

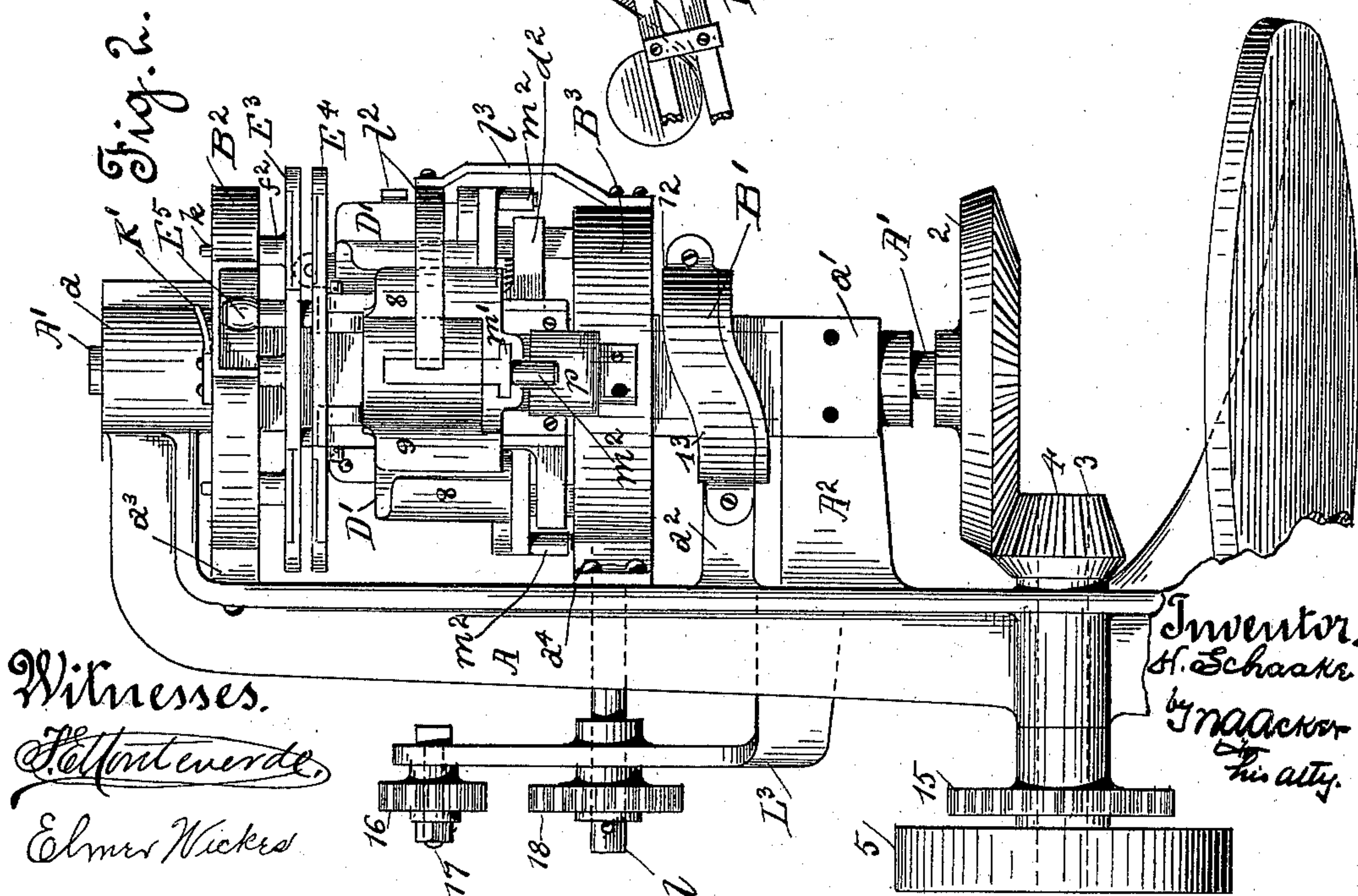
