No. 800,124. PATENTED SEPT. 19, 1905.

C. H. AYARS.

MACHINE FOR APPLYING THE ENDS TO SHEET METAL BODIES.

APPLICATION FILED NOV. 20, 1903.

6 SHEETS—SHEET 1.

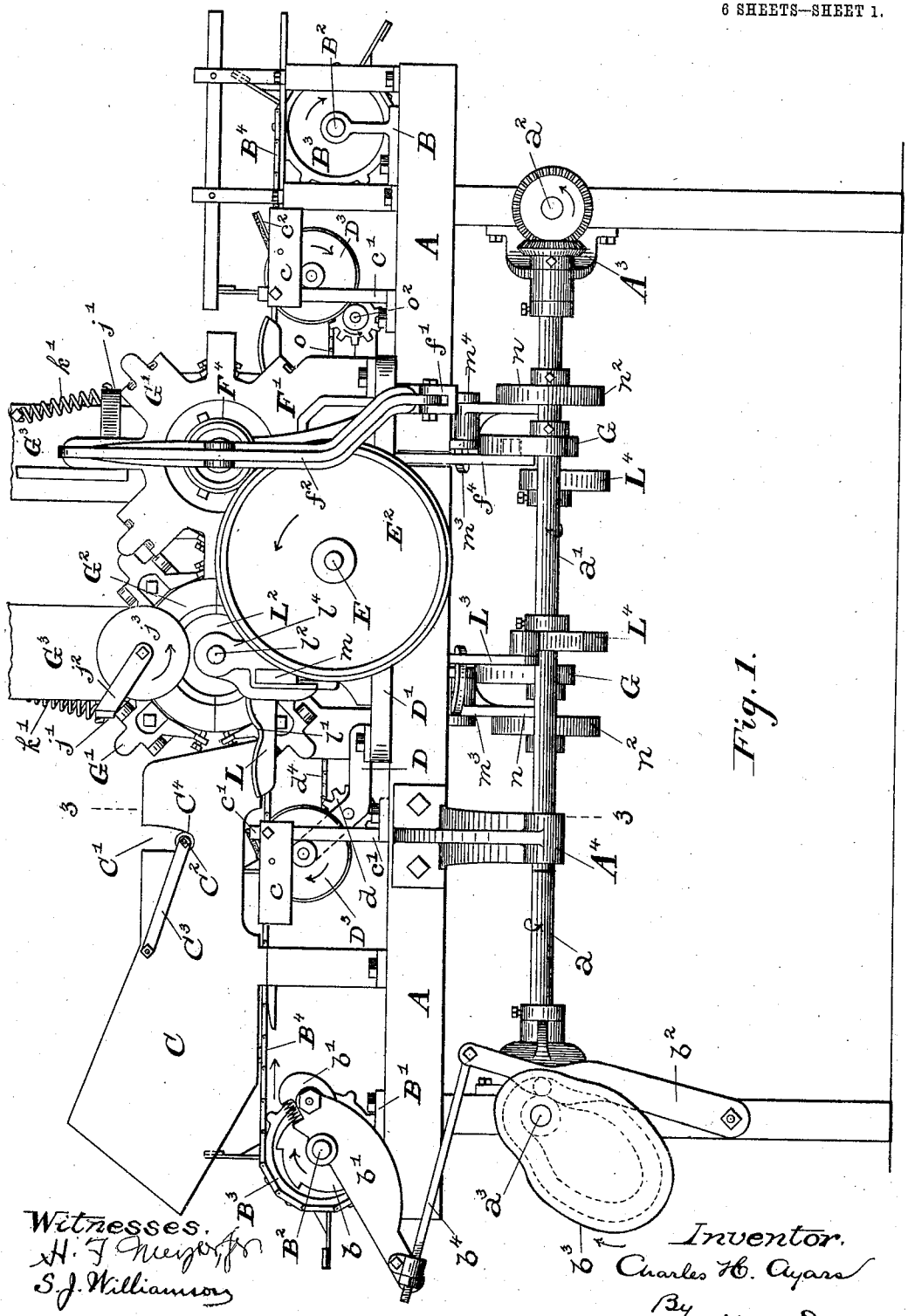

Fig. 1.

Witnesses.
H. J. Meyerhoff
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6 SHEETS—SHEET 2.

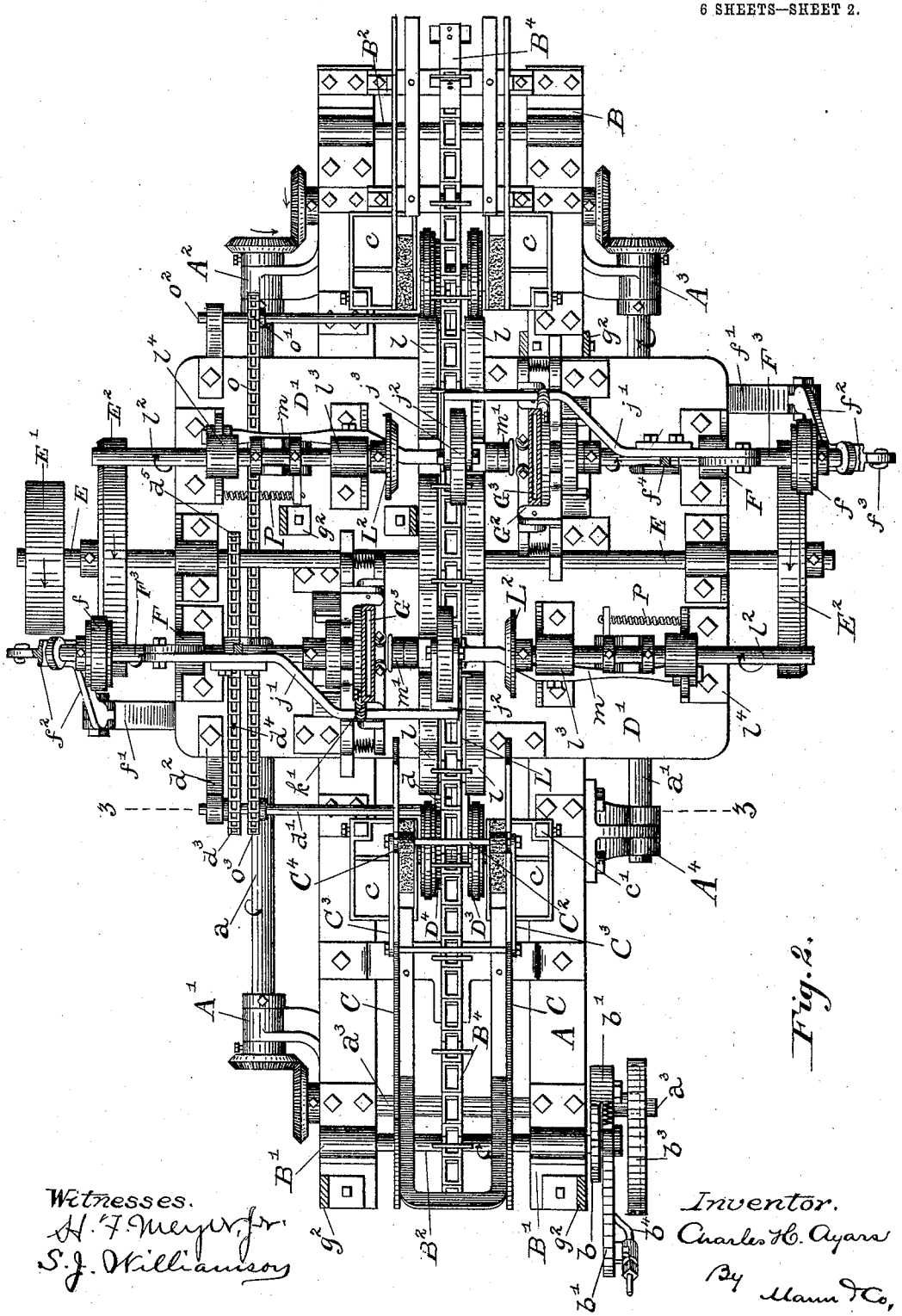

Fig. 2.

Witnesses.
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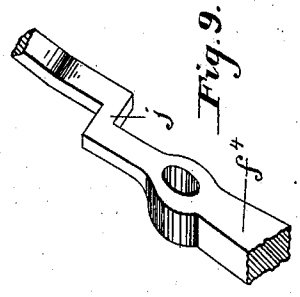

Fig. 9.

