(No Model.) 5 Sheets—Sheet 1.

H. SCHAAKE.

CAN HEADING MACHINE.

No. 540,366. Patented June 4, 1895.

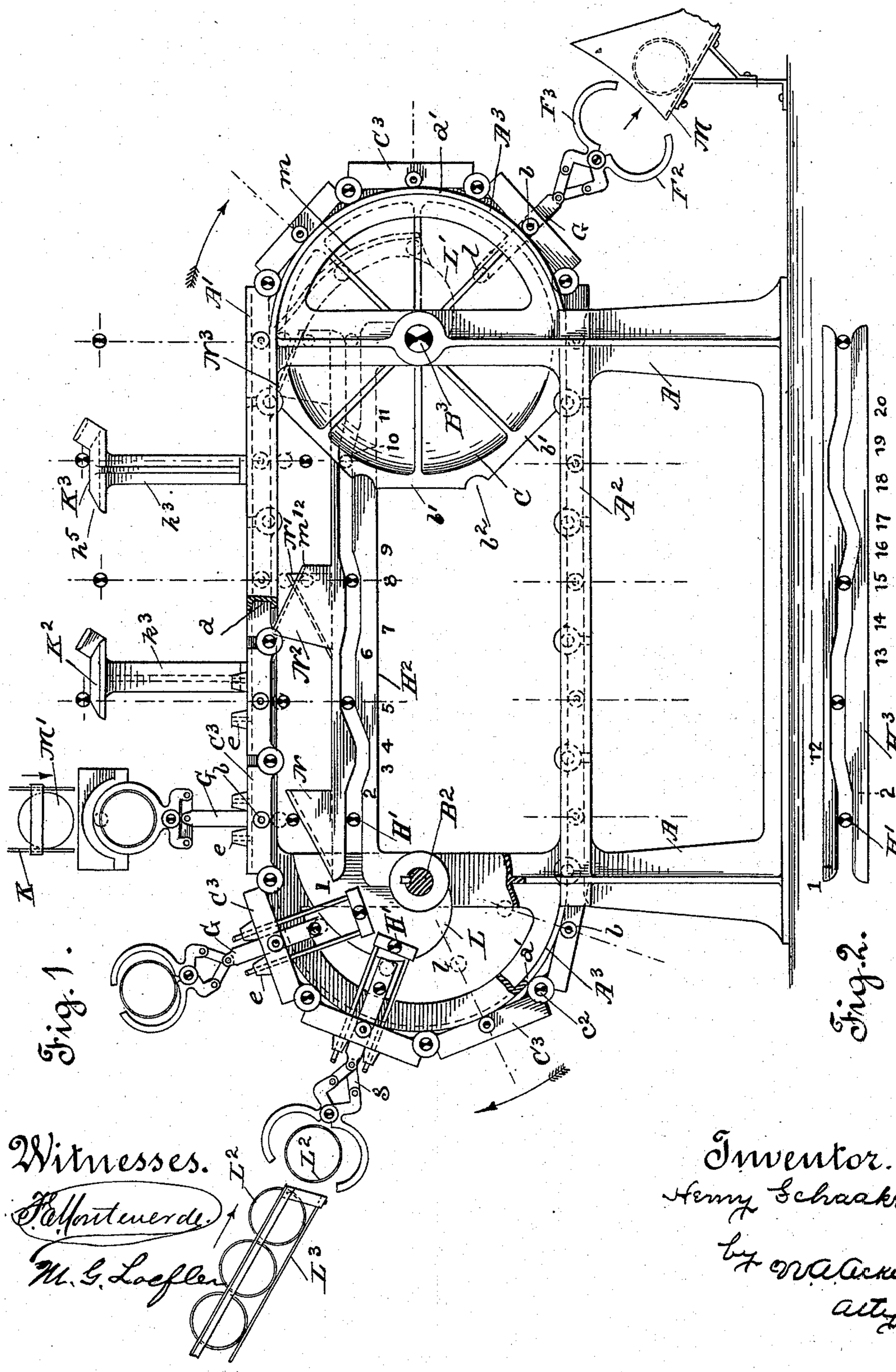

Fig. 1.

Fig. 2.

Witnesses.

F. Hoffmeyer

W. G. Loeffler

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by Wm. Acker

atty

(No Model.) 5 Sheets—Sheet 2.

H. SCHAAKE.

CAN HEADING MACHINE.

No. 540,366. Patented June 4, 1895.

Fig. 3.

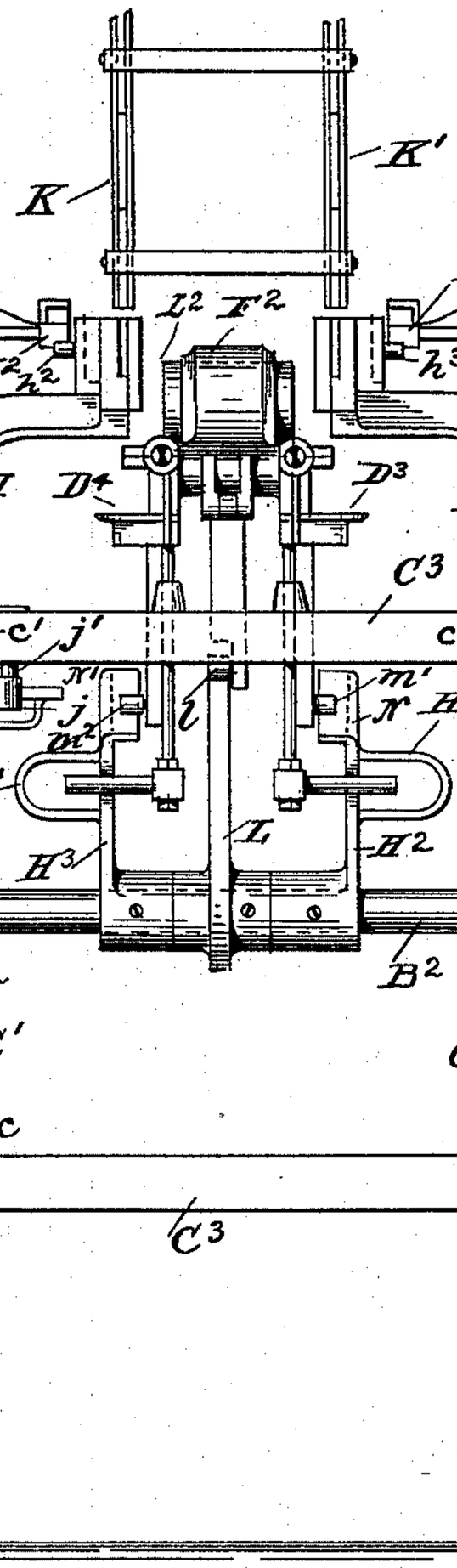


Fig. 4.

Witnesses.

F. Montenerde.

M. G. Loefler

Fig. 12.