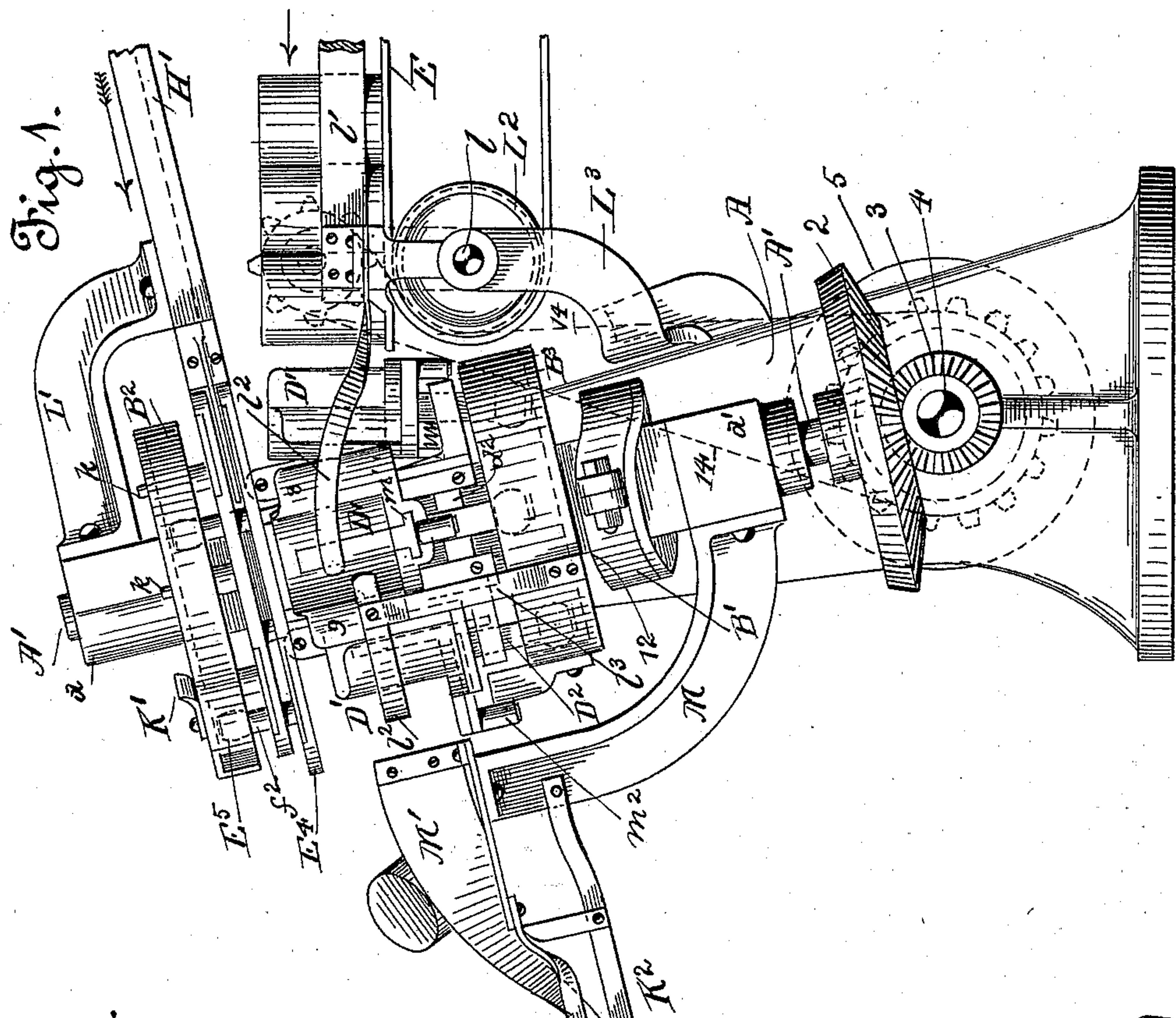
(No Model.)

