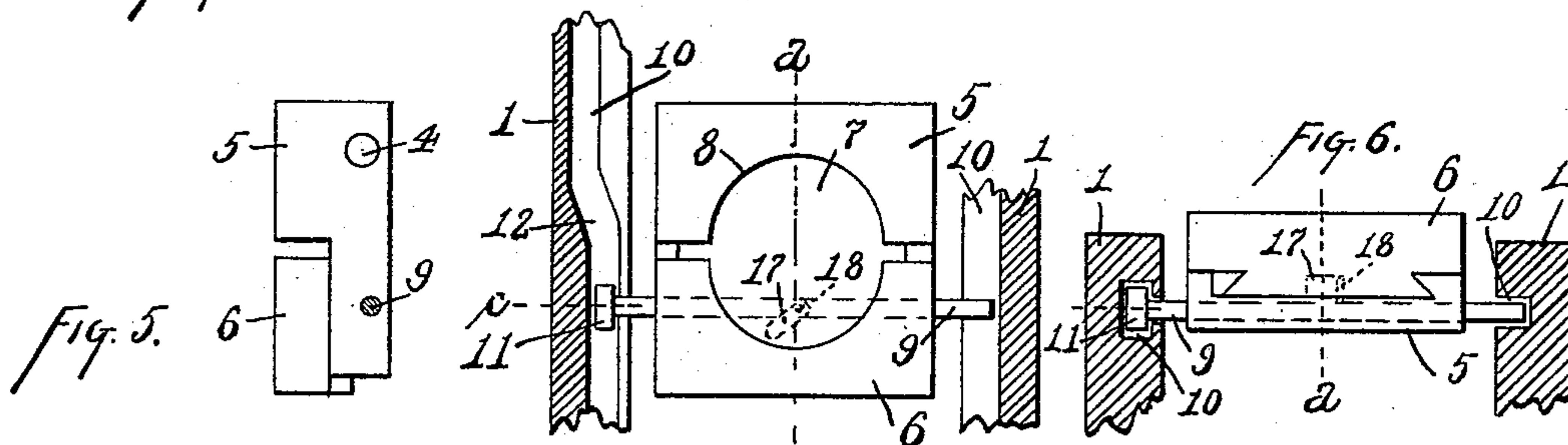


Fig. 3.