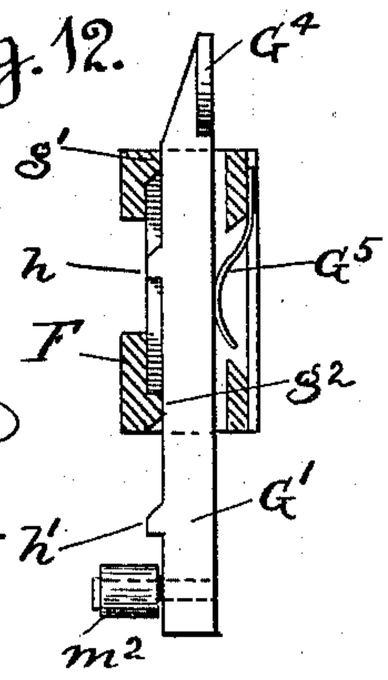
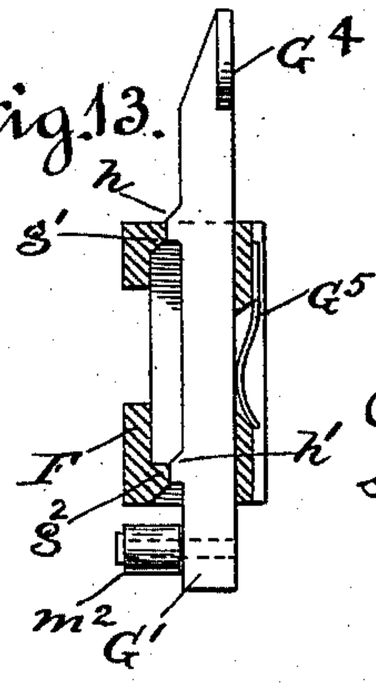


Fig. 13.



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(No Model.) 5 Sheets—Sheet 3.

H. SCHAAKE.

CAN HEADING MACHINE.

No. 540,366. Patented June 4, 1895.

Fig. 5.

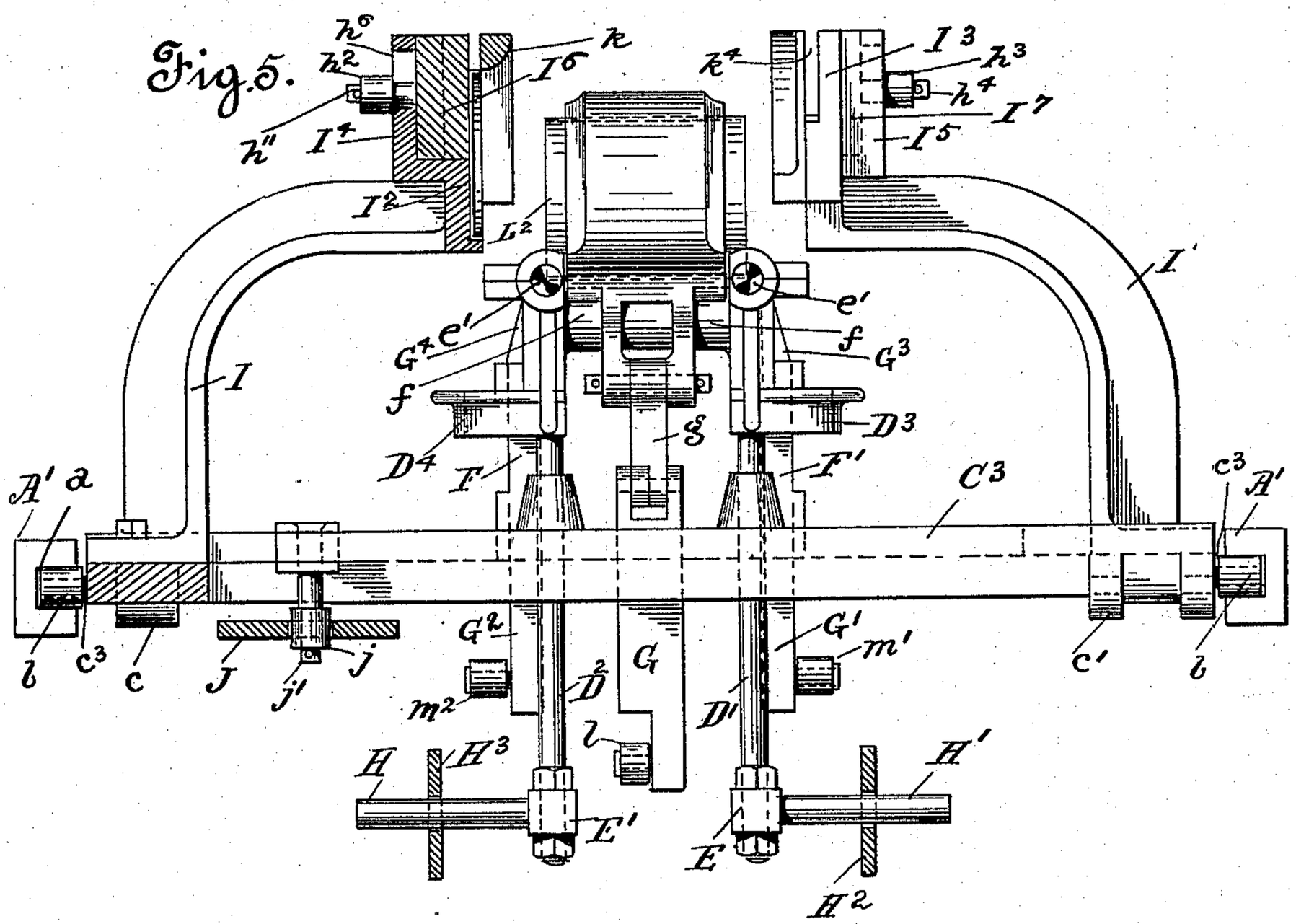
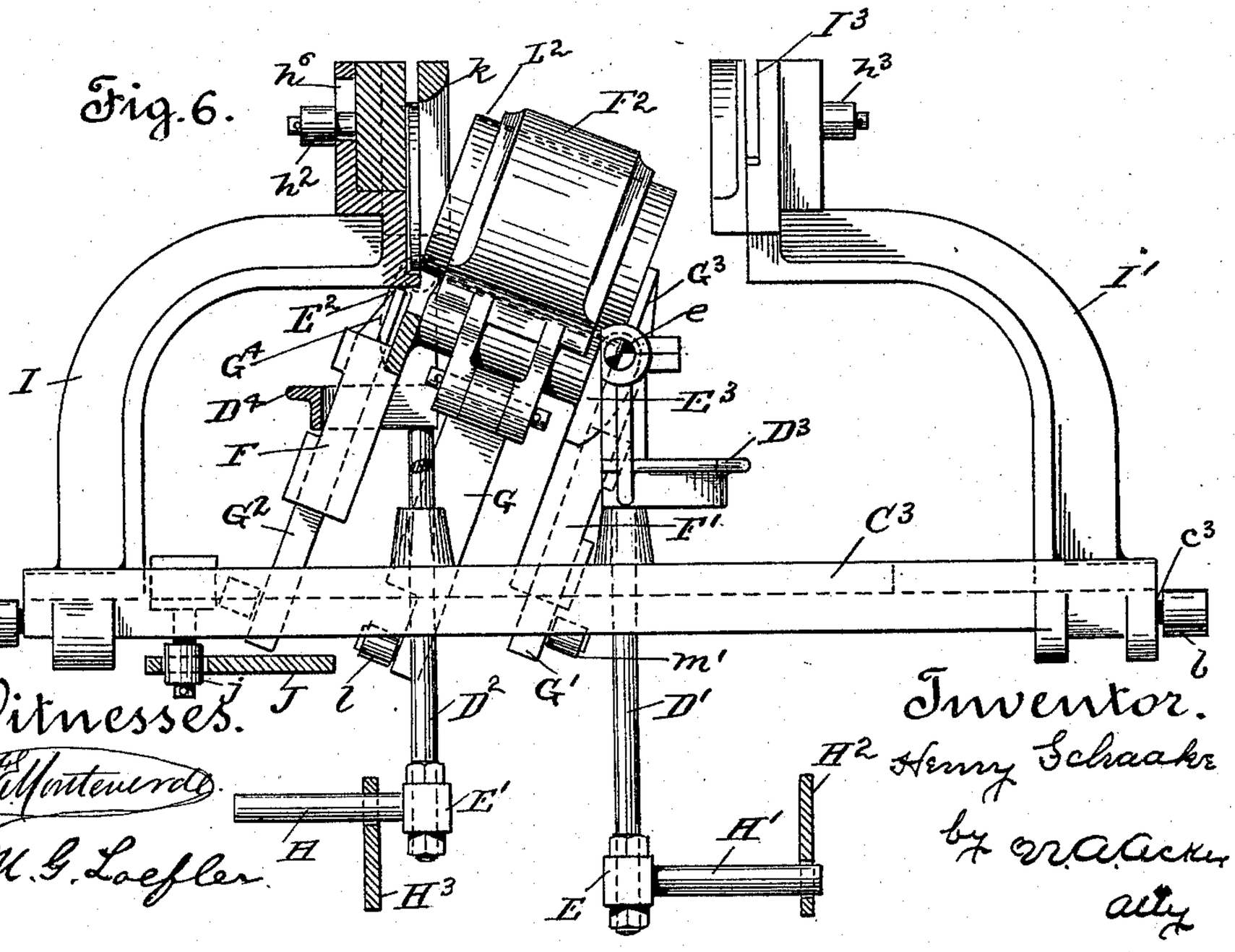