3 Sheets—Sheet 1

H. SCHAAKE.
CAN ENDING OR HEADING MACHINE.

No. 605,189.

Patented June 7, 1898.



Witnesses.
J. H. F. F. F. F. F.
Elmer Wickes

Inventor.
H. Schacke
by J. H. F. F. F. F.
his atty.

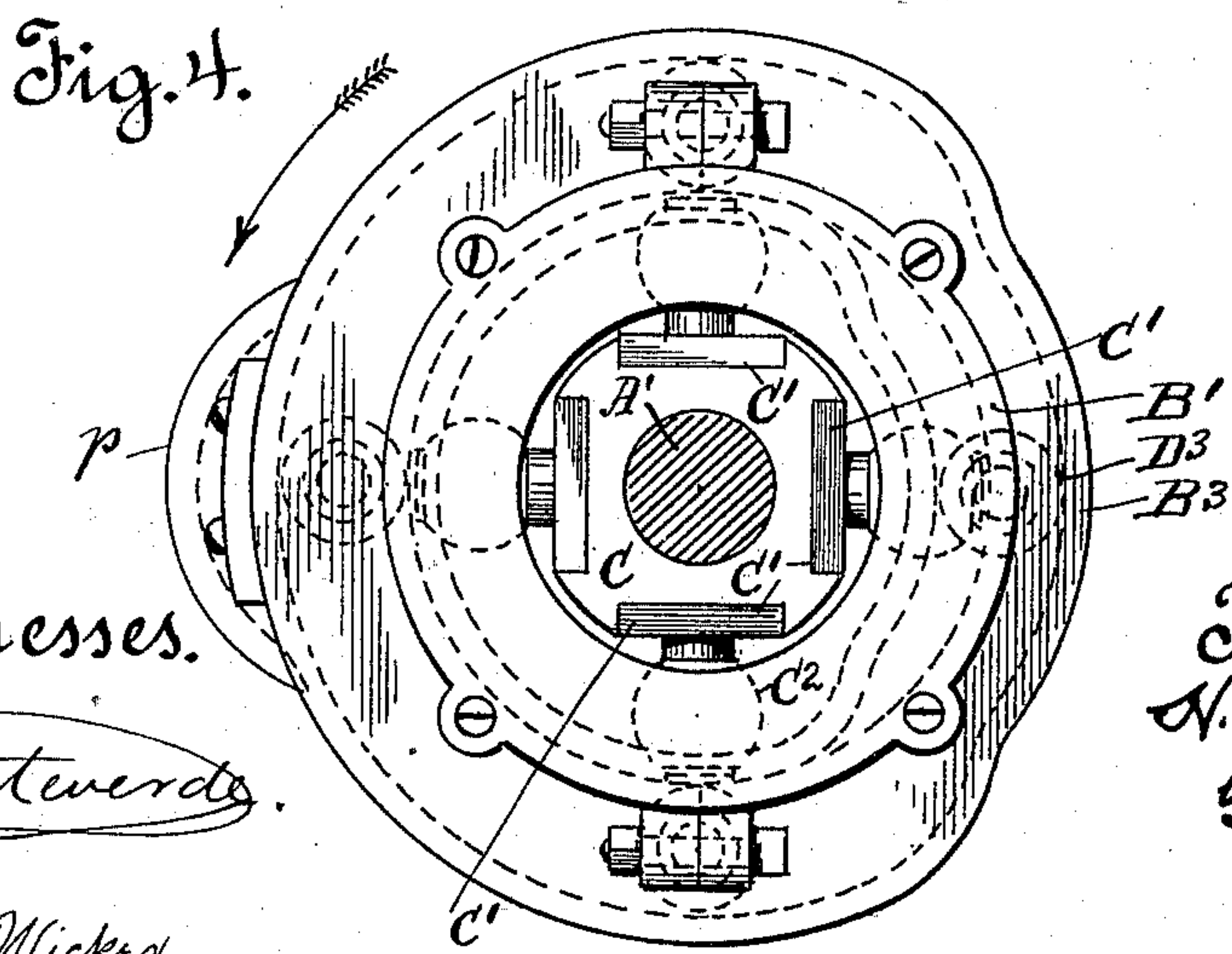
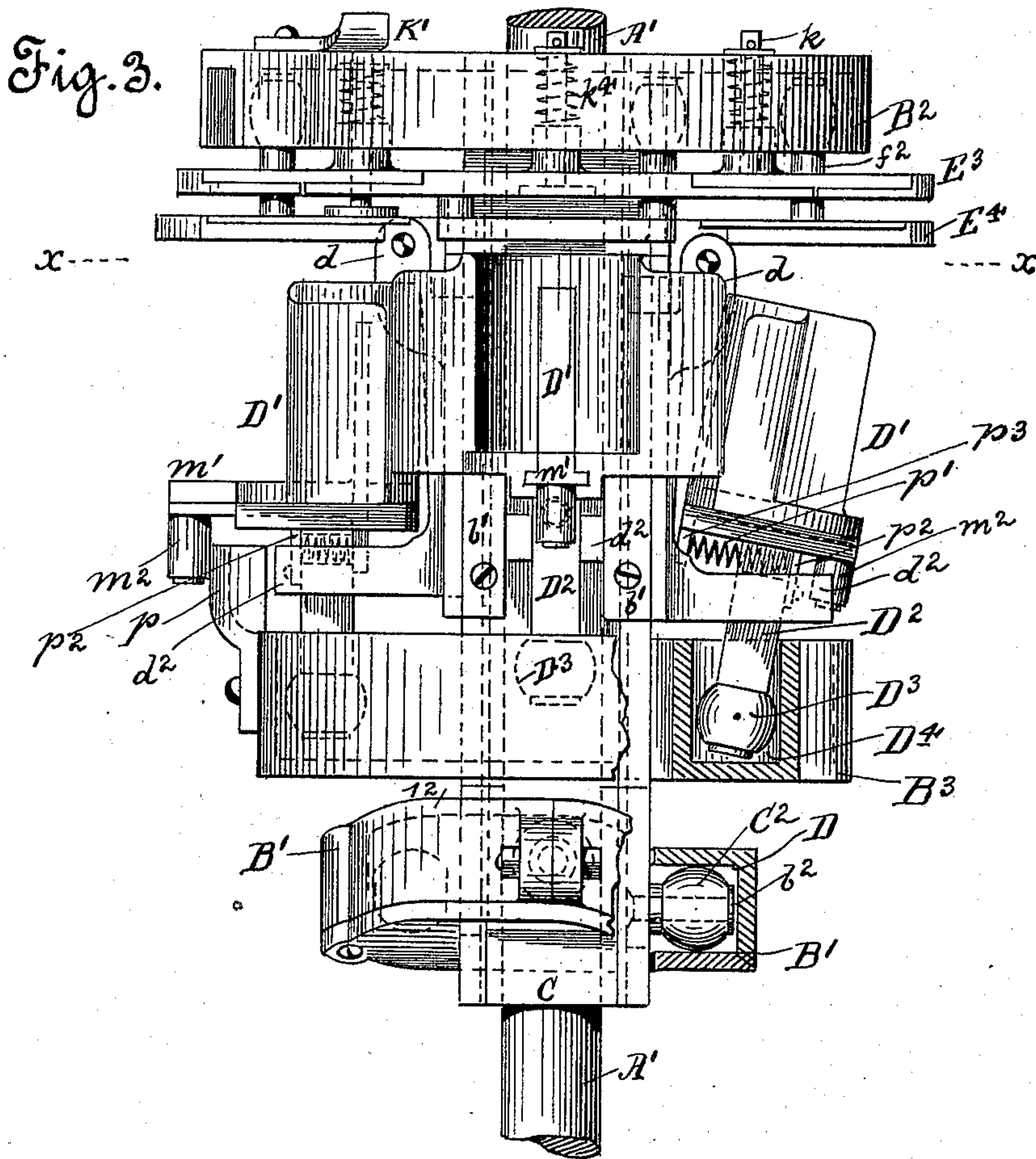
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H. Montwerde