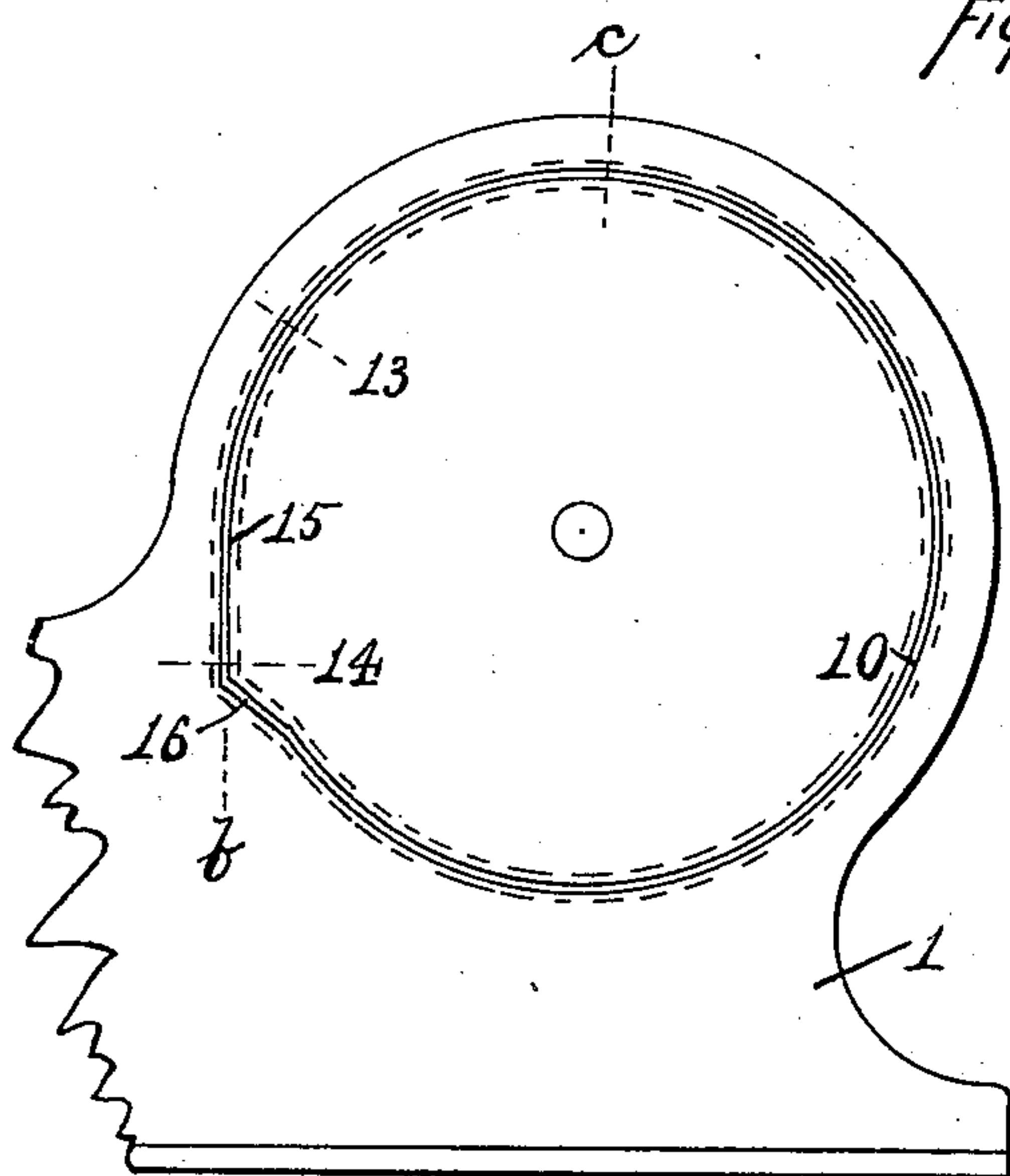


Fig. 4.