Fig. 6.



Witnesses.

H. Montenorde.

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H. SCHAAKE.

CAN HEADING MACHINE.

No. 540,366. Patented June 4, 1895.

Fig. 7.

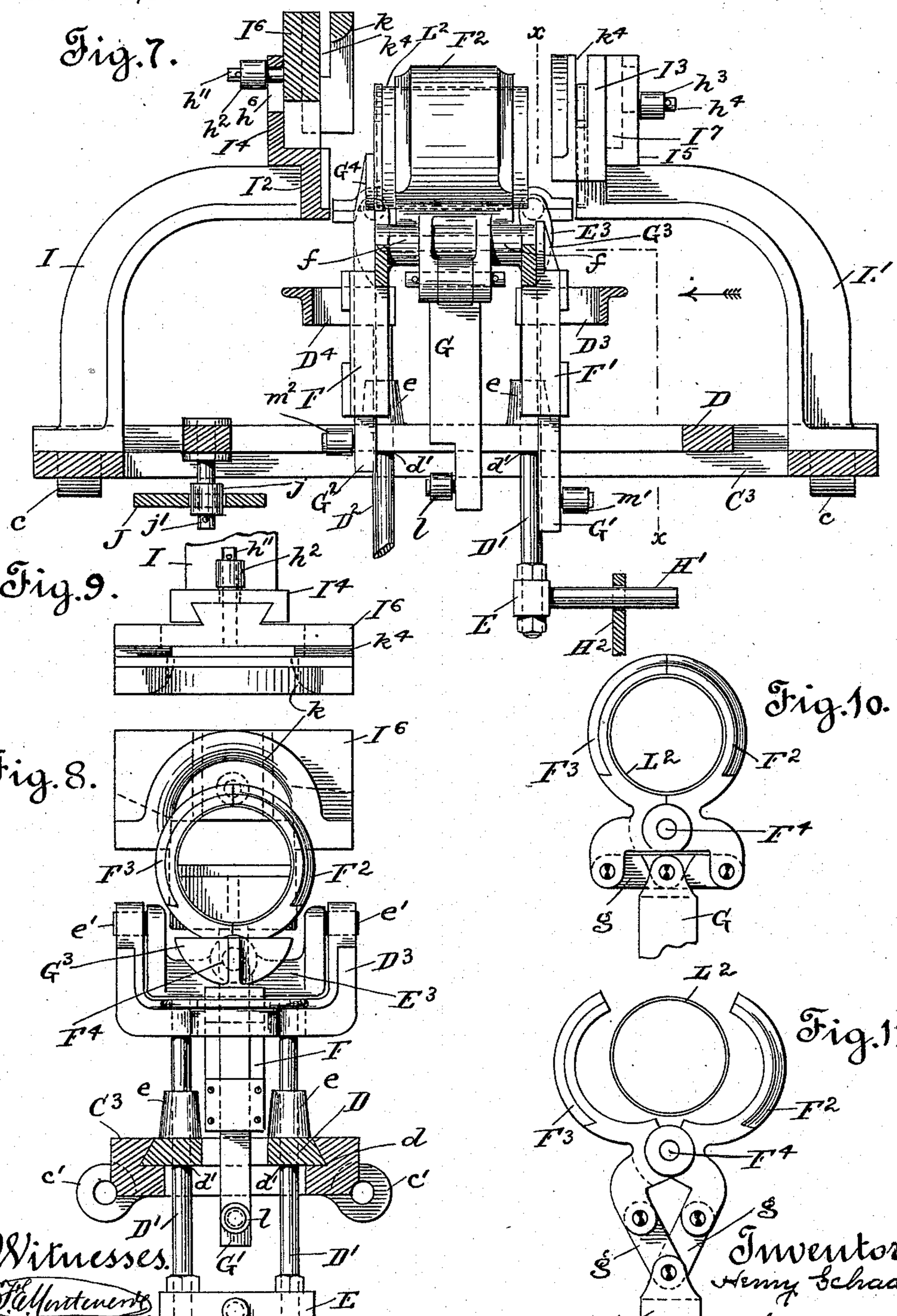

Fig. 9.

Fig. 8.

Fig. 10.

Fig. 11.

Witnesses.
F. L. Montenero
M. G. Lacfler

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by Wm. Wacker
Atty

(No Model.) 5 Sheets—Sheet 5.

H. SCHAAKE.

CAN HEADING MACHINE.

No. 540,366. Patented June 4, 1895.

Fig. 14.

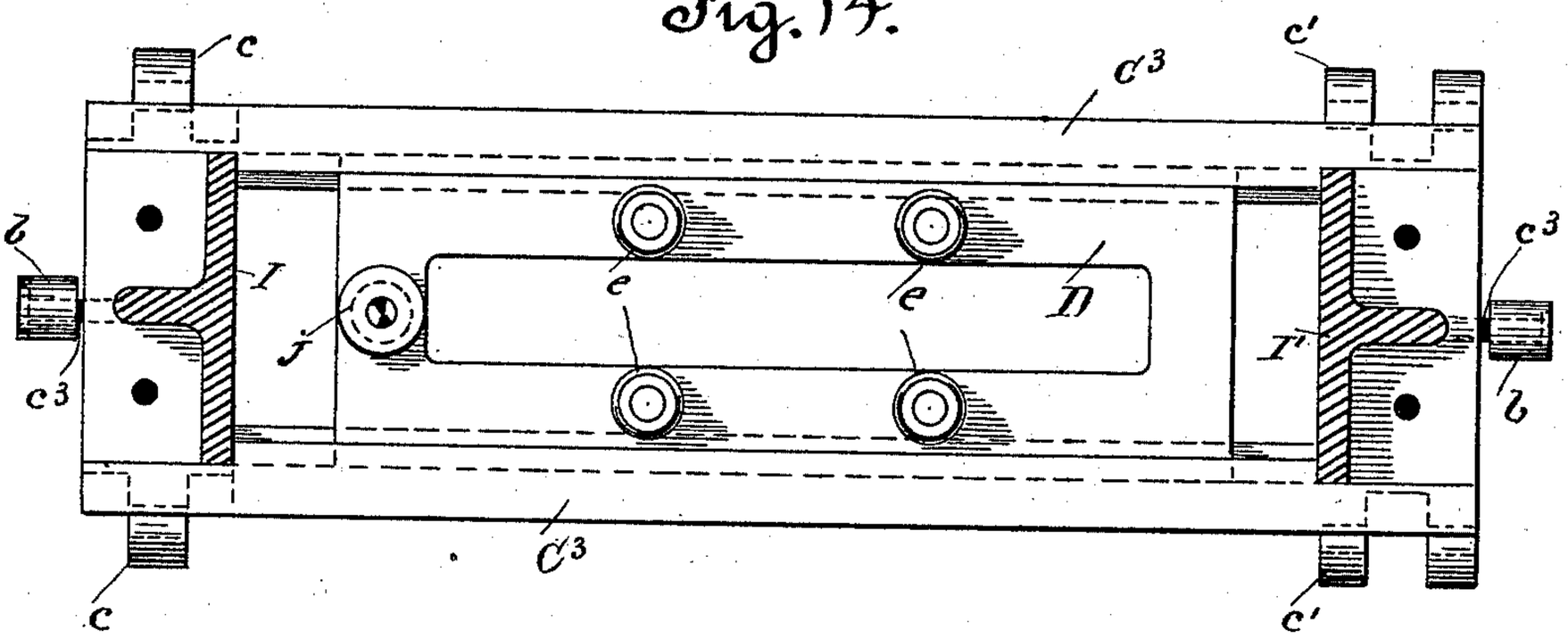

Fig. 15.

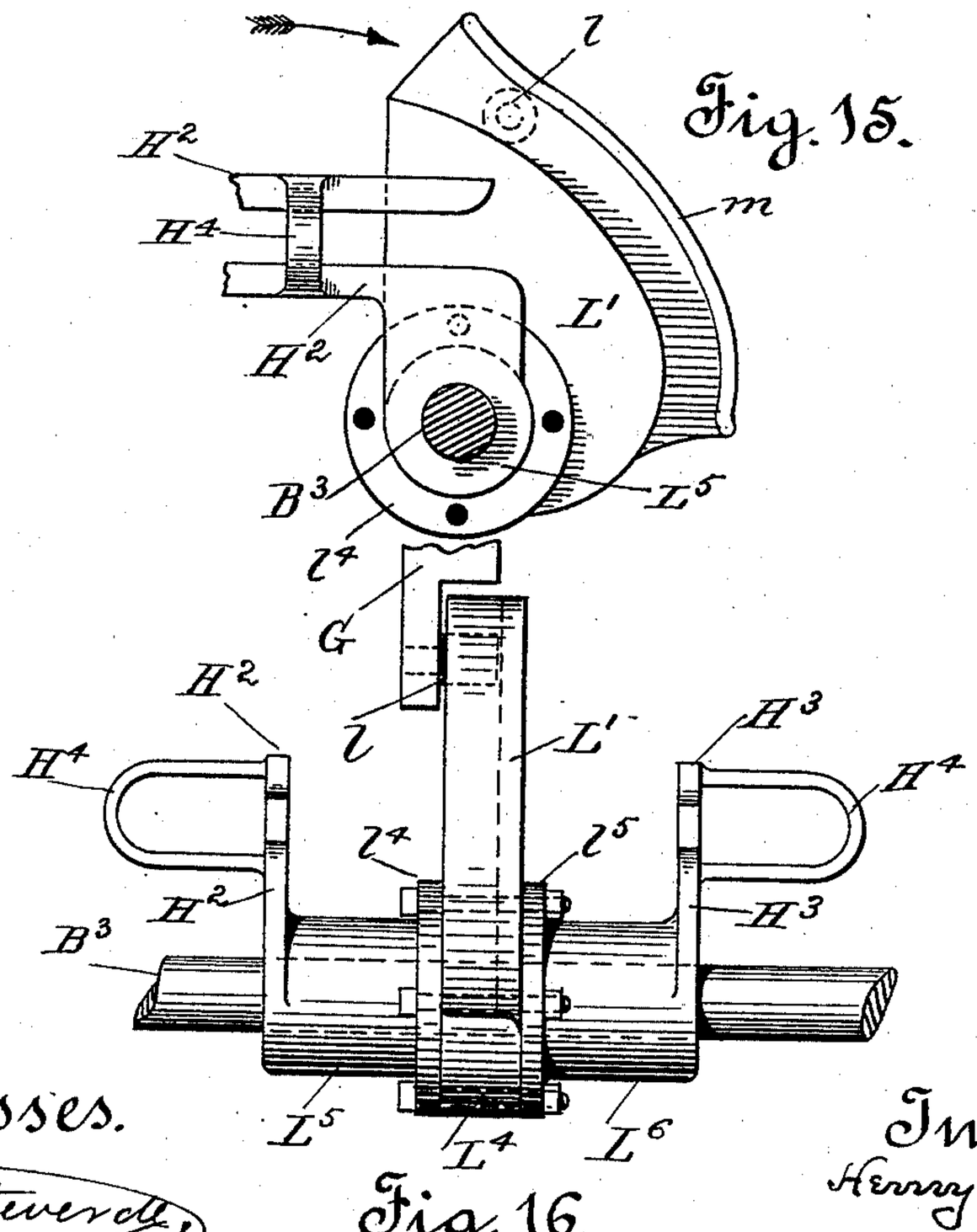

Fig. 16.

Witnesses.

H. Montevercle,

M. G. Loefle

Inventor.

Henry Schaake

by Naacker

atty

UNITED STATES PATENT OFFICE.

HENRY SCHAAKE, OF SAN FRANCISCO, CALIFORNIA.

CAN-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 540,366, dated June 4, 1895.

Application filed April 24, 1894. Serial No. 508,859. (No model.)

To all whom it may concern:

Be it known that I, HENRY SCHAAKE, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have 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 said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to a certain new and useful machine for applying tight fitting heads upon the outside of the ends of can bodies, or to that class of machines known as "outside headers," which consists in the arrangement of parts and details of construction as will be hereinafter more fully set forth in the drawings, described and pointed out in the specification.

The present invention has for its object to accomplish mechanically the work performed in the can heading device secured to George A. Marsh by Letters Patent of the United States No. 152,757, granted on the 7th day of July, 1874; that is to say, that by the machine herein shown and described the can head is applied to the can body by causing one end of the can body to be first inserted within the flange of the can head at an angle thereto, after which the body is gradually brought into a horizontal position, which causes the end to be headed to be tilted or forced over until the entire circumference of the can body has entered within the flange of the can head, which applies one head to the can body, after which the opposite or free end of the can body is likewise tilted or moved into the flange of the opposite can head, the can thus being headed in the same manner as described in the Marsh Letters Patent No. 152,757, the difference being that by the use of tho present machine the can body is placed within the flange of the can head automatically or mechanically, whereas in the Marsh patent, aforesaid, the can body is forced within the flange of the can head by hand, the Marsh device being a mere hand tool, while the present invention is a complete operative machine designed to place a tight fitting exterior head upon can bodies with rapidity. In both the Marsh hand tool and the present machine the body is applied to the can head by first placing a portion of the outer edge of the can body within the flange of the can head at an angle thereto and thence tilting the can body over until the entire circumference of the body is forced within the flange of the can head.

In order to more fully understand my invention reference must be had to the accompanying sheets of drawings, wherein—

Figure 1 is a side elevation of the machine, showing only a limited number of can-body-clamping jaws. Fig. 2 is a side elevation of one of the slotted cam-plates for raising and lowering the clamping-jaws. Fig. 3 is an end elevation of the machine viewed from the feed end. Fig. 4 is a top plan view of the slotted plate for imparting lateral movement to the can-body-clamping jaws, so as to place the end of the retained can-body within the flange of the can-head. Fig. 5 is an enlarged detailed view of one of the links or frames which constitute the endless carrier and one of the clamping-jaws for the can-bodies. Fig. 6 is a view similar to Fig. 5, showing position of the can-body-clamping jaw when tilted or swung so as to place the lower edge of the can-body within the flange of the can-head. Fig. 7 is a similar view showing position of the can-body-clamping jaw after one head has been applied thereto and prior to the jaw having been tilted to a position opposite to that illustrated by Fig. 6 in order to receive the opposite can-head. Fig. 8 is a sectional elevation of the mechanism illustrated by Fig. 7, taken on line $x\,x$ of said figure and viewed in the direction of the arrows. Fig. 9 is a detail top plan of one of the can-head holders or seats. Fig. 10 is a detail view of the can-body-clamping jaw closed. Fig. 11 is a similar view of the can-body-clamping jaw when open. Fig. 12 is a detail side elevation of one of the retaining plates, blades, or paddles for the retained can-body, shown in a lowered position. Fig. 13 is a similar view of the plate, blade, or paddle when in a raised position. Fig. 14 is a top plan view of one of the links or frames constituting the endless carrier-chain. Fig. 15 is an enlarged side view, in elevation, of the segment-cam for opening

the clamping-jaws; and Fig. 16 is a front view, in elevation, of said cam, showing manner of supporting the same upon the drive-shaft.

The heading mechanism of my machine is located between two side or cheek plates, each of which consists of the end standards or supports A, the longitudinal side pieces A′, A², and the curved end pieces A³, which parts may be cast integral or separate as desired. These plates or side pieces may be said to constitute the frame of the machine.

Between the side plates or frame I locate the disks or wheels C, C′, which are secured upon the cross shafts or axles B², B³, one at each end of the frame, as shown by Fig. 1. The forward shaft B³ constitutes the drive shaft, it having secured to the outer or projecting end thereof the belt wheel C², which is driven by means of a belt pulley. Not shown.

Over the wheels C, C′, travels the endless carrier chain or belt which consists of a series of rectangular open frames united together. These frames each carry clamping jaws for the can bodies.

One of the rectangular open frames is provided with a male section of a hinge joint, *c*, while the opposite one is provided with a female section, *c′*, which sections, when fitted together, are united by a bolt *c²*.

In order to provide for a positive travel of the endless carrier belt or chain and prevent slipping thereof, I cast the disks or wheels C, C′, of a hexagon-shape, thereby providing a series of faces *b′*, each of which is separated by the notch *b²*, within which notched portion the knuckles of the hinged joint of the frames of the carrier chain fit or rest while the frames bear upon the flattened faces of the disks or wheels C, C′.

From the ends of the truck frame project the pins *c³*, upon which are secured the rolls *b*. These rolls work within the channels or guide grooves *a* cut within the inner face of the side pieces A′, A² of the frame and serve to support the endless carrier chain or belt while traveling between the carrier wheels, and bear upon the flanges *a′* of the curved end pieces, after leaving the guide grooves or channels, thus acting as supports for the truck frames of the endless carrier belt or chain. These open frames, which when hinged together constitute the endless carrier chain or belt, have the dovetailed grooves *d* cut within the inner face and crosswise thereof, within which fit and work the slide frame D, see Fig. 8, said frame being an open one and rectangular in shape, but smaller in size than the opening of the rectangular frame C³, so as to permit of lateral movement.

Within the rectangular slide frame I cut four openings *d′*, through which work the rods D′, D², four in number. These rods are connected in pairs, at their top, by the brackets D³, D⁴, at their lower ends by plates E, E′. These rods have a vertical movement, but each pair move independent of the other. In order to secure a long bearing for the rods D′, D², I secure to the frame D, the bosses *e*, through which the rods extend, as shown in Fig. 7.

Within the brackets D³, D⁴, there is hung, by means of trunnions *e′*, *e′* the swinging frames E², E³, which frames are provided with the downwardly extending hollow sleeves F, F′. These swinging frames are provided with inwardly projecting hollow bosses *f*, between which the sections F², F³, of the clamping jaws are secured by means of the bolt F⁴. The lower end of each jaw section is connected to the vertical rod G, by link *g*, thus forming a toggle joint connection. The rod extends downward through and below the open slide frames D, and serves to open or close the sections of the can body clamping jaw as raised or lowered.

Through the hollow sleeves F, F′ work the vertical rods G′, G², the upper ends of which rods terminate in a plate, blade or paddle G³, G⁴. These plates, when raised, bear against the end of the can body, retained within the can body clamping jaws, and prevents the displacement thereof during the operation of placing a head upon the body. These plates may more properly be termed can body retaining plates, blades, or paddles. The rods raise and lower alternatively. Said rods are so placed within the hollow sleeves as to permit of a direct upward movement until the retaining plates, blades or paddles carried thereby have passed beyond the lower surface or edge of the can body, after which they gradually move inward until the end of the can body opposite to that about to receive a can head is engaged by the retaining plate. This is necessary, for did the plates, blades, or paddles move their full lift in a direct line they would have a tendency to catch the lower edge of the projecting portion of the can body, for the reason that the can bodies do not always seat themselves in the same place within the clamping jaws. However by providing for the plates, blades, or paddles being carried above the lower surface of the can body prior to engagement therewith this difficulty is overcome. This second movement of the rods G, G′, which throws the can body retaining blades, paddle or plates, is accomplished by providing the hollow sleeves with the inclined shoulders *g′*, *g²*, which are engaged by the inclined lugs *h*, *h′*, projecting from the said rods.

After the rods have been lifted a given distance, sufficient to cause the retaining plates, blades or paddles to clear the edges of the can body held within the can body clamping jaws, the inclined lugs ride upon the inclined shoulders and thus force the rods moving upward toward the projecting ends of the can body held within the can body clamping jaws. The rods when raised are held in their lifted position by the pressure of the springs G⁵ thereagainst, which springs are secured within the hollow sleeves. See Figs. 12 and 13.

By securing the clamping jaws within swing-

ing frames I permit the jaws to be tilted or swung at an angle to the sliding frame without the necessity of said frame being tilted therewith. As will be noticed by reference to Fig. 6, the clamping jaws for the can body are so secured to the frame as to permit of the same swinging upon an axis horizontal to the said sliding frame.

From the plates or bars E, E′ which connect the lower end of the lift rods, outwardly project the arms H, H′. These arms work within the shouldered slots of the cam plates H^2, H^3. These cam plates run parallel, a distance apart, as shown, and are supported by means of the shafts B^2, B^3. Inasmuch as the slots within which the arms H, H′ travel extend the entire length of the said cam plates, it is necessary that they be cast with the ribs H^4 in order to unite the sections of the cam plates, else the cam plates must be cast in sections and the ribs riveted thereto. It will be noticed that the slot in each plate is made so that as one arm is elevated, so as to raise the lift rods on that side of the machine, the opposite arm is lowered.

Referring to the plates H^2, H^3, see Figs. 1 and 2, it will be observed that from point 1 to 2 the slot of each cam plate is upon a level, so that when the arms H′, H^2 travel within this portion of the slotted cam plates the clamping jaws for the can body, and connecting parts, will be elevated to the position illustrated by Fig. 5. From point 2 to 3 the slot of cam plate H^2 is cut upon a downward incline from point 3 to 4 upon a straight line or level, from point 4 to 5 upon an upward incline, from 5 to 6 on a level or straight line, from 6 to 7 at a slight downward incline, from 7 to 8 on a level or straight line, from 8 to 9 at an upward incline, from 9 to 10 on a level, from 10 to 11 at a downward incline and from 11 to the end of the cam plate on a level or straight line, while the slot in cam plate H^3 from point 2 to 12 is run at an upward incline, from 12 to 13 on a level, from 13 to 14 at a downward incline, from 14 to 15 on a level, from 15 to 16 at a downward incline, from 16 to 17 on a level, from 17 to 18 at an upward incline, from 18 to 19 on a level, from 19 to 20 at a downward incline and from 20 to end of the cam plate on a level. It will thus be noticed that the slot in cam plate H^3 is run very nearly the opposite of that of the cam plate H^2. Consequently when one set of lift rods is raised or elevated by the arms thereof traveling within the slot of one of the cam plates, the opposite pair of lift rods will be lowered.

From the rectangular frame C^3 upwardly extend the curved arms I, I′, the ends of which terminate in a semicircular can head seat or holder I^2, I^3. Within the upwardly projecting shoulders I^4, I^5, I cut an elongated opening h^6, through which projects the bolts h'', h^4, by means of which the upper or movable half I^6, I^7, of the can head holder is secured. The bolts h'', h^4 carry the rolls h^2, h^3, which raise the movable section of the can head holder as hereinafter set forth. The movable portion of the can head holder has a semi-circular can head seat or socket cut in the rear face thereof, which, when the said section is lowered, conforms with the semi-circular seat or socket cut within the lower section and serves to complete the annular seat for the can head.

The outer face of the movable sections of the can head holder I cut away or chamfer, as shown at k, so as to permit the upper edge of the can body to be gradually gathered in as the projecting end of the body is forced within the flange of the can head retained within the annular seat or socket of the can head holder. In this respect, that is, the providing a semi-circular chamfered plate for guidance of the end of the can body within the flange of the can head, my seat is the same as that set forth in the Marsh hand tool or device covered by Letters Patent No. 152,757.

Within each movable section of the can head holder I cut the opening k^4, which permits the heads dropping from the can head feed chutes K, K′ directly into the can head or socket of the can head holders. The movable section of the can head holder I^2 is raised as the forward movement of the endless carrier carries the roll h^2 up the inclined face of fixed cam K^2, held in line therewith by curved bracket k^3, secured to the frame of the machine. See Figs. 1 and 3. The movable section of this can head holder is held raised until said roll has traversed the level portion of the said cam, during which travel the headed end of the can body is withdrawn from within the can head holder. As the roll moves off the opposite end of the cam, which is downwardly inclined, the movable section is gradually lowered or closed.

To one side of the machine I secure the slotted plate J, which plate runs the entire length of the machine and the slot therein is so cut that the roll j, secured to the downwardly extending pin j' projecting from the sliding frame D, during its travel therein will serve to shift the sliding frame D from side to side of the rectangular frame of the endless carrier in accordance with which end of the can body is being headed. As will be noticed this slot runs from point 21 to 22 in a straight line, thence at an outward incline to point 23, thence in a straight line to point 24, thence at an inward incline to point 25, thence in a straight line to point 26, thence at an inward incline to point 27, thence in a straight line to point 28, thence at an outward incline to point 29, and from there to the end of the plate in a straight line.

At each end of the machine I locate the segment shaped cams L, L′, the former of which is keyed to the shaft B^2, which extends through its hub, Fig. 3. The shaft B^2 is a non-rotating one, the disks or wheels at the feed end of the machine being loosely secured upon said shaft. Segment cam L′ is located at the

forward end of the machine, the drive shaft B^3 passing through the hub L^4 thereof, which is bolted to the flanges l^4, l^5 projecting from the hubs L^5, L^6, respectively, of the slotted cam plates H^2, H^3, through which hubs extends the shaft B^3. Fully shown in Fig. 16. As the roll *l*, laterally projecting from the rod G, is carried over the inclined face of the segment cam L, during the travel of the endless carrier chain, the rod G is raised, which closes the clamping jaws around the can body L^2, fed therein from the feed chute L^3. As the clamping jaw is carried over the disks or wheels secured to the drive shaft B^3, after the can body has been headed, the roll *l* is carried beneath the flange *m* inwardly projecting from segment cam L′, which gradually draws the rod G downward and opens the clamping jaws so as to discharge the headed can body into the runway M. The clamping jaws are opened and closed through the medium of the toggle joint connection before described.

After the clamping jaws have been closed around the can body in order to true and round the same so as to correspond to the interior diameter of the can head flange, it becomes necessary that the clamping jaws with the ends of the can body projecting therefrom, be raised so as to be in line with the flange of the retained can head M′. This raising of the can body is accomplished through the medium of the lift rods D′, D^2, as the arms H′, H, projecting from the connecting plates E, E′ work within the slotted cam plates H^2, H^3. As the arm H′ travels from point 2 to 3 the rods D′ are lowered, which carry that side of the can body clamping jaw therewith, while the rods D^2 are raised by the arm H traveling over the upwardly inclined portion of slotted cam plate H^3, or between point 2 and 12. This travel of the carrier belt or chain causes the clamping jaws to assume an inclined position to the can head holder or clamp, as illustrated by Fig. 6. While the clamping jaws are being swung or tilted at an angle, the slide frame D is drawn over or forced to slide within the rectangular open truck frame by the roll *j* riding upon the outwardly inclined portion of the slotted plate J, or between the points 22 and 23. The drawing over of the slide frame causes the lower edge of the projecting end of the can body to move within the flange of the retained can head. See Fig. 6. Prior to the tilting of the clamping jaws the roll *m′* secured to and projecting laterally from lift rod G′, rides upon the inclined fixed cam N, secured to plate H^2, and forces upward or raises the said rod within the hollow sleeve F′. This movement of the lift rod causes the retaining plate, blade, or paddle G^3 to move in front of the projecting end of the can body, as shown in Fig. 6. As the clamping jaws and their connecting parts are carried forward, arm H travels upon the level portion of the slotted cam plate H^3, or from point 12 to 13, while arm H′ travels over the upwardly inclined portion of the slotted cam plate H^2, or from point 4 to 5, the distance from 3 to 4, or level portion having been traversed while the frame D was being drawn over in order to place lower edge of the projecting end of can body within can head flange. As the arm travels upon this upwardly inclined portion of the slotted cam plate H^2, the right hand side of the clamping jaws are gradually elevated or raised until the can body assumes a horizontal position. This raising of the can body to a horizontal position gradually tilts or forces the upper left hand edge of the projecting end of the can body within the flange of the retained can head.

After the projecting end of the can body has moved within the flange of the can head the roll h^2 rides upon the inclined face of the cam K^2 and causes the movable section of the can head holder I^2 to move outward so as to permit the withdrawal of the headed end of the can body. This withdrawal of the headed end of the can body is accomplished by the roll *j* traveling within the inwardly inclined portion of the slotted plate J, or between the points 25 and 26. The raised retaining plate, blade or paddle G^3 bears against the free projecting end of the can body in order to prevent lateral displacement thereof as the opposite end is forced within the flange of the retained can head. As the roll h^2 moves from off the cam K^2, the movable section of the can head holder I^2 is closed gradually. The position of the can head holder and clamping jaws for the can body, after the movable section has been raised and the headed end of the can body removed, is clearly shown in Fig. 7, it being a horizontal one.

As the clamping jaws are thrown into a horizontal position and the headed end of the can body removed from within the can head holder, the retaining blade, plate or paddle G^3 is lowered so as to be below the edge of the can body in order to permit the free or unheaded end of the can body to enter the can head flange retained within the can head holder I^3. Prior to the entrance of the unheaded end of the can body within the flange of the can head retained within the can head holder I^3, the retaining blade, paddle or plate G^4 is raised or elevated so as to move above the level of the lower edge of the projecting end of the can body and press against the outer face of the head placed thereon for the purpose of holding the can body firmly in place while a can head is being secured upon the opposite end of the can body. This retaining plate, blade or paddle is raised by the lifting of the rod G^2, caused by the roll m^2 riding upon the inclined face of the fixed cam N′. As this rod is being lifted to elevate the retaining plate, blade or paddle G^4, the rod G′ is lowered by the roll *m′* traveling beneath the flange m^2 of downwardly inclined fixed cam N^2. Consequently when retaining plate G^3 has moved its full downward distance, retaining plate, blade or paddle G^4 will have moved its full upward distance. The cam N′

projects upwardly from plate H^3, while the cam N^2 is secured to and upwardly projects from plate H^2. See Fig. 1.

During this raising and lowering of the retaining plates, blades or paddles the clamping jaws for the can body are being carried forward in a horizontal position until arm H′ rides upon the upwardly inclined portion of the slotted cam plate H^2, or from point 8 to 9, when the lift rods D′ are forced upward, which likewise elevates that portion of the clamping jaws connected therewith by means of the bracket of the lift rods D′, while the opposite end or headed portion of the can body is thrown downward at an angle by the lowering of the lift rods D^2, said rods being carried downward by the arm H traveling within the downwardly inclined portion of the slotted cam plate H^3, or from point 15 to 16. This upward and downward movement of the lift rods causes the clamping jaws to swing at an incline or angle, the free or unheaded portion of the can body, projecting beyond the clamping jaws, being elevated, the position of the can body and clamping jaws being the opposite to that illustrated by Fig. 6. As the clamping jaws are being swung or tilted from a horizontal position to an inclined one, the same is forced over to the side of the machine, that is, to the right hand side, the left hand end of the can body having been headed, by the roll *j* traveling within the inclined portion of the slotted plate J, or from point 26 to 27. This inward travel of the roll *j* causes the slide frame D to move within the frame C^3 toward the right hand side of the machine. This movement of the slide frame carries the clamping jaw therewith and forces lower edge of the unheaded end of the can body within the flange of the can head held within the can head holder I^3. With the continued forward travel of the endless carrier belt or chain, the arm H rides upon the upwardly inclined portion of the slotted cam plate H^3, or from point 17 to 18, which moves the lift rods D^2 upward, said rods carrying the clamping jaws therewith, through its connecting parts, until the same hangs in a horizontal position. As the clamping jaws are thrown into a horizontal position the upper edge of the unheaded portion of the can body is caused to move within the flange of the retained can head. It will thus be seen that the can body is headed by inserting the lower edge of the can body within the can head flange and thence tilting the can body over until the entire circumference of the can body has moved within the flange of the can head, in this respect being the same operation as is carried out by the hand tool or device secured to the said Marsh by Letters Patent No. 152,757, dated July 7, 1874.

After the can body has been headed the movable section I^7, of the can head holder I^3 is raised, in order to release the headed end of the can body, by the roll h^3 riding upon the inclined face h^5 of cam K^3, located a distance beyond cam K^2. See Fig. 1. As the can head holder I^3 is opened the clamping jaws for the can body are drawn to the center of the machine so as to withdraw the headed end of the can body from within the can head holder, by the roll *j* traveling within the outwardly inclined portion of the slotted plate J, or from point 28 to 29. This withdrawal of the headed end of the can body takes place while the roll h^3 is traveling upon the level portion of cam K^3. The travel of roll m^2 beneath the flange of downwardly inclined fixed cam N^3 moves rod G^2 downward, which carries the retaining plate, paddle or blade G^4 below the level of the can body. As the truck frame carrying the headed can is carried over the wheels or disks C C′ toward the discharge chute M, the roll *l*, of clamping jaw lift rod G travels under the flange of the downwardly inclined fixed cam L′ and thus causes the rod to move downward, which movement of said rod gradually opens the clamping jaw and permits the headed can to be discharged into the discharge chute.

It will be understood that the mechanism herein described, as relates to the sliding frame, lifting rods, clamping jaws, and retaining plates, I secure to each of the truck frames. Consequently it will readily be seen that the capacity of the machine is only limited by the number of truck frames made use of to constitute the endless carrier belt or chain and the rapidity with which the endless carrier is caused to revolve or travel.

So far as I am aware I am the first to devise a machine for automatically applying a tight fitting outside head to each end of a can body, provided with clamping jaws for receiving and holding the can bodies during the operation of heading, can head holders, and devices for throwing the clamping jaws at an angle to the can head holders, the head being applied by first throwing the clamping jaws at an angle to the can head holders and moving the same laterally so as to place the lower edge of the can body within the flange of the can head while the can body is held in an inclined position, and thence forcing the entire circumference of the can body within the flange of the can head by bringing the body into a horizontal position. Consequently I wish to be understood as claiming broadly this feature.

I am aware that minor changes may be made in the arrangement of parts and details of construction without departing from the nature and scope of my invention.

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

1. In a can heading machine, the combination with the can head holder, the clamping jaws for the can body, and of devices for throwing the can body at an angle, causing the projecting end thereof to move within the flange of the can head, retained within the can head holder, at an angle thereto, elevat-

ing the can body into a horizontal position whereby the entire circumference of the can body is forced within the flange of the can head, and devices for withdrawing the headed end of the can body from within the can head holder.

2. In a can heading machine, the combination with the can head holder, the can body clamping jaws, devices for closing and opening the same, mechanism for swinging the clamping jaws at an angle to the can head holder so as to permit the edge of the can body to be placed within the flange of the retained can head and throwing the clamping jaws into a horizontal position so as to force the entire circumference of the projecting end of the can body within the flange of the retained can head, devices for drawing the clamping jaws toward the can head holder, mechanism for opening the can head holder after the projecting portion of the can body has been forced within the flange of the can head, and retaining plates, blades, or paddles for holding the can body in position while being headed.

3. In a can heading machine, the combination with the can head holder, within which the can head is retained, the can body clamping jaws for receiving the can body and sizing the same, and mechanism for swinging the clamping jaws first at an angle to the can head holder so as to place a portion of the projecting end of the can body within the flange of the retained can head and then into a horizontal position whereby the entire circumference of the projecting end of the can body is forced within the flange of the retained can head.

4. In a can heading machine, the combination with the can head holder for retention of the can head, said holder having a movable section, the can body clamping jaws for receiving and sizing the can body, said clamping jaws being of less length than the can body whereby the ends of the can body project beyond the edges of the said jaws devices for opening and closing the clamping jaws, mechanism for forcing the can body within the flange of the can head by first swinging the can body clamping jaws at an angle to the can head holder so as to permit a portion of the projecting end of the body to be placed within the flange of the retained can head and thence elevating the clamping jaws to a horizontal position whereby the entire circumference of the can body is forced within the flange of the can head, and devices for opening the can head holder in order to permit the headed portion of the can body to be withdrawn therefrom.

5. In a can heading machine, the combination with the can head holder, the can body clamping jaws, mechanism for imparting a tilting movement to the clamping jaws the retaining device which bears against one end of the can body while the opposite end is being headed in order to prevent lateral displacement of the body, and devices for operating the retaining devices.

6. A machine for automatically heading can bodies which consists of can head holders for receiving and holding the can heads, movable clamping jaws for receiving and holding the can body, mechanism for elevating the clamping jaws so as to insert a portion of the can body edge or end within the flange of the can head at an angle thereto, tilting or swinging the body into a horizontal position in order to force the entire circumference of the can body within the flange of the can head, and mechanism for discharging the headed can body from within the machine.

7. In a can heading machine, the combination with the frame thereof, rotatable wheels or disks secured within the ends thereof, endless carrier belt or chain traveling over the rotatable disks or wheels, a series of can head holders and a series of can body clamping jaws secured to and carried by the endless carrier, and of mechanism for tilting or swinging the clamping jaws so as to place one end of the can body, carried by the clamping jaws, within the flange of the can head at an angle and for raising the clamping jaws to a horizontal position whereby the entire circumference of the can body is placed within the flange of the can head.

8. In a can heading machine, the combination with the frame thereof, the endless carrier traveling within the frame, devices for imparting motion to the endless carrier, the slotted cam plates secured within the frame, the clamping jaws for the can bodies, lift rod for opening and closing the clamping jaws cams for raising and lowering the said rods mechanism for swinging the clamping jaws at an angle to the can head, can head holders, and devices for shifting the clamping jaws from one side of the machine to the other, whereby first one head is placed upon the can body and then the other.

9. In a can heading machine, the combination with the endless carrier, can head holders and can body clamping jaws carried by said carrier, and devices for tilting or swinging the clamping jaws at an angle to the can head holders and afterward swinging the said jaws into a horizontal position, and devices for forcing the clamping jaws toward the can head holder containing the can head within the flange of which the projecting end of the can body is first to be placed, withdrawing the can body from within the can head holder after the same has had one end headed, and shifting the can body clamping jaws so as to place the opposite end of the can body within the flange of the opposite can head.

10. In a can heading machine, the combination with the frame thereof, an endless carrier traveling therein, said carrier being composed of a series of open frames movably secured together, rotatable wheels over which said carrier travels, sliding frames secured within the open frames of the endless carrier,

devices for shifting the said sliding frames from side to side during the travel of the endless carrier, clamping jaws carried by the sliding frames, can head holders, mechanism for opening and closing the clamping jaws, can body chute for supplying bodies to the clamping jaws, chutes for delivering heads to the can head holders, devices for throwing the clamping jaws at an angle to the can head holders, whereby a portion of the projecting end of the can body is placed within the flange of the can head, and then lifting the jaws into a horizontal position, whereby the entire circumference of the can body is forced within the can head flange, devices for opening the can head holders so as to permit the withdrawal of the headed can body, and a discharge chute for receiving the headed cans.

11. In a can heading machine, the combination with the endless carrier, the can body clamping jaws, secured to and carried by the endless carrier of the retaining devices secured to and carried by the endless carrier which bear against the end of the can body during the heading of the opposite end and prevents the lateral displacement of the body, and devices for raising and lowering said retaining devices during the movement of the endless carrier.

12. In a can heading machine, the combination with the can head holders, the can body clamping jaws, the slotted cam plates for throwing the clamping jaws at an angle to the can head holders, and of mechanism for imparting lateral movement to the clamping jaws so as to place the end of the can body within the flange of the can head retained within the can head holder.

13. In a can heading machine, the combination with the endless carrier, can body clamping jaws secured to and carried by said carrier, devices for imparting vertical and lateral movement to said jaws, the can head holder, secured to and carried by the endless carrier said holder being composed of a movable and an immovable section, the movable section having a chamfered face which serves to guide the end of the can body within the flange of the can head retained within the can head holder, and devices for opening and closing the can head holder during the movement of the endless carrier so as to permit the withdrawal of the headed end of the can body from within the holder.

14. In a can heading machine, the combination with the grooved side pieces of the frame, the flanged curved end pieces uniting the side pieces, the endless carrier traveling over rotatable end wheels or disks secured within the frame of the machine, said carrier being composed of a series of hinged open frames, and the rolls projecting from the carrier which work within the grooves of the side pieces.

15. In a can heading machine, the combination with the clamping jaws for the can bodies, devices for raising and lowering the clamping jaws, so as to close the same around the can body placed therein, devices for tilting the ends of the clamping jaws, the slotted cam plates within which the tilting devices move, the sliding frame for imparting lateral movement to the clamping jaws, and the downwardly extending roll, secured to the sliding frame, which works within the slotted cam plate —J— and during its travel therein forces the sliding frame from side to side.

16. In a can heading machine, the combination with the clamping jaws which receive and size the can bodies, the swinging frames to which the clamping jaws are connected, devices for opening and closing the clamping jaws, and mechanism for raising and lowering each of the swinging frames independent of the other, whereby the clamping jaws may be swung at an angle to the can head and held in such position until the end of the can body is placed within the flange of the can head.

17. The combination with the clamping jaws, the retaining plates, blades, or paddles, the downwardly extending lift rods to which the plate, blades, or paddles are secured, devices for alternately raising and lowering the lift rods, sleeves through which the lift rods extend, said sleeves provided with inwardly projecting inclined shoulders, outwardly projecting inclined lugs secured to the lift rods which engage with the inclined shoulders of the sleeves, whereby the lift rods after a given upward movement are forced gradually inward which cause the retaining plates, blades, or paddles to impinge against the end of the retained can body so as to prevent lateral displacement thereof during the operation of heading, and the spring for holding the lift rods when raised their full upward distance.

18. In a can heading machine, the combination with the can head holder, the can body clamping jaws, devices for preventing lateral displacement of the can body during the operation of heading, and of mechanism for placing the end of the can body within the flange of the can head, retained within the can head holder, by imparting a tilting movement to the clamping jaws.

19. In a can heading machine, the combination with the can head holders, the clamping jaws for the can bodies, devices for opening and closing the same, slotted cam plates which throw or swing the clamping jaws at an incline to the can head holder, and from an inclined to a horizontal position, and devices for imparting lateral movement to the clamping jaws for the can bodies whereby a portion of the projecting end of the can body is placed within the flange of the can head, the entire circumference of the body being forced within the flange of the can head as the clamping jaw is being raised into a horizontal position.

20. In a can heading machine the combination with the can head holders, the can body

clamping jaws arranged to work between the holders, devices for imparting a lateral movement to the clamping jaws during the heading operation, and mechanism for placing the end of the can body held by the clamping jaws within the flange of the can heads by a tilting of the clamping jaws, whereby the entire circumference of the can body is gradually forced within the can head flange.

21. In a can heading machine, the combination with the can head holders, can head feed chutes for supplying heads to the holders, the can body clamping jaws located between the holders, can body feed chutes for supplying bodies to the jaws, and devices for imparting a lateral movement to the clamping jaws and placing the end of the can body within the flange of the can head by a tilting of the can body clamping jaws, and devices for opening and closing the clamping jaws.

22. In a can heading machine, the combination with the can head holders, said holders being composed of a movable and immovable section the movable section having a chamfered face which serves to guide the end of the can body within the flange of the can head, the can body clamping jaws located between the can head holders, mechanism for imparting tilting movement to the clamping jaws so as to force the end of the can body within the flange of the can head, devices for throwing the clamping jaws from one can head holder toward the other in order that the heads may be applied first to one end of the body and then to the other, and devices for opening the can head holders after the head has been applied, in order that the headed end of the can may be withdrawn from within the holder.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY SCHAAKE.

Witnesses:
W. A. ACKER,
LEE D. CRAIG.