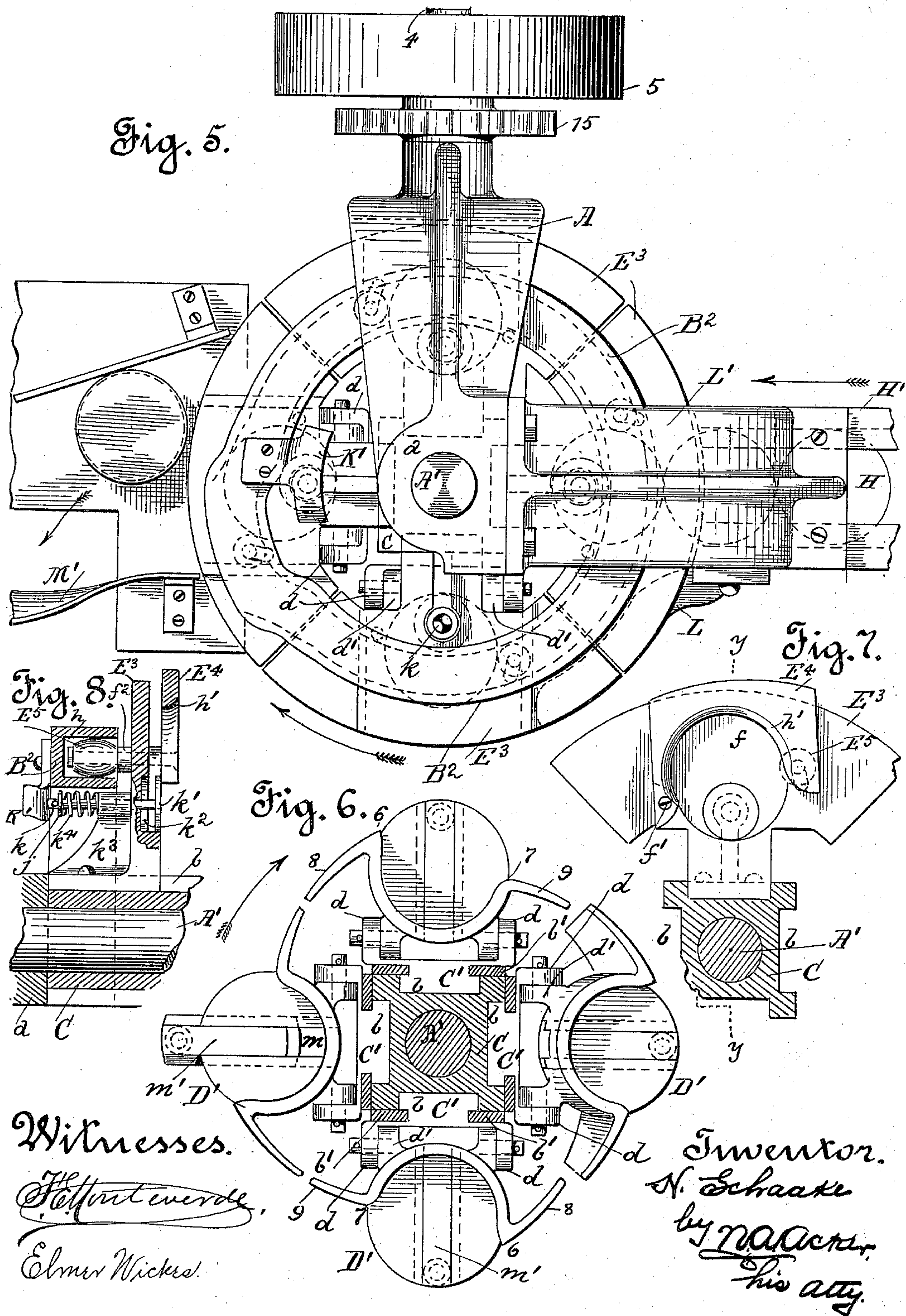
Edmer Wickes

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H. Schake
by *N. Acker*
This atty.

3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

HENRY SCHAAKE, OF NEW WESTMINSTER, CANADA.

CAN ENDING OR HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 605,189, dated June 7, 1898.

Application filed October 27, 1897. Serial No. 656,541. (No model.)

To all whom it may concern:

Be it known that I, HENRY SCHAAKE, a citizen of the United States, residing at New Westminster, in the Province of British Columbia, Dominion of Canada, have invented certain new and useful Improvements in Can Ending or Heading Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to a certain new and useful can ending or heading machine for use in canneries or packing establishments; and it consists in the arrangement of parts and details of construction, as will be hereinafter fully set forth in the drawings and described and pointed out in the specification.

The invention is designed more especially for use in the ending or heading of what are known as "filled" cans or those which have been packed with fish or other articles; and the object thereof is to provide a simple, effective, and inexpensive machine for the successful heading or ending of the filled can.

In order to comprehend the invention, reference must be had to the accompanying sheets of drawings, wherein—

Figure 1 is a side view in elevation of the machine. Fig. 2 is a front view in elevation of the machine, the discharge-chute or runway for the headed can and its supporting-bracket being broken away. Fig. 3 is a broken detail view in side elevation. Fig. 4 is a bottom plan view. Fig. 5 is a top plan view of the mechanism illustrated by Fig. 1. Fig. 6 is a cross-sectional top plan view taken on the line xx , Fig. 3. Fig. 7 is a detail bottom plan view of one of the can head or end holding devices; and Fig. 8 is a vertical sectional end view of one of the can head or end holding devices, taken on line yy , Fig. 7.

In the drawings the letter A is used to indicate the supporting-standard, which is united to any suitable base. By preference the supporting-standard and base are cast integral, and the said standard is set at an incline or out of vertical line, the upper end of the standard being inwardly curved and terminating in a bearing a . Near the lower end of the standard is attached the bracket A^2 , which carries the bearing a' . In the bearings a a' works the vertical shaft A' , which shaft at its lower end carries the bevel-gear

2, which meshes with the pinion 3 of the horizontal drive-shaft 4. This drive-shaft works in suitable bearings and has secured thereon the belt-wheel 5, being driven by means of a belt (not shown) working over the belt-wheel 5.

To a bracket a^2 , inwardly projecting from the supporting-standard A, Fig. 2, is fastened the eccentric cam-ring B' , and to a similar bracket a^3 is bolted or otherwise secured the eccentric cam-ring B^2 , while between these cam-rings is located the cam-ring B^3 , which is bolted or otherwise secured to the projection a^4 . These cam-rings surround the drive-shaft, as shown.

Upon the vertical shaft A' is secured the square hub C. Within each face of the hub in the present case are cut the vertical guide-channels b . In these guide-channels work the slide-plates C' , said slide-plates being held in vertical position by means of the plates b' , secured to the edges of the hub C, Fig. 6. At the lower end of each slide-plate is secured upon the pin or stud b^2 , outwardly projecting therefrom, the roll C^2 , which rolls during the rotary movement of the hub C travel within the eccentric groove D of the cam-ring B' in order to raise and lower the slide-plates. Between the arms d , projecting slightly outwardly from the upper end of each slide-plate C' , is fulcrumed the ear d' of the can-holder D' . From the lower end or bottom of each can-holder projects the arm D^2 , to the free end of which is secured the roll D^3 . This roll travels or works within the eccentric groove D^4 , cut in the cam-ring B^3 , so as to move the can-holder D' in and out during the rotary movement of the hub C. The arm D^2 works between the guide-ears d^2 , outwardly projecting from each slide-plate C' , Fig. 1.

Each can-holder is semicircular or cup-shaped, the edge or side 6 extending beyond the edge or side 7, Fig. 6, and the edge 6 terminates in a rearwardly-extending inclined flange 8, while the edge 7 terminates in a forwardly-inclined flange 9. The flange 8 and the flange 9 approach within a short distance of each other and serve as guards to prevent the cans entering between the can-holders while the said holders approach the feed-belt or conveyer E, which conveys the can E' toward the heading or ending machine.

To the hub C, immediately below the cam-ring B², Figs. 2 and 8, are secured the can-head-holding plates E³. These plates are cut away on their inner or under face, so as to form a can-head seat *f*. The plates E³ serve as the stationary portion of the can-head holders, and to each plate is movably secured by pin *f*' the face-plate E⁴. Each face-plate at its free end is provided with an upwardly-projecting arm *f*², to the outer end of which is secured the roll E⁵. The arm *f*² works in a cut through the plates E³, (shown in dotted lines, Fig. 5,) and the roll E⁵, secured to the outer end thereof, rides or works within the eccentric groove *h*, cut in the under face of the cam-ring B², as the can-head holder is carried around by the rotation of the hub C. As the roll E⁵ moves or travels within the eccentric groove *h* the movable face-plate E⁴ of the can-head holder is moved inwardly and outwardly. Each face-plate E⁴ is cut away centrally, and the outer face or edge of the cut-away portion is chamfered, as shown at *h*', Fig. 7, so as to permit the upper edge of the can-body to be gradually forced within the flange of the can-head retained within the seat *f*. The can head or end H as delivered from the feed-chute or runway H' moves between the plate E³ and the movable face-plate E⁴ into the can-head seat *f*, being held in place by the said movable face-plate, which when closed encircles at least one-half of the can-head flange. The can-head is thus held in place and prevented from moving from within its seat until the face-plate E⁴ is swung outward in order to give clearance to the can-head.

During the operation of heading, topping, or ending the filled cans the can-holders approach the conveyer or feed-belt with the upper end portion thereof outwardly inclined. As carried past the lower end of the conveyer or feed-belt E the projecting edge *g* of the holder serves as a finger which engages the can and gradually removes the same from off the conveyer or feed-belt into the can-holder. The endless conveyer or feed-belt traveling with greater rapidity than the can-holder, it is apparent that ample time is given in which to remove the can and place the same within the holder. The bottom of the can-holder is a slight distance below the level of the conveyer or feed-belt. Consequently the cans will be tilted into the holders. The moment the filled can has been placed within the holder the roll C² of the slide-plate C' is carried within the upwardly-inclined portion 12 of the eccentric groove of the cam-ring B' and forces the slide-plate C' upwardly or toward the cam-ring B² in order to place the inner edge of the can-body projecting beyond the open end of the can-body holder within the inner portion of the flange of the can-head held within the can-head holder. As the can-holder is carried by the upward movement of the slide-plate toward the can-head flange the roll D³, secured to the arm D², projecting

from the bottom of the can-body holder, moves within the outwardly-inclined portion of the eccentric groove of the cam-ring B³. During the travel of the roll D³ within this portion of the eccentric groove the can-holder is gradually thrown from an inclined to a vertical position, so as to gradually force the entire circumference of the can within the flange of the retained can-head, being guided therein by the chamfered edge of the movable portion of the face-plate E⁴ of the can-head holder. After the end of the can has been headed or the end placed thereon the roll E⁵, connected to the face-plate E⁴, moves within the outwardly-inclined portion of the eccentric groove of the cam-ring B² and swings the free end of the movable face-plate E⁴ outward, so as to release the headed can-body, which is forced from within the can-head holder by means of the plunger-rod *k*. The head *k*' of this plunger-rod rests within the socket *k*², cut in the plate E³, the rod working through the bracket *k*³ and an opening through the plate E³, Fig. 8. This plunger-rod is held upward, so as to maintain the plunger-head in its seat, by the spring *k*⁴, which spring surrounds the plunger-rod and is interposed between the bracket *k*³ and the collar *j*, secured to the said rod. As the can-head holder is carried around the plunger-rod moves therewith. During the rotation of the mechanism the free end of the plunger-rod moves under the inclined cam-plate K', secured to the cam-ring B², and is gradually forced downward, the plunger-head, bearing against the headed end of the can, gradually forcing the end of the can from within the can-head holder. The can as discharged from the machine enters within the discharge-runway K².

The can-head chute or runway is set at an incline, so that the head moves down by gravity, and as the heading-machine is set at an angle or inclination no mechanism is required to place the can-heads in the can-head seats. To insure the said heads moving the full distance within the can-head seats prior to the cans being elevated, there is attached to the can-head chute or runway the curved arm L, which arm fits between the plates E³ and the movable face-plate E⁴. As the can-head is carried around this arm gradually forces the same the full distance within its seat. The lower end of the can-head feed-chute or runway is supported by the bracket L', which projects from the bearing *a*, Fig. 1.

The axle *l* of the lower end roll L² of the can-conveyer or feed-belt E works in bearing of the bracket L³, upwardly projecting from the standard A. This bracket also supports the guard-rail *l*' at the lower end of the can-conveyer or feed-chute, which prevents the cans falling off of the said conveyer or feed-belt while being fed into the can-holders. By means of the curved straps or bands *l*², one of which projects from the lower end of the guard-rail *l*', Fig. 1, while the other

strap or band is secured to and projects from the bracket l^3 , upwardly projecting from the cam-ring B^2 , Fig. 2, the cans are prevented from accidentally slipping or falling out of the can-holders.

As the plunger-rod k is moved downward to force the can-head from within its seat the roll C^2 of the slide-plate rides upon the downwardly-inclined portion 13 of the eccentric groove of the cam-ring B' , so as to lower the said slide-plate and place the can-holder carrying the headed can in line with the discharge chute or runway K^2 .

In the bottom of each can-holder is cut a groove m , within which fits the angle-plate m' , Figs. 1, 2, 3, and 6. This plate acts as an extracting device for removing the headed can from within the can-holders as they reach the discharge chute or runway. To the forward end of this angle-plate is attached the depending roll m^2 . This roll as the holders approach the discharge chute or runway rides upon the outer face of the inclined cam-plate p and gradually draws the angle-plate or extracting device outward. As thus moved the said angle-plate or extracting device forces the headed can from within the can-holder into the discharge chute or runway. The moment the roll m^2 moves off the cam-plate the pressure of the compressed spring p' forces the angle-plate or extracting device inward. This spring is attached to a stud p^2 , downwardly projecting from the can-holder, and a downward extension p^3 of the angle-plate or extracting device, Fig. 3.

By preference the upper end of the discharge-runway is supported by a curved bracket M , upwardly projecting from the bearing a' . The headed cans as delivered to the discharge chute or runway are thrown from a vertical into a horizontal position by means of the deflecting-plate M' , Fig. 1.

The axle l of the roll L^2 of the can-conveyer or feed-belt is driven from the drive-shaft 4 by means of the sprocket-chain 14. This chain works over sprocket-wheel 15, secured upon the drive-shaft 4, and over sprocket-wheel 16, mounted upon the short shaft 17, Figs. 1 and 2. The sprocket-chains also engage with the sprocket-wheel 18, mounted upon the axle l , and thus impart motion to said axle and roll L^2 . The drive mechanism is so regulated that the conveyer or feed-belt E travels somewhat faster than the rotation of the heading-machine. This is necessary in order to insure the cans being safely deposited in the can-holders prior to the holders being carried past the can-conveyer or belt.

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

1. In a machine for heading or ending filled cans, the combination with the rotating shaft, of the hub fastened thereon, the vertical can-holders, the can-head holders, of mechanism for placing the filled cans in the holders in a vertical position and of devices for moving the

can-holders toward the can-head holders in order to place the inner edge of the can within the inner portion of the flange of the retained can-head and throwing the can-holders from an inclined position into a vertical position, so as to force the entire circumference of the can-body within the flange of the can-head.

2. In a machine for heading filled cans, the combination with the rotary shaft, of the hub fastened thereto, the vertical slide-plates working within guide-channels in the hub, the can-holders fulcrumed at one end to the slide-plates, the can-head holders connected to the rotary shaft, of devices for imparting a vertical reciprocating movement to the slide-plates so as to move the can-holders toward and from the can-head holders, and of devices for throwing the can-holders from an inclined to a vertical position so as to force the entire circumference of the can within the flange of the retained can-head.

3. In a machine for heading cans, the combination with the rotary shaft, of the can-head holders connected therewith, the vertically-movable slide-plates carried by the rotary shaft, the can-holders fulcrumed to the slide-plates, devices for imparting a vertical movement to the slide-plates to raise and lower the can-holders, and of the device for forcing the headed or ended can from within the can-holders.

4. In a machine for heading cans, the combination with the rotary shaft, of the can-head holders connected to and carried by said shaft, the movable face-plate hinged to the stationary section of the can-head holder, devices for throwing the movable face-plate inward and outward in order to lock and release the can-head, and of the plunger-rod for forcing the headed can-body from within the can-head holder.

5. In a machine for heading cans, the combination with the vertically-movable slide-plates, of the can-holders fulcrumed thereto, the can-head holders, of mechanism for moving the slide-plates toward and from the can-head holders, and of devices for throwing the can-holders from an inclined to a vertical position.

6. In a machine for heading cans, the combination with the vertically-movable slide-plates, of the can-holders fulcrumed at one end to the slide-plates, the can-head holders, mechanism for moving the slide-plates toward and from the can-head holders and moving the can-holders from an inclined to a vertical position, and of devices for forcing the headed can from within the can-holder.

7. In a heading-machine for cans, the combination with the rotary shaft, of a series of cam-rings, each having an eccentric groove therein, the hub fastened upon the rotating shaft, vertically-movable slide-plates working within a guide-channel formed in the hub of the rotating shaft, a roll connected to the slide-plates, the can-holder fulcrumed at one end to the slide-plates, a roll secured to an

arm projecting from the can-holder, the roll of the can-holder and slide-plate working in eccentric grooves, the can-head holder connected to the rotating shaft, the movable face-plate secured thereto, the roll secured to an arm projecting from the movable face-plate, a cam-ring having an eccentric groove therein within which the said roll works, and of devices for forcing the headed end of the can from within the can-head holder and the can from within the can-holder.

8. The combination with the fulcrumed can-holders, of mechanism for throwing the can-holders from an inclined to a vertical position, of the can-extracting device working within the can-holders and of devices for moving the extracting device in and out of the said can-holder.

9. The combination with the rotating shaft, of the can-head holders carried thereby, the movable can-holders, mechanism for imparting rotary motion to the said shaft, the can-conveyer or feed-belt which delivers filled cans to the holders, mechanism for driving the conveyer or feed-belt at a higher speed than the rotating shaft, and of devices for moving the can-holder toward and from the can-head holders.

10. The combination with the rotating shaft, of the can-head holders secured thereto, the fulcrumed can-holders, devices for imparting vertical movement to the can-holders, mechanism for delivering filled cans to the can-

holders in a vertical position, and of devices for retaining the cans in the can-holders during the heading operation.

11. In a machine for ending or heading cans, the combination with the rotating shaft, of the vertical can-holders secured to and carried thereby, the can-head holders carried by the shaft, devices for moving the can-holders toward and from the can-head holders, the can-conveyer or feed-belt which delivers cans to the can-holders during the rotary travel thereof, and of mechanism for imparting greater speed to the conveyer or feed-belt than to the rotary shaft carrying the can and can-head holders.

12. In a machine for ending or heading cans, the combination with the rotary traveling mechanism carrying can-holders, and can-head holders, of devices for moving can-holders toward and from the can-head holders, during the travel of the rotary traveling mechanism, and of the can-conveyer or feed-belt for delivering the cans to the can-holders in a vertical position, said conveyer or feed-belt traveling at a greater speed than that of the can-holders.

In testimony whereof I affix my signature, in presence of two witnesses, this 12th day of October, 1897.

HENRY SCHAAKE.

Witnesses:

N. A. ACKER,
ELMER WICKES.