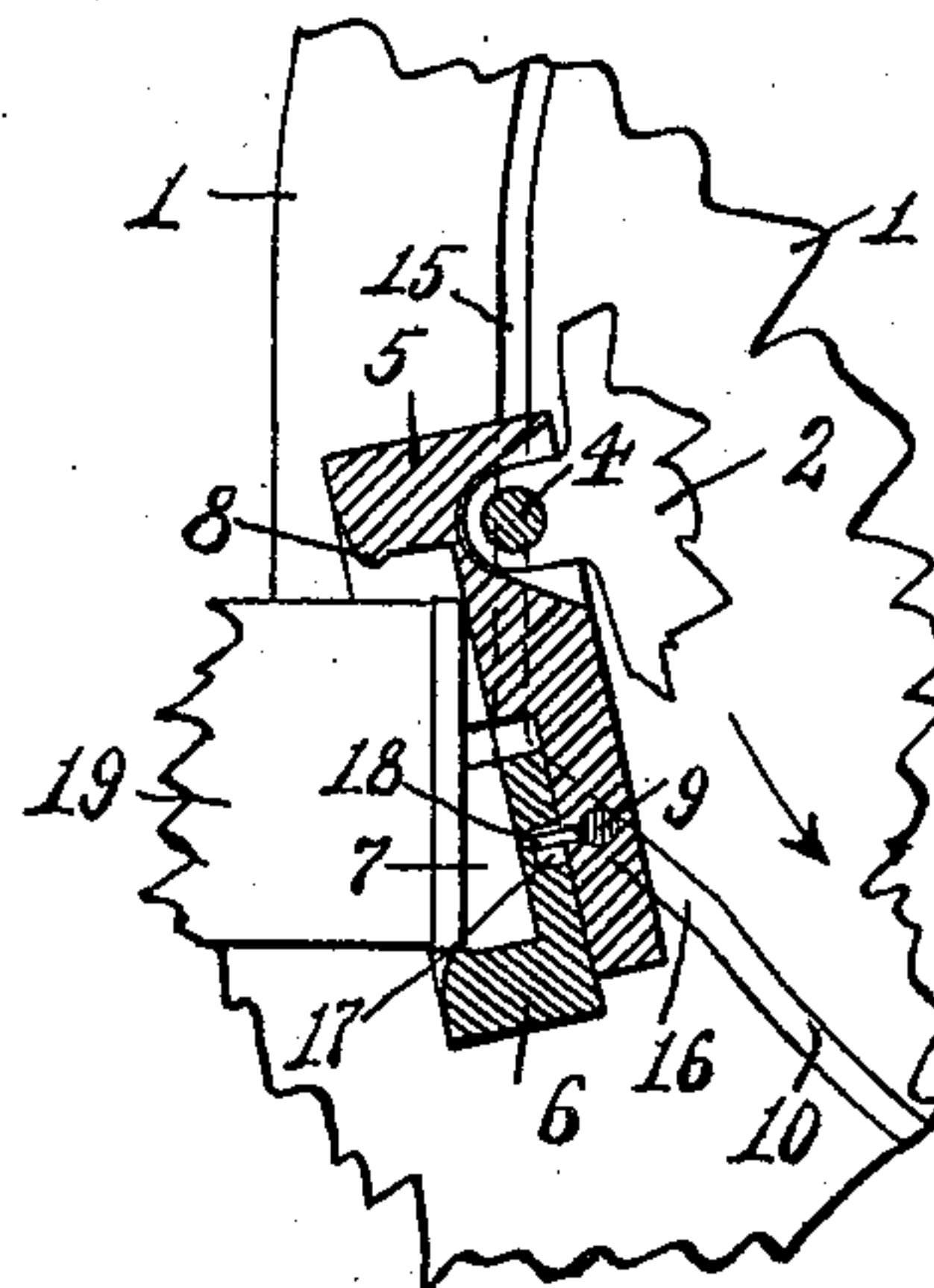


Fig. 5.

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JOHN B. FOOTE, OF HAMILTON, OHIO.

CAN-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 494,674, dated April 4, 1893.

Application filed October 15, 1892. Serial No. 449,180. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. FOOTE, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Can-Heading Machines, of which the following is a specification.

This invention pertains to improvements in machines for applying the tops and bottoms or heads to the bodies of cans in the process of manufacturing.

My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1, is a front elevation of a can heading machine exemplifying my present invention, interfering parts being broken away and one pair of the carriages appearing in vertical section in the plane of line "a" of other figures: Fig. 2, an end elevation of the same: Fig. 3, an elevation of the inner face of the frame portion showing one of the cams which controls the movement of the carriages: Fig. 4, a plan of one of the carriages, shown as open and in connection with portions of its cams, the cam portions appearing in section in the plane of line "b" of Fig. 3: Fig. 5, a front elevation of one of the carriages: Fig. 6, an end view of one of the carriages, shown in connection with cam portions appearing in vertical section in the plane of line "c" of other figures: and Fig. 7, a vertical longitudinal section of one of the carriages, in the plane of line "a" of other figures, shown in connection with portions of the disk which carries the carriages and the cam which controls its motions.

In the drawings:—1, indicates fixed frame parts consisting of a pair of vertically disposed parallel plates: 2, two disks mounted between these plates on horizontal shafts journaled in the plates, the two disks lying in the same vertical plane and having their contiguous peripheries a distance apart somewhat in excess of the length of the cam body to be dealt with: 3, gearing on the shafts of the disks whereby, when one of the disks is rotated by power the other disk will move with it at the same speed, the disks turning in the directions indicated by the arrows: 4, a series

of pivots carried by the disks, these pivots being parallel with the axes of the disks and being carried in lugs projecting outwardly from the disks, the entire office of the disks being to carry these pivots: 5, a carriage-base mounted on each pivot and consisting, in a general way, of a rectangular block lying tangential to the disk and united at one of its ends to the disk by its pivot 4, the other end of the block being therefore at liberty to move inward and outward from the disk: 6, a carriage section fitted to slide longitudinally in a dovetail in the carriage-base, this section joining the carriage-base in forming the rectangular block-like structure: 7, a circular recess in the face of each carriage, half the circle being in the carriage-base and half in the section 6, which latter section will be hereinafter termed the clamp-section, the diameter of this recess being, when the carriage is closed, accurately that of the exterior of the can-caps to be dealt with, and the depth of the recesses in the carriages being such that when two carriages, one on each disk, are in their position of nearest approach, as in Fig. 1, the distance from bottom to bottom of the recesses will be equal to the length of the headed cans: 8, circular lips projecting inwardly from the outer ends of the walls of the recesses 7, the inner diameter of these lips corresponding closely with the exterior diameter of the can bodies to be dealt with, and the distance from the lips to the bottoms of recesses 7 exceeding the flange depth of the caps to be dealt with: 9, a pin disposed across through each carriage-base 5, parallel with its pivot 4 and under its clamp-section 6, this pin being capable of endwise motion in the carriage-base: 10, cam grooves formed upon the inner faces of the plates 1, and engaged by the projecting ends of the pins 9, these cam grooves being, for the major part, concentric with the axes of the disks which carry the carriages: 11, a head upon one end of each of the pins 9, the cam-grooves in one of the frame plates engaged by this headed end of the pins 11 being a T-shaped cam groove, these T-shaped cam-grooves being, for the major part, in a plane parallel with the disks but having at certain parts, outward deflec-

