No. 723,047. PATENTED MAR. 17, 1903.

L. C. SHARP.

CAN HEADER.

APPLICATION FILED JAN. 14, 1902.

NO MODEL. 6 SHEETS—SHEET 1.

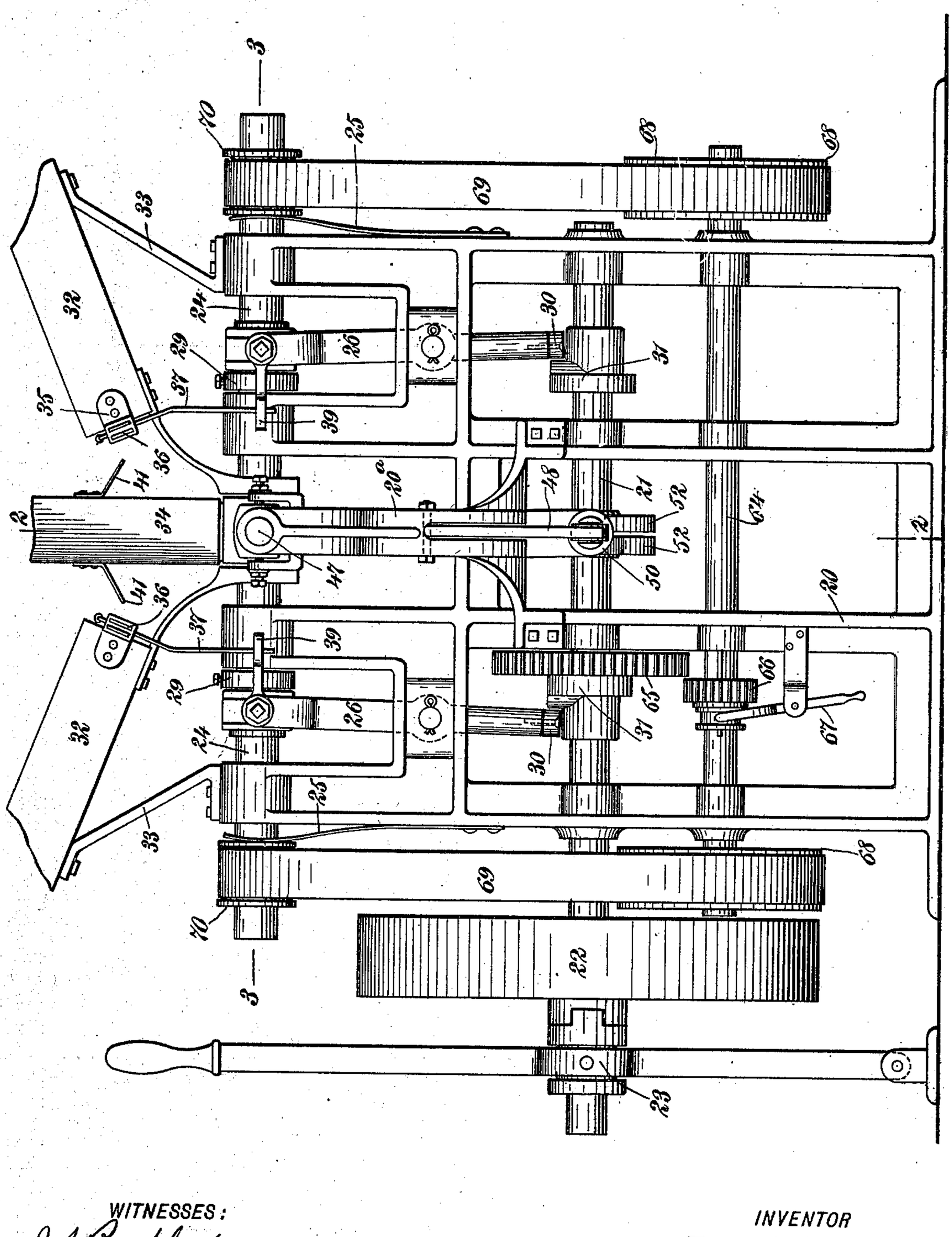

FIG. 1.

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ATTORNEYS

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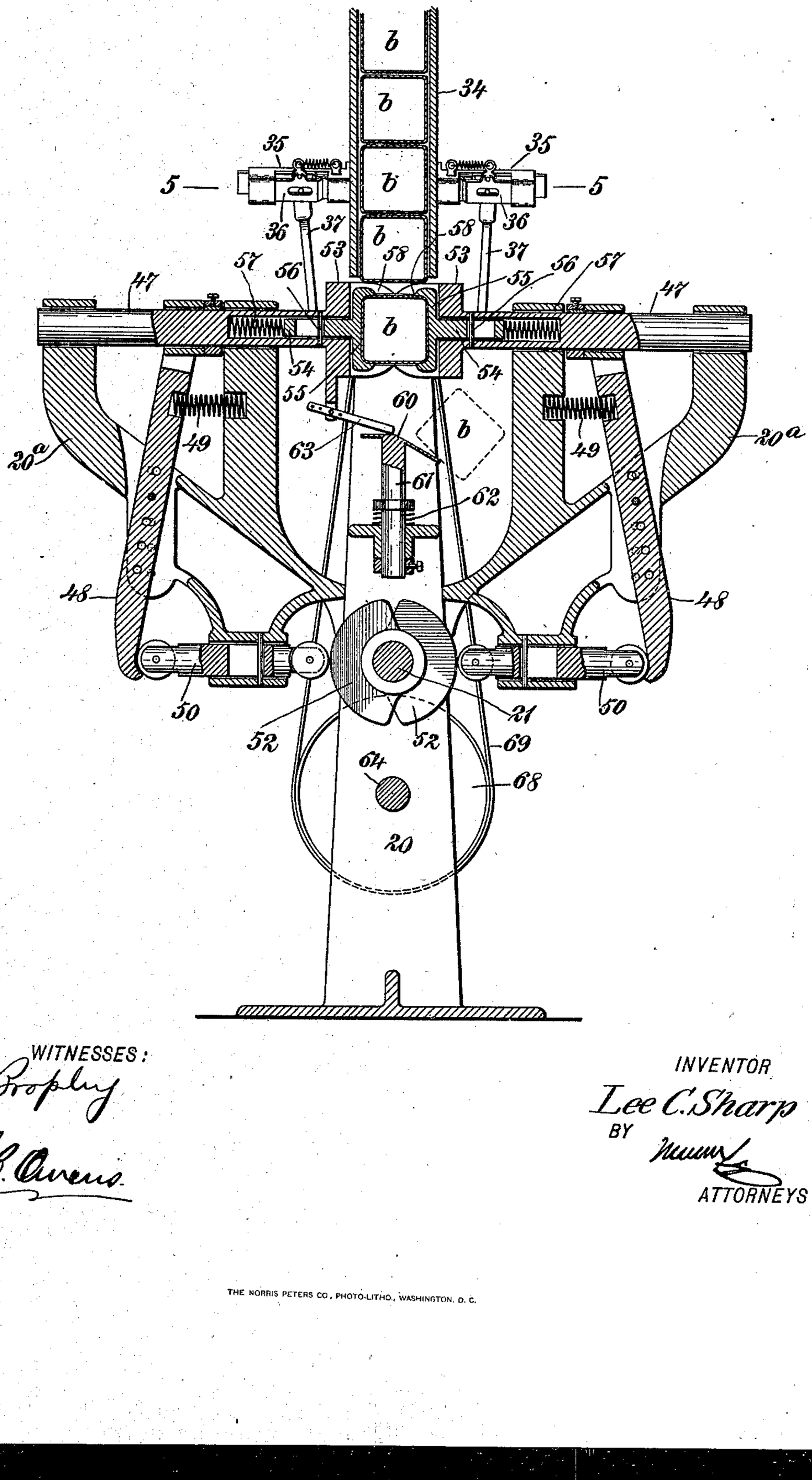
NO MODEL. 6 SHEETS—SHEET 2.

Fig. 2.



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NO MODEL. 6 SHEETS—SHEET 3.

Fig. 3

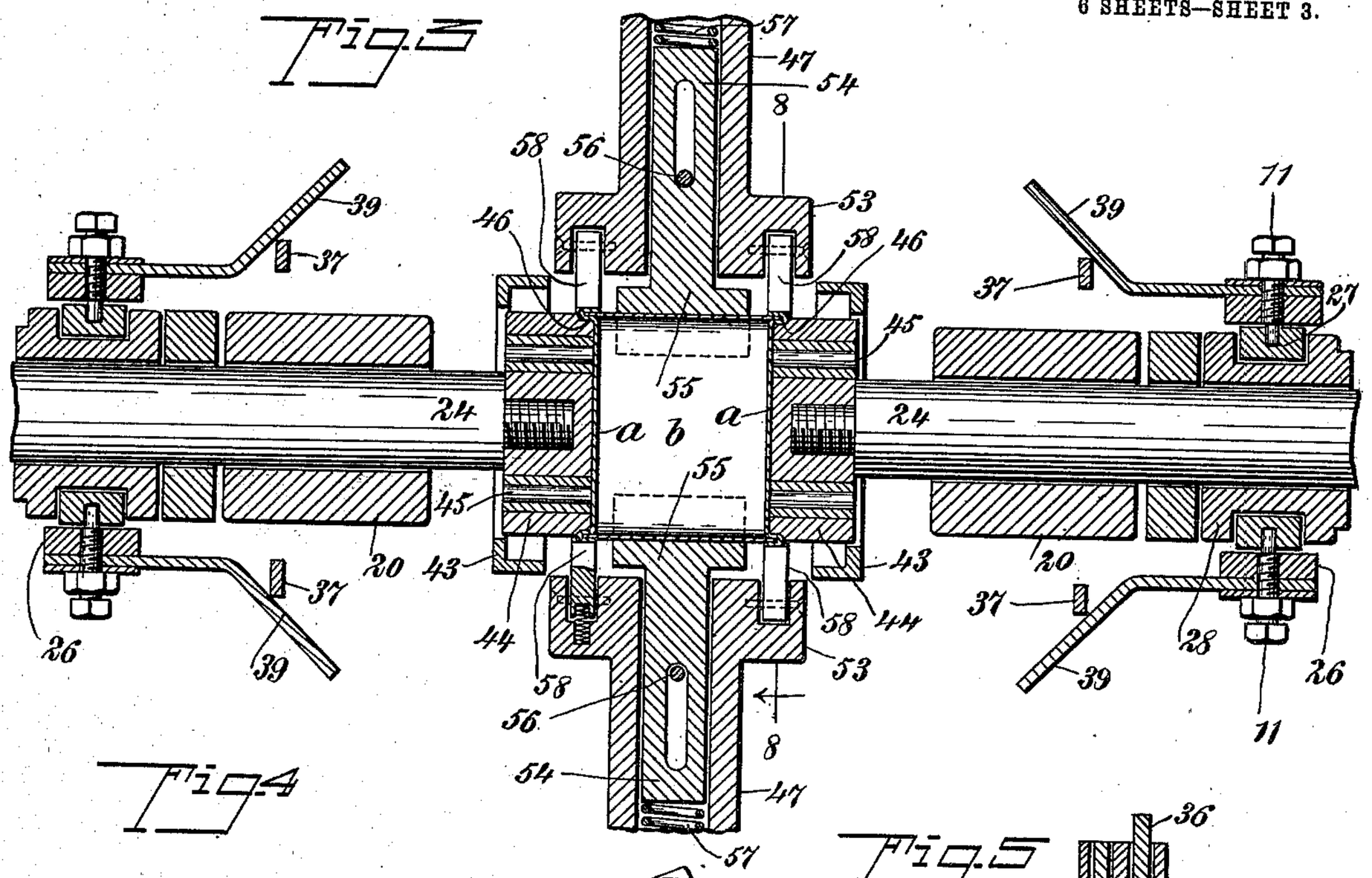


Fig. 4

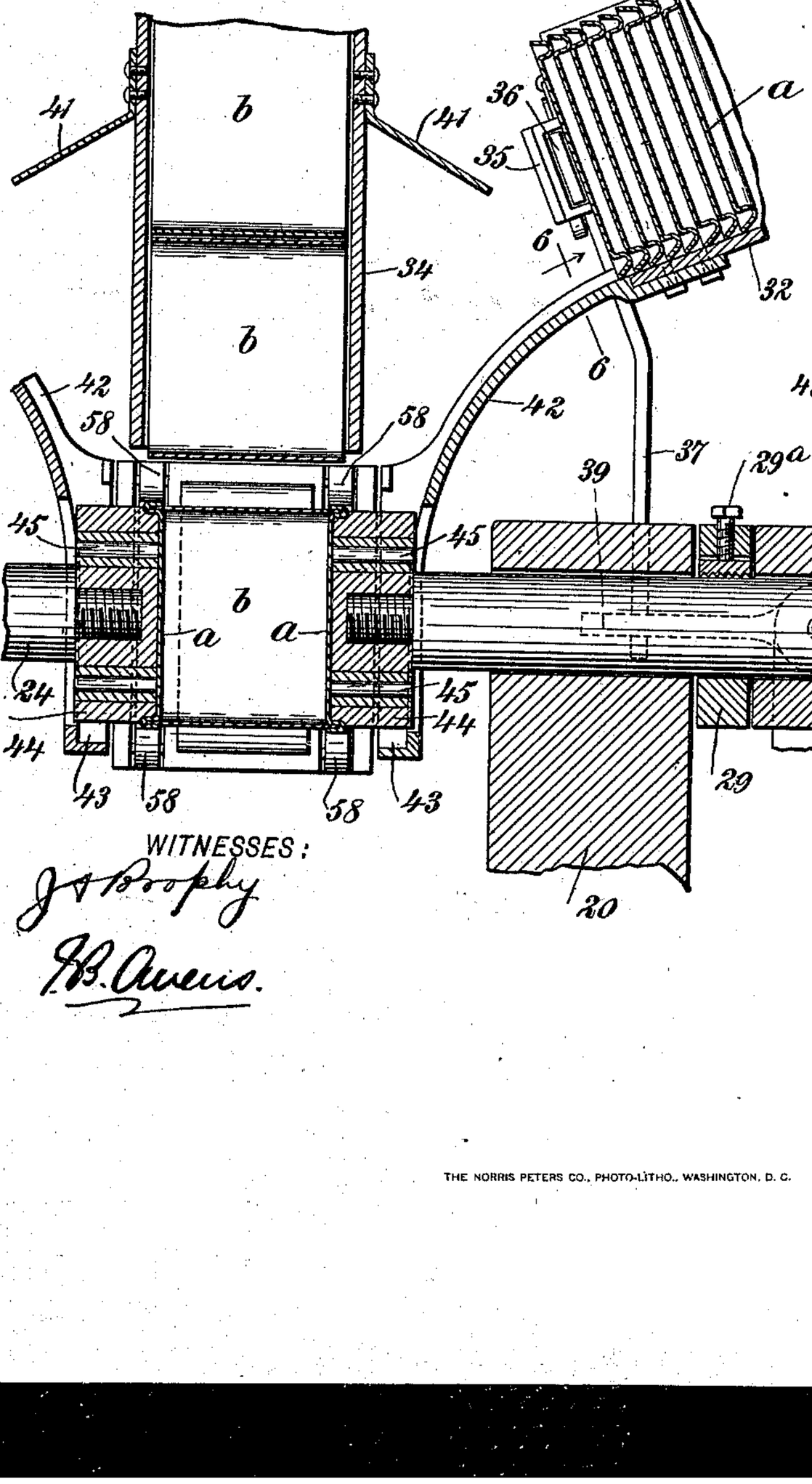
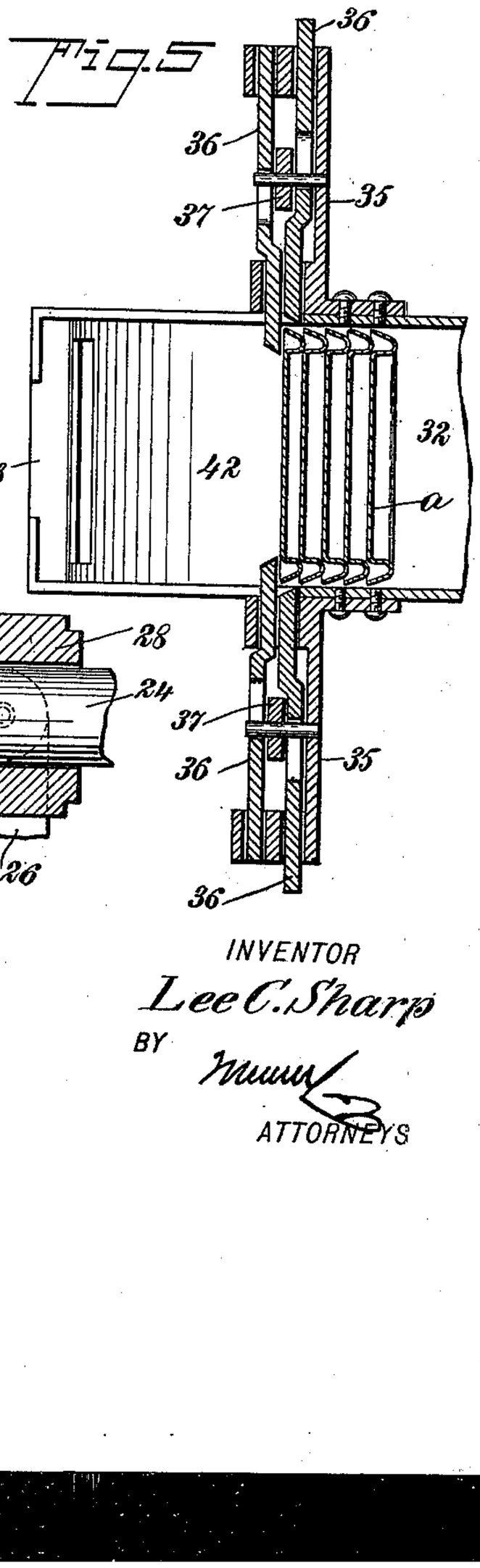


Fig. 5



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NO MODEL. 6 SHEETS—SHEET 4.

Fig. 6

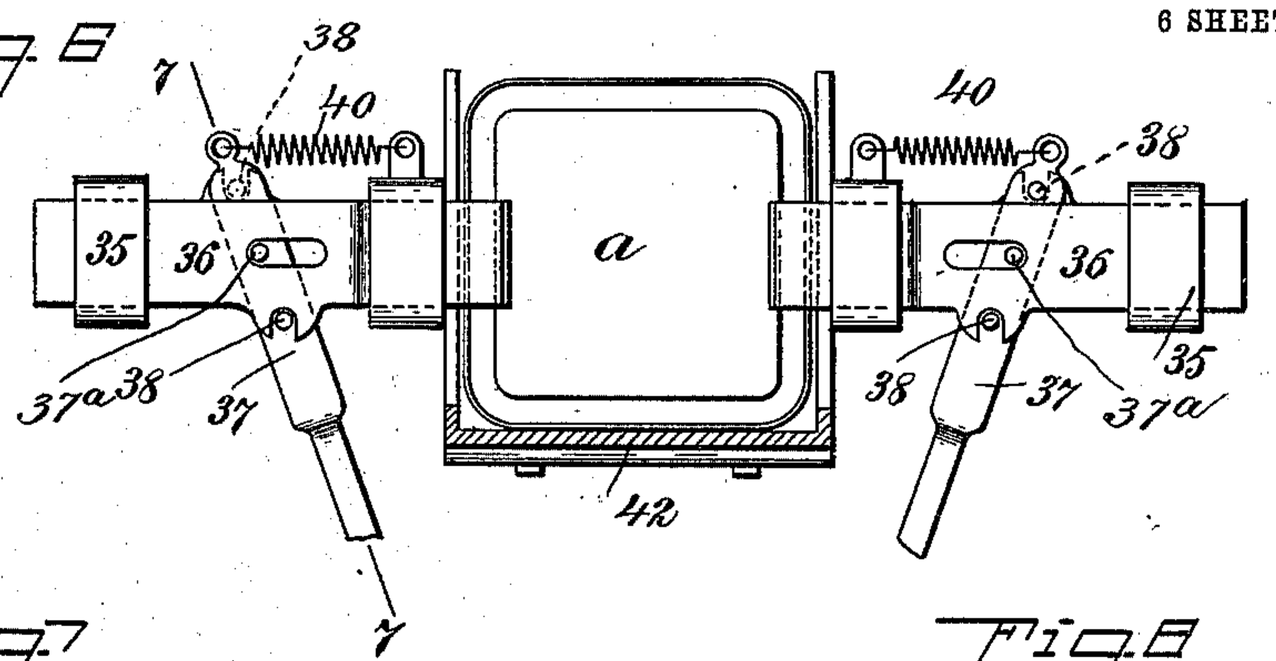


Fig. 7

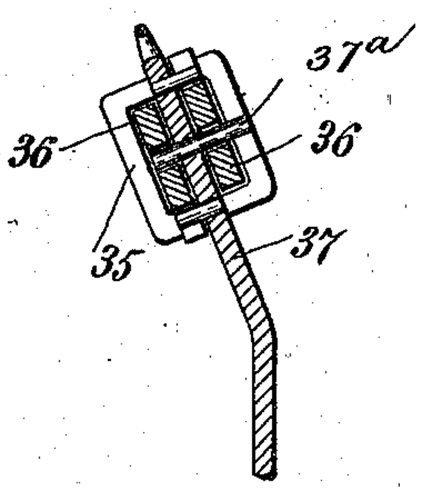


Fig. 8

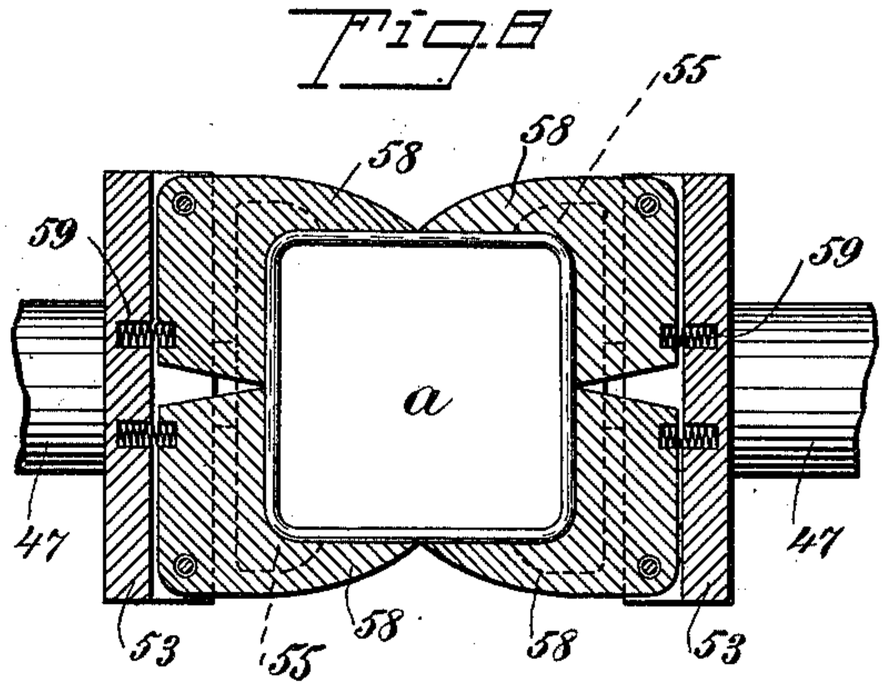


Fig. 9

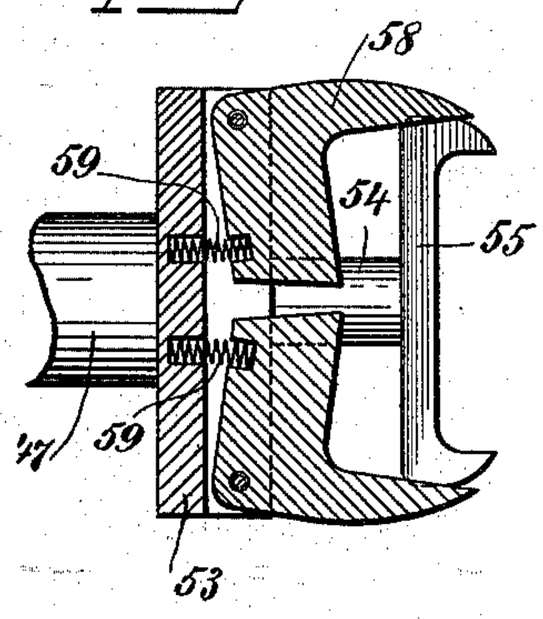


Fig. 10

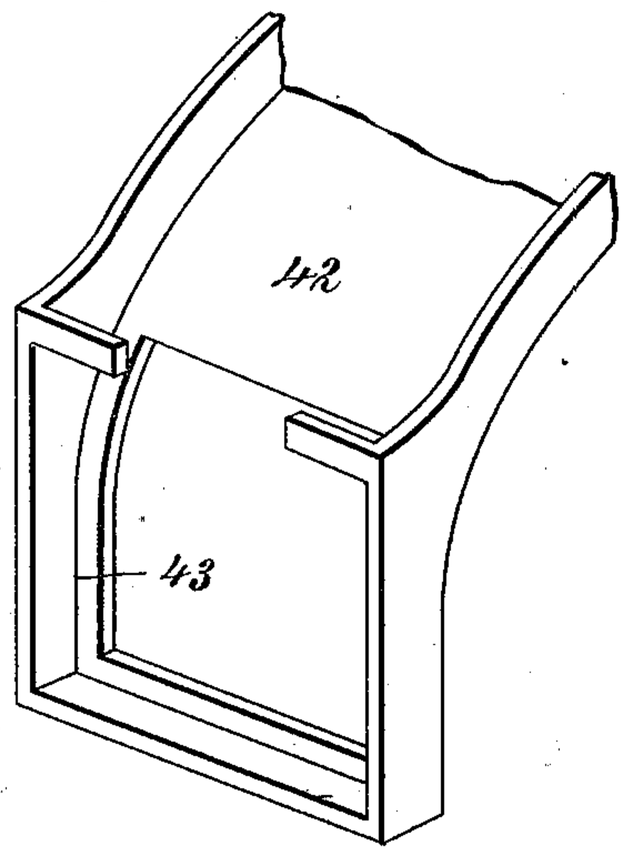
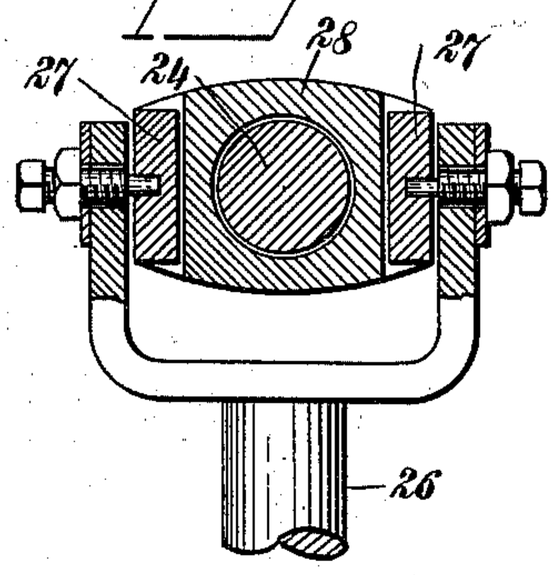


Fig. 11



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No. 723,047. PATENTED MAR. 17, 1903.

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CAN HEADER.

APPLICATION FILED JAN. 14, 1902.

NO MODEL. 6 SHEETS—SHEET 5.

Fig. 12

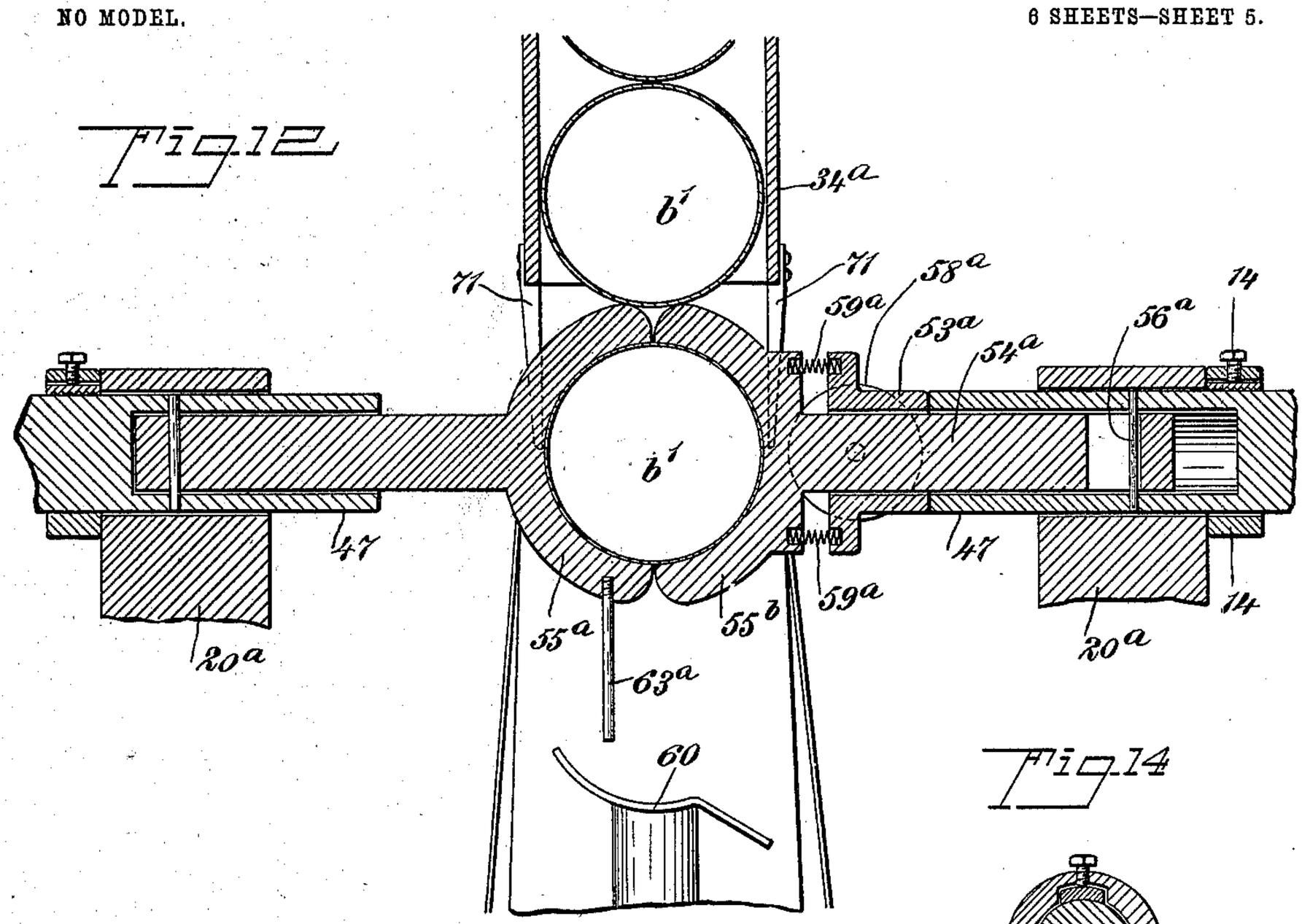


Fig. 13

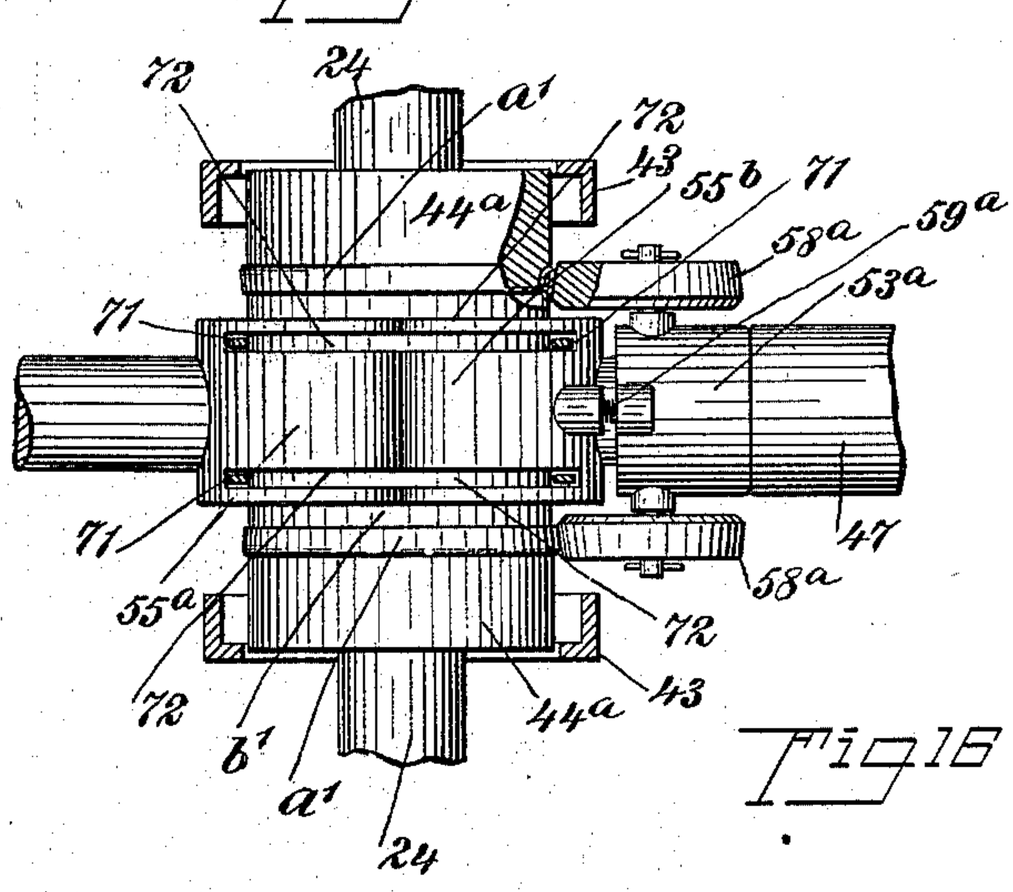


Fig. 16

Fig. 14

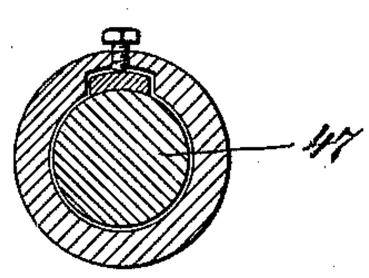
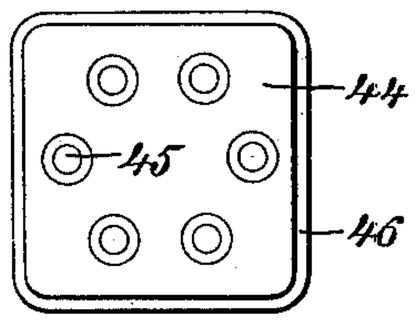
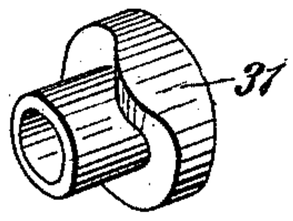


Fig. 15





WITNESSES:

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NO MODEL. 6 SHEETS—SHEET 6.

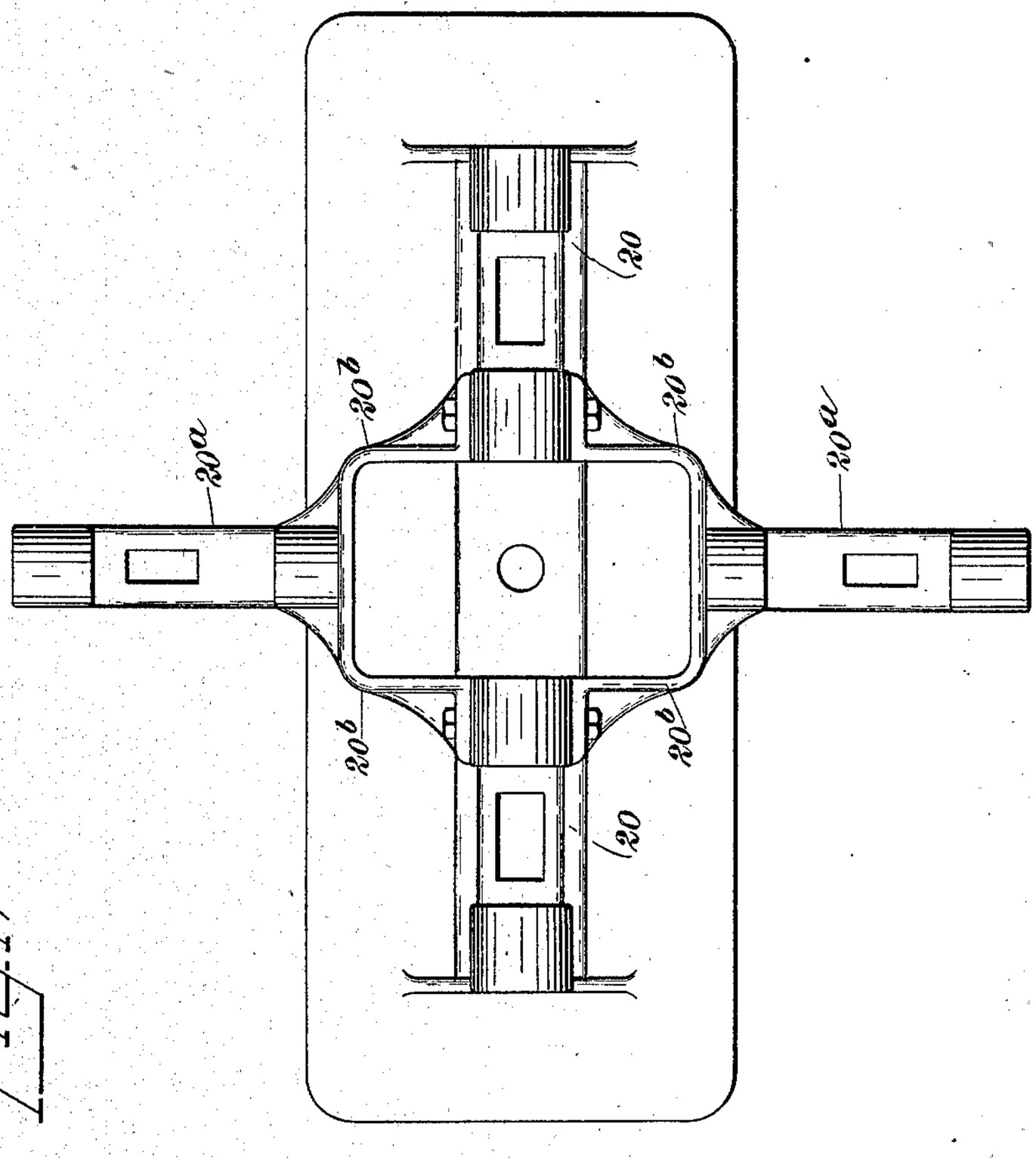

FIG. 17.

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INVENTOR

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BY

ATTORNEYS

UNITED STATES PATENT OFFICE.

LEE C. SHARP, OF OMAHA, NEBRASKA.

CAN-HEADER.

SPECIFICATION forming part of Letters Patent No. 723,047, dated March 17, 1903.

Application filed January 14, 1902. Serial No. 89,692. (No model.)

To all whom it may concern:

Be it known that I, LEE C. SHARP, a citizen of the United States, and a resident of Omaha, in the county of Douglas and State of Nebraska, have invented a new and Improved Can-Header, of which the following is a full, clear, and exact description.

This invention relates to a machine for placing the heads or ends on can-bodies and for crimping them in place preparatory to passing the cans onto the "floater" or soldering-machine.

By means of my invention both round and square cans may be headed, the machine being built so that it may be readily changed to work on different sizes and forms of cans; also, its operation is such that both ends or heads are simultaneously placed on the can and crimped. By means of novel feed mechanism the machine is rendered wholly automatic, the can bodies and heads or ends being placed in chutes and mechanically fed therefrom into the machine.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side view of an apparatus embodying my invention. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a section taken vertically through the can and head chutes, showing their relation to the header and shaper plungers. Fig. 5 is a section on the line 5 5 of Fig. 2. Fig. 6 is an elevational view with parts in section on the line 6 6 of Fig. 4. Fig. 7 is a section on the line 7 7 of Fig. 6. Fig. 8 is a section on the line 8 8 of Fig. 3. Fig. 9 is a section similar to Fig. 8, excepting that the crimping or swaging jaws are shown in open or inactive position. Fig. 10 is a detail perspective view of the lower part of one of the head-chutes. Fig. 11 is a section on the line 11 11 of Fig. 3. Fig. 12 is a partial section similar to Fig. 2, excepting that it shows the apparatus adapted for round cans. Fig. 13 is a plan view of the header and shaper plungers in the form of the invention adapted for round cans. Fig. 14 is a section on the line 14 14 of Fig. 12. Fig. 15 is a front elevation of one of the header-blocks, showing the square form. Fig. 16 is a detail view of one of the cams which drive the head-plungers, and Fig. 17 is a plan view of the frame of the machine.

The organization and structure of the machine are such that it may be readily changed to work with either round or square cans. In the drawings I have shown both structures. I will first describe the machine as assembled for square cans.

20 indicates the framing of the machine. This frame is constructed particularly with the view of keeping all of the parts of the machine readily accessible, and it stands vertically, as shown in Figs. 1 and 2.

21 indicates the primary movement or drive shaft carrying a band-pulley 22, thrown into and out of gear by any suitable form of clutch and hand-lever 23.

Mounted longitudinally in the machine and in axial alinement with each other are the head plunger-shafts 24, which in the square-can machine are splined in their bearings to prevent rotation and fitted to move axially toward and from each other.

25 indicates springs bearing between the frame 20 and pulleys 70 on the shafts 24 and tending to draw them apart.

26 indicates forked levers suitably fulcrumed on the frame 20 and carrying (see Fig. 11) blocks 27, which are loosely engaged with collars 28 on the respective plunger-shafts. These collars 28 are loose on the shafts and bear at their inner sides against collars 29, which are fastened rigidly, yet removably, to the shafts by means of a set-screw and key 29^a. (Shown in Fig. 4.) By this arrangement inward movement of the upper ends of the levers 26 moves the shafts 24 inward against the springs 25, and upon releasing the levers 26 the springs 25 act to withdraw the plunger-shafts. The levers 26 extend vertically, and their lower ends carry rollers 30, engaged by suitable cams 31 on the drive-shaft 21, by means of which the levers are given their necessary movements. It will be seen that as the shaft 21 turns, owing to the action of the springs 25 and levers 26,

the plunger-shafts 24 are caused regularly to reciprocate, the rapidity of their movements being controlled by the form of the cams 31.

32 indicates the chutes, which carry the heads or ends of the cans. These chutes are suitably sustained on the framing of the machine by means of brackets 33, and they may be sustained by other supports at their outer portions, as of course will be apparent to skilled mechanics. The chutes 32 range longitudinally of the machine and incline downward toward the center thereof, these chutes lying one on each side of the can-chute 34, which will be hereinafter particularly referred to.

a indicates the ends or heads of the cans, which are stacked in the chutes 32. (See Figs. 4 and 5.)

Carried in brackets 35, mounted at each side of the lower end of each chute 32, are alternately-reciprocating blades or pallets 36, each pair of which is driven by levers 37. These levers 37 are fulcrumed by pins 37ª on brackets 35 and are connected by pins 38, respectively, with the top and bottom edges of the knives or pallets 36, so that the movement of the levers will cause one pallet to be moved in and the other pallet out. The levers 37 are mounted on axes ranging longitudinally of the machine, (see Fig. 5,) and they are caused to swing inward around these axes and laterally of the machine by means of diagonal bars 39, fastened to the forked levers 26. Springs 40 act to return the levers—that is, to throw outward their lower ends—and it will be seen that by the joint action of the diagonal bars 39 and springs 40 a regular swinging movement will be imparted to the levers, it being understood that the bars 39 being carried by the upper ends of the levers 26 move therewith. Now by referring to Fig. 5 it will be seen that as the pairs of bars 36 move in and out alternately the heads *a* will be individually separated from the stack, thus causing a head to be delivered regularly from each chute. Figs. 4 and 5 illustrate the manner in which the heads lie together. These heads come from the press in the form shown in Figs. 4 and 5, and their crimped edges cause them to be separated slightly, so that the pointed ends of the pallets or blades 36 may enter between the edges and separate one head from the stack of heads. The pallets or blades also serve to hold back the stack of heads after a single head has been separated. As the single head falls from the stack of heads in the chute the upper portion of the head strikes against a finger 41. These fingers are one for each chute and are fastened at opposite sides of the can-chute 34. As the heads strike these fingers they are tripped, causing their lower portions to come forward ahead of the upper portions, and the can-heads then slide down extensions 42 of the chutes 32 and into the rectangular racks 43 at the lower ends of these extensions, in which racks the heads *a* momentarily rest.

Fastened rigidly to each plunger-shaft 24 are the head-blocks 44, which are shown in front elevation in Fig. 15. These head-blocks are provided with bar-magnets 45, placed therein to attract the can-heads, and they are also formed with rabbeted grooves 46, running around their inner peripheries, the function of which will be fully explained hereinafter. As the plunger-shafts 24 move outward the diagonal bars 39 permit outward movement of the levers 37, (see Fig. 3,) and the springs 40 then act to throw the levers outward at their lower ends. This results in the action of the pallets 36, causing the dislodgment of a single head *a* from each of the chutes 32. These heads as they fall from the chutes are tripped by the fingers 41, slide down the extensions 42, and are lodged in vertical positions in the racks 43. This having been effected, the shafts 24 return, and the head-blocks 44 are moved through the racks 43 and engage the respective heads *a*. These heads are instantly attracted by the magnets 45, and they are retained by the head-blocks and carried farther inward to be applied to the can-body, as will be hereinafter explained. It will be seen, therefore, that this reciprocal movement of the plunger-shafts 24 causes the operation of the head-feeding devices, which regularly detach individual heads from each chute 32 and deliver the same into the racks 43 in position for engagement by the head-blocks.

The frame 20 is provided with lateral extensions 20ª, (see Figs. 1 and 2,) these extensions being braced by arms 20ᵇ, (see Fig. 17,) and in these extensions are mounted the transverse plunger 47, carrying the former or shaper blocks and the crimping-heads, as will be hereinafter particularly described. The plunger-shafts 47 are caused to reciprocate by means of levers 48, mounted in the extensions 20ª of the frame. The levers 48 are thrown outward at their upper ends by means of springs 49 and inward by means of reciprocal bars 50, suitably mounted in the frame extensions 20ª in the plane of the drive-shaft 21 and driven by cams 52, mounted on said shaft. The rotation of the shaft 21 and the action of the springs 40 will therefore result in a regular swinging movement of the levers 48, and this imparts a regular reciprocal movement to the plunger-shafts 47. As shown in Fig. 2, the inner ends of the plunger-shafts 47 are tubulated and formed with heads 53.

Mounted in the tubulated or hollow ends of the shafts 47 are the shanks 54 of the shaping or forming blocks 55. These shanks 54 are held to have a limited reciprocal movement in the shafts 47 by means of pins and slots 56, as shown.

57 indicates expansive springs which are placed in the shafts 47 back of the shanks 54. Normally, therefore, the parts lie in the position shown in Fig. 9—which is to say, the shaper-blocks 55, pressed by the springs 57,

project outward beyond the heads 53 of the shafts 47. When, however, the shaper-heads 55, moving inward with the shafts 47, engage the can-body, (indicated at *b* in the drawings,) the inward movement of the shaper-heads is stopped and the springs 57 are compressed, thus allowing the parts to move up into the relative position indicated in Figs. 2 and 8.

As shown in Figs. 3, 8, and 9, the heads 53 of the shafts 47 carry each at each side of the shaper-blocks 55 the crimping-jaws 58. These jaws are adapted to work against the edges of the heads *a* and to clench the crimped edges thereof down tightly around the edges of the can-body, changing the crimped edges of the can-heads from the shape shown in the upper part of Fig. 4 to that shown in the lower part of said figure, or, in other words, tightly clenching the heads of the can and leaving the can in condition for "floating" or soldering. The crimping-jaws 58 lie in vertical planes, and each head 53 carries four jaws, arranged two at each side, one above the other, so that as the heads 55 move up into the position shown in Figs. 2, 3, and 8 the jaws 58 will be properly positioned to engage with the crimped edges of the can heads or ends *a*. The jaws 58 are essentially in the form of elbow-levers, and their inner or adjacent arms are thrown outward by springs 59, suitably placed, as shown in Figs. 8 and 9. Normally, therefore, or, in other words, when the parts are not under pressure, the crimping-jaws lie in the position shown in Fig. 8. As the shaper-heads 55 move up against the can-body and their movement ceases the parts 47, 53, and 58 continue their inward movement, the springs 57 giving to allow the same. Finally the outwardly-projected inner ends of the crimping-jaws 58 (see Fig. 9) strike the side edges of the ends *a* of the can. This causes a rocking movement of the jaws 58, and the jaws therefore engage on the crimped edges of the heads *a* with a rolling or shear movement. This causes the crimped edges of the head to be pressed in regularly and evenly and does not involve a sidewise dislocation of the parts in question, which would of course destroy the symmetry and effectiveness of the seam. At the end of the crimping movement the parts lie forcibly pressed together in the position shown in Figs. 3 and 8. In connection with this operation attention is called to the rabbeted groove 46 in the head-blocks 44. As the head-blocks engage the heads *a* during the time that they lie in the racks 43 the reduced inner faces of the head-blocks, due to the rabbeted grooves 46, pass into engagement with the central portion of the head and lie inside of the crimped edges in the manner illustrated in Fig. 4. The magnets 45 tightly attract the can-heads and hold them in this relative position. Now as the crimping-jaws 58 act on the edges of the heads to force them snugly against the can-body, as shown in Fig. 4, the reduced inner portions of the head-blocks 44 act as anvils, supporting the can-head during this crimping operation and preventing the can from being crushed.

As before stated, the can-bodies *b* are arranged in a superimposed stack in the chute 34, and this chute may be sustained in vertical position by any means desired. Directly beneath the chute 34 and below the plane of the shafts 24 and 47 a table 60 is placed. This table is carried on a vertical shaft 61, mounted to slide in a part of the framing 20, and a spring 62 acts yieldingly to sustain the shaft and table. After the operation of the machine is started and a complete can is dropped from the shaping-blocks 55 this can falls upon the table 60, and the entire stack of cans in the chute 34 falls also and is sustained by the finished can resting on the table 60. Then as the inward movement of the shafts 47 begins the tapered top and bottom edges of the shaping-blocks 55 move toward the column or stack of can-bodies, and these edges of the blocks 55 enter between the lowermost can-body and the finished can beneath it and the can-body immediately above, pushing up the column of cans above the lowermost can-body and pushing down the finished can, this downward movement of the finished can producing a compression of the spring 62. As the shafts 47 and their attached parts continue to move inward the crimping-jaws 58 are introduced between the cans in the same manner that the edges of the shaping-heads 55 were introduced, and then the parts assume the position shown in Fig. 2—namely, the column of cans is supported on the upper edges of the upper crimping-jaws 58.

63 indicates an ejector which is suitably carried on one of the heads 53, and as this head comes forward to the position shown in Fig. 2 the finger 63 strikes the finished can and knocks it off of the table 60, the finished can then falling from the machine in condition to be passed onto the floating or soldering machine. As the blocks 55 engage the can-body they act to true the same up in proper form—that is to say, assuming that the machine is working on square cans the shaping-heads 55 straighten up the can-body and put it in true rectangular form, so that the can-heads may be properly engaged therewith. It is owing to this function that they have been termed "shaping-heads."

Now in recapitulation of the operation of the parts thus far described let it be assumed that they are in the position shown in Figs. 1, 2, 3, 4, and 5, in which a square can-body has had the heads attached and crimped thereon. The shafts 24 and 47 now move outward from the can, and the can is dropped onto the table 60. Another can-body drops into place, as explained above, and the parts 39, 37, and 36 act to deliver a can-head into each rack 43. The shafts 47 now return slightly in advance of the shafts 24, and the

can-body is engaged by the shaping-heads 55 and straightened or shaped up into proper form. As soon as this has been effected the head-blocks 44 move forward with the heads and place them with their partly-crimped edges engaged with the respective edges of the body of the can. The movement of the shafts 24 now ceases momentarily, the shafts being held in position shown in Figs. 3 and 4; but the shafts 47 continue to move inward and the crimping-jaws 58 are brought into play, as before explained, these jaws moving relatively to the heads 53 from the position shown in Fig. 9 to that shown in Fig. 8, and during this operation the edges of the can-heads are securely clenched around the edges of the can-body, and the heading operation is then complete. This covers one cycle of the operation of the parts described.

I will now describe such alterations in the machine as are necessary to adapt it to work on round cans.

When the machine is adapted for working round cans, a counter-shaft 64 is mounted in the frame 20 below the shaft 21 and is adapted to be driven therefrom by a spur-gear 65 on the shaft 21 and a pinion 66, splined on the shaft 64, and provided with a lever 67 to throw it into and out of mesh with the gear 65. This shaft carries at its ends band-pulleys 68, and belts 69 run over them and overflanged pulleys 70, respectively, on the shafts 24. When this arrangement is provided, the shafts 24 are arranged to rotate in their bearings in the frame 20, and when the gears 65 and 66 are in mesh it will be observed that these shafts will turn readily. They will also have in addition to their rotary movement a reciprocating movement, as described heretofore, due to the action of the parts 26 and 31. In working with round cans the head-blocks 44^a (see Fig. 13) are round instead of square; but in other respects they are the same as the head-blocks 44, before described. As the head-blocks advance toward the heads *a* of the can the magnets 45 (see the previous description) attract the can-heads, and the head-blocks then carry the can-heads toward the can-body. The instant that the can-heads are engaged firmly with the can-body the whole of the can, comprising the parts *a* and *b*, begins to spin rapidly.

Referring to Figs. 12 and 13, the shafts 47 carry the shaping-blocks 55^a and 55^b. These blocks perform the same functions as the blocks 55, before described; but of course when working with round cans they are of semicircular form, as Fig. 12 shows. According to the construction shown in Fig. 12 one of the blocks—viz., the block 55^a—is rigidly carried by the shaft 47; but it is removable therefrom, and, if desired, it may be fitted with the construction shown as applied to the block 55^b, which construction will now be described. The block 55^b has a stem 54^a, fitted to slide in the shaft 47 and limited by a pin 56^a, working in a slot in the stem, as shown. Fitted loosely on the stem 54^a and lying directly against the inner end of the shaft 47 is the head 53^a, which has springs 59^a interposed between it and the shaper-block 55^b. The parts 55^b and 53^a are normally in the position shown in Fig. 12. 58^a indicates crimping-rollers mounted loosely on the head 53^a. These rollers are arranged one at each side of the head, so that one will lie at each end of the can. In Fig. 12, *b'* indicates the can-bodies, and in Fig. 13, *b'* indicates the can-bodies, and *a'* indicates the can heads or ends, all of which are circular, as before explained. Fig. 12 shows the table 60, which is the same as that previously described, and 63^a indicates the ejector for throwing the finished can off of the table, this ejector being carried in this instance by the shaper-block 55^a. 71 indicates guide-fingers, which are carried by the can-chute 34^a (see Figs. 12 and 13) and which project downward through slots 72 in the shaper-blocks 55^a and 55^b. These fingers 71 serve to guide the can-bodies *b'* as they fall from the chutes into position to be engaged by the shaper-blocks 55^a and 55^b. In this connection it is pointed out that the guide-arms are especially useful in working with round cans, since the can-bodies would roll off of one another and would not stand superimposed, as is the case with square cans. These arms also may be used with advantage when working on square cans.

The operation of the round-can machine does not differ in principle from that of the square-can machine. Referring to Fig. 12 and assuming that the parts are in the position shown therein, it will be seen that the shaper-blocks 55^a and 55^b have been moved together as much as possible and the can-body *b'* is grasped between these blocks and properly rounded. The rotating head-blocks 44^a now bring the ends or heads *a'* of the can into engagement with the can-body, and then all of the parts *a'* and *b'* begin to spin rapidly with the rotating shafts 24 and their attached parts. In this connection it is explained that the shaping-heads 55^a and 55^b are arranged to hold the can sufficiently loose to allow this spinning or rotating movement. When these positions have been taken by the parts, the continuing movement of the right-hand shaft 47 (see Fig. 12) causes the spring 59^a to give way, and the crimping-rollers 58^a are then forced firmly against the edges of the can-heads, and as the cans turn they are rolled against these rollers and the crimping operation is performed, resulting in a secure connection between the heads of the body and the can. When this has been kept up for a period sufficient properly to effect the crimping, the shafts 24 and 47 are retracted and the can-body is dropped on the table 60. This table is slightly dished to cause the can-body to lie there, and then the column of cans above falls on the finished can, the fingers 71 meanwhile holding the cans properly superimposed. The shaping-blocks 55^a and 55^b

then return and the column of can-bodies above the lowermost can-body is forced up, while the finger 63ª throws the finished can off of the table 60. The operation above described is then repeated.

In building the commercial machine I prefer to build it with the shaft 64 in place, as shown in Figs. 1 and 2. This will make the machine readily convertible either to round or square cans, which of course will greatly improve its commercial value. Assuming that the machine was built in this manner and if it were to be used for square cans the belts 69 might be permanently removed from the machine and the gear 66 thrown out of mesh. Then by fitting the machine with the head and shaper blocks shown in Figs. 2, 3, and 4 the square cans could be worked. Should it be desired subsequently to work round cans, the belts 69 may be placed in position, the keys or feathers of the shafts 24 removed, and the head and shaper blocks of Figs. 12 and 13 substituted for the square parts corresponding thereto.

Various changes in the form and details of my invention may be resorted to at will without departing from the spirit of my invention. Hence I consider myself entitled to all forms of the invention as may lie within the intent of my claims.

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

1. In a can-heading machine, the combination of an incline chute carrying the can-heads, means for individually releasing the can-heads therefrom, a rack into which the can-heads are dropped, a head-block moving past the rack to take the can-head, and a connection between the head-block and said means for releasing the can-heads, the connection comprising a spring-pressed lever, and a bar standing diagonally, the bar being connected to move with the head-block.

2. In a can-heading machine, the combination with the heading devices of means arranged to carry the can-heads nested together side face to side face, and means for individually releasing the heads from the said carrying means, the releasing means comprising a pair of blades or pallets alternately reciprocal across the faces of the heads.

3. In a can-heading machine, the combination with the heading devices of means arranged to carry the can-heads nested together side face to side face, and means for individually releasing the heads from the said carrying means, the releasing means comprising a pair of blades or pallets alternately reciprocal across the faces of the heads, a lever connected with the blades at opposite sides of its fulcrum, and means operating the lever.

4. A can-heading machine, comprising a head-chute, a rack, means for individually releasing the heads from the chute, and a tripping-finger arranged to be struck by the upper part of the can-head, whereby to guide it into the rack.

5. A head-feed device for can-heading machines, comprising a chute capable of holding the heads nested together side face to side face, alternately-reciprocal blades or pallets lying in close proximity side by side and capable of entering between the heads individually to separate and drop them from the chute, and means for driving the blades or pallets.

6. In a can-heading machine, the combination with racks receiving the heads, head-blocks movable past the racks to take the heads therefrom, shaping-blocks movable at right angles to the head-blocks, means on which the shaping-blocks are yieldingly carried, and a crimping-tool mounted unyieldingly on one of said means for carrying the shaping-blocks.

7. In a can-heading machine, the combination with the means for applying the heads, of a vertically-disposed chute for the can-bodies, said chute having an open lower end placed over the head-applying means, whereby the column of can-bodies are supported by the head-applying means when such means are in active position.

8. In a can-heading machine, the combination with the means for applying the heads, of a vertically-disposed chute for the can-bodies, said chute having an open lower end placed over the head-applying means, whereby the column of can-bodies are supported by the head-applying means when such means are in active position, and a table for the purpose specified beneath the means for applying the can-heads.

9. In a can-heading machine, the combination with the means for applying the heads, of a chute for the can-bodies, said chute being placed over the head-applying means and being open at its lower end, whereby the can-bodies are supported by the head-applying means when such means are in active position, a table for the purpose specified beneath the means for applying the can-heads, and an ejector connected with a part of the head-applying means and movable over toward the table to throw the can therefrom.

10. In a can-heading machine, the combination with the means for applying the heads, of a chute for the can-bodies, said chute being placed over the head-applying means and being open at its lower end, whereby the can-bodies are supported by the head-applying meaps when such means are in active position, a table for the purpose specified beneath the means for applying the can-heads, and means for yieldingly sustaining the table.

11. A can-heading machine, comprising means for applying the heads, a can-body chute arranged directly over the same and open at its lower end for the purpose specified, the means for applying the heads comprising a part on which the stack of can-

bodies rests to be supported thereby when said head-applying means are at work, a table beneath the means for applying the heads, and an ejector coacting with the table.

12. A can-heading machine, comprising a can-body chute open at its lower end, a yielding table below the chute, means for applying the can-heads, such means being located between the chute and table and comprising parts capable of entering into the stack of can-bodies and of separating the lowermost body from those above it, and an ejector coacting with the table.

13. A can-heading machine having a centrally-located can-body chute, head-chutes located one at each side of the body-chute, a rack below each head-chute, means for delivering the heads from the chutes to the racks, shaping-blocks arranged to move under the body-chute and hold a can-body, head-blocks movable past the racks to take the heads therefrom and carry them to the can-body, and means for crimping the heads, a table arranged under the shaping-blocks, and an ejector coacting with the table.

14. In a can-heading machine, the combination of means for holding the can-body and for applying and crimping the heads, a can-body chute located immediately above the means for holding the can-body, head-chutes located at each side of the body-chute, means for delivering the heads from the chutes to the means for applying the heads to the body, a table arranged under the means for applying and crimping the heads, and an ejector working in time with the said means, for the purpose specified.

15. A can-heading machine, having means for holding the can-body and for applying and crimping the heads, a can-body chute located immediately above the means for holding the can-body, head-chutes located at each side of the body-chute, and means for delivering the heads from the chutes to the means for applying the heads to the body, a table located below the means for holding the can-body, and an ejector coacting therewith.

16. A can-heading machine having a can-body chute, reciprocal shafts arranged below the chute, shaping and holding blocks carried by said shafts and arranged to move under the chute for the purpose specified, a head-chute located at each side of the body-chute, means for applying the heads to the body, means for delivering the heads from their chutes to the head-applying means, and means for crimping the heads, a table arranged below the shaping and holding blocks, and an ejector working with the table.

17. In a can-heading machine, the combination with the means for feeding the heads and bodies and for applying the heads of a plunger, a head thereon, a crimping device carried on the head, a shaping-block slidably mounted on the plunger, and a spring acting between the plunger and shaping-block.

18. In a can-heading machine, the combination of the shaping and holding plunger shafts, the head-plunger shafts, a drive-shaft, means for reciprocally driving all the plunger-shafts from the drive-shaft, a counter-shaft, disconnectible means for driving the counter-shaft from the drive-shaft, and means for revolubly driving the head-plunger shafts from the counter-shaft.

19. In a can-heading machine, the combination of a chute carrying the can-heads, means for individually releasing the can-heads therefrom, a rack into which the heads are dropped, a head-block moving past the rack to take the can-head therefrom, and a connection between the head-block and said means for releasing the can-heads, the connection comprising a spring-pressed lever and a bar standing diagonally, the bar being connected to move with the head-block.

20. In a can-heading machine, the combination with a chute for the can-bodies and with the devices for applying the heads to the can-bodies, of means arranged to carry the can-heads nested together side face to side face, and a pair of blades or pallets arranged to reciprocate alternately across the faces of the heads, whereby individually to release the heads from the said carrying means.

21. A can-heading machine, comprising a head-chute, a rack, means for individually releasing the can-heads from the chute, and a tripping-finger arranged to be struck by the can-head, whereby to guide it into the rack.

22. In a can-heading machine, the combination with the means for applying the heads, of a chute for the can-bodies, said chute being placed over the head-applying means, and being open at its lower end whereby the can-bodies are supported by the head-applying means when such means are in operative position, a yieldingly-sustained table beneath the means for applying the can-heads, and an ejector coacting with the table.

23. A can-heading machine, comprising means for applying the can-heads, a can-body chute arranged directly over said means and open at its lower end, whereby the means for applying the can-heads support the stack of can-heads, when said applying means are active, and said head-applying means comprising a part capable of being wedged in between the lowermost can-body and those above it, whereby to separate said lowermost can-body from the remainder of the stack.

24. A can-heading machine, comprising the combination with the means for applying the heads to the cans, of a table located below said means, and an ejector connected with said means and working over the table, for the purpose specified.

25. In a can-heading machine, a crimping device comprising two heads or carriers mounted to move in unison toward and from opposite sides of the can, crimping-jaws mounted to rock on each head and coacting

with the can-heads to crimp them, and a body-shaping block yieldingly mounted on each can-carrier, for the purpose specified.

26. In a can-heading machine, the combination with devices for automatically bringing up the can-head and engaging it with the can-body, of a block movable against the side of the can-body to shape and hold the same, a crimping-tool arranged to engage the can-head for the purpose specified, and means effecting a relatively movable connection between the block and the crimping-tool.

27. In a can-heading machine, the combination with devices for automatically bringing up the can-head and engaging it with the can-body, of a block movable against the side of the can-body to shape and hold the same, a crimping-tool arranged to engage the can-head for the purpose specified, and means effecting a relatively movable connection between the block and the crimping-tool, said means comprising a spring for yieldingly projecting the said block ahead of the crimping-tool.

28. In a can-heading machine, the combination with means for holding the can-body and the devices for automatically bringing up the can-head and engaging it with the body, of a crimping-tool arranged to move laterally of the can to engage the head thereof and crimp it on the body, and means for advancing and retracting the tool, said tool comprising a jaw mounted to rock against the head, and a means yieldingly holding said jaw in inactive position.

29. In a can-heading machine, the combination with the means for holding the can-body and the devices for automatically bringing up the can-head and applying it to the body, of a crimping-tool movable transversely of the can toward and from the head, and means for mounting the tool, said crimping-tool comprising a jaw in the form of an elbow arranged to rock against and embrace a corner of the head of the can, and means holding the elbow-lever yieldingly in inactive position.

30. In a can-heading machine, the combination with the devices for applying the heads to the bodies, of means arranged to carry the can-heads nested together side face to side face, and a pair of blades or pallets arranged to reciprocate alternately across the faces of the heads whereby individually to release the heads from said carrying means.

31. In a can-heading machine, the combination with the devices for applying the heads to the bodies, of means arranged to carry the can-heads nested together side face to side face, and a pair of blades or pallets arranged to reciprocate alternately across the faces of the heads whereby individually to release the heads from said carrying means, the working ends of said blades or pallets being beveled outward from the stack of can-heads.

32. In a can-heading machine, the combination with a means for applying the heads to the cans and with the reciprocal block for shaping and holding the can-body, of a table arranged below said means and said block, and an ejector connected to move in time with the block and working over the table for the purpose specified.

33. A can-heading machine, comprising the heading means proper, a can-body chute arranged directly over the same and open at its lower end whereby the heading means support the stack of can-bodies when said heading means are at work, the heading means comprising a part capable of entering into the stack of bodies and of separating the lowermost body from those above it, and a table below the heading means for the purpose specified.

34. In a can-heading machine, the combination with a means for holding the can-body, of a magnetic head-plunger serving to attract the can-head and hold it engaged with the plunger, said plunger being movable up to the can-body to engage the head therewith, and a crimping-tool engaging the head to fasten it to the body, said tool coacting with the said magnetic head-plunger in the crimping operation.

35. In a can-heading machine, the combination with a means for holding the can-body, of a magnetic head-plunger serving to attract the can-head and hold it engaged with the plunger, said plunger being movable up to the can-body to engage the head therewith, and a crimping-tool engaging the head to fasten it to the body, said tool coacting with the said magnetic head-plunger in the crimping operation, and the head-plunger having a marginal rabbet-groove formed therein and producing a shoulder engaging the can-head to prevent the collapse of the can during the crimping operation.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LEE C. SHARP.

Witnesses:
I. B. OWENS,
JNO. M. RITTER.