tions which, when traversed by the pin-heads 11, will pull those pins endwise: 12 (Fig. 4), such deflection for giving endwise movement to the pins as they traverse the cam-grooves: 13 and 14 (Fig. 3) points in the cam grooves between which the sidewise deflections of the cam grooves must move the traversing pins 9 outward and again restore them to their normal position, as hereinafter described: 15 (Fig. 3), a curvature of the cam slots 10 outwardly from the circular line of the major portions of the slots: 16, return of the cam slots back to the circular portions: 17, a diagonal slot in the under surface of the clamp-section 6 of each carriage, this slot coming over its pin 9: 18, a pin projecting from each pin 9 up into its slot 17 in the clamp-section of the carriage, the arrangement being obviously such that if (Fig. 4) pin 11 be pulled to the left clamp section 6 of the carriage will be moved forcibly toward the base-section of the carriage and recess 7 be thus brought to a true circle: and 19, a can in position engaged by a pair of the carriages.

As the disks rotate it is obvious that the free ends of the carriages will swing inward and outward as controlled by the curvature of the cam grooves, and that the carriages will open and close the recesses 7 as controlled by the side deflections 12 of the cam grooves. During the major portion of the travel of the carriages they lie tangential to the axes of the disks 2 and they are open. Soon after reaching point 20 (Fig. 1) the carriages begin to close and soon the free ends of opposing carriages on the two disks swing toward each other till, when the carriages pass below the center of the disks, the two carriages are parallel with each other and closed, the carriages then promptly opening and promptly returning to their tangential positions. As the carriages pass inwardly at the tops of the disks the can-caps are dropped into them and the two caps of an opposing pair become carried toward each other and begin to assume positions tending toward parallelism to each other. The two carriages now close upon the caps which are thus neatly held in the bottoms of the recesses 7. As the opposing carriages approach each other, soon after passing point 20, a can-body is presented to them with an end resting on the lower portion of the lip 8 of each carriage, the distance between the carriages at this time being such that these lips come within the range of the length of a can-body. The can-body then descends with the carriages and its ends enter the recesses 7, the circumference of the can-body being engaged by the lips 8 which round up the can-body nicely and center it exactly with the can-caps in the recesses of the carriages. In this condition the parts pass downwardly, the cam-grooves bringing the two carriages parallel with each other whereby the can-caps are brought fairly and squarely and fully onto the ends of the can-

body. The parts continue their motion downwardly under these parallel conditions of the two carriages until the carriages open and release the can-body and can-caps from the grasping action of the carriages. Then the free ends of the carriages move away from each other and assume their normal tangential position and the headed can becomes freed from the carriages as the carriages separate.

The cans may be fed to the carriages by hand or, if desired, the machine may be provided with a self-feeding device for presenting the bodies to the machine, such a device, for instance, as is shown in my patent No. 465,018 of December 15, 1891.

Power to rotate the disks may be applied in any suitable manner, as by means of a pulley on the shaft of one of the disks, and the speed of the machine need only be limited by the ability of attendants to place the can-caps in the carriages if hand feed is depended upon.

I claim as my invention—

1. In a can-heading machine, the combination, substantially as set forth, of two carriages, each formed of two sections and provided with a lipped facial recess, a support for each of said carriages, a pivot uniting each carriage to its support, and mechanism, substantially as described, for moving one of said supports toward the other and tipping the carriages on their pivots and opening and closing the carriage-recesses.

2. A can-heading machine comprising a carriage-base, a clamp-section fitted thereto, a lipped recess being formed in the face of the carriage thus formed, a pivot uniting the carriage to a movable support, and mechanism for opening and closing and tipping the carriage and moving its pivot-support, substantially as and for the purpose set forth.

3. In a can-heading machine, the combination substantially as set forth, of two rotary disks disposed with their peripheries opposite, a series of carriages carried by said disks and provided with lipped facial recesses, carriage-sections movable to permit the opening and closing of the recesses, and cams to open and close the carriages as the disks rotate.

4. In a can-heading machine, the combination, substantially as set forth, of two rotary disks with peripheries opposing, carriages pivoted thereto and having lipped facial recesses, carriage sections to permit the opening and closing of said recesses, and cams to open and close and tip the carriages as the disks rotate.

5. In a can-heading machine, the combination, substantially as set forth, of two rotary disks, cam-plates at the side thereof with continuous cam-tracks having radial and sidewise deflections from normal circles, carriage-bases pivoted to the disks, a pin in each carriage-base engaging said cam-tracks,

a clamp-section to each carriage-base, a lipped facial recess being formed in each carriage, and a pin projecting from each of said first-mentioned pins into engagement with a diagonal slot formed in its appropriate clamp-section.

6. In a can-heading machine, the combination, of two cap-clamping carriages arranged, substantially as set forth, to move toward

each other in circular paths and open upon to reaching positions of nearest approach, the carriages being provided with lipped facial recesses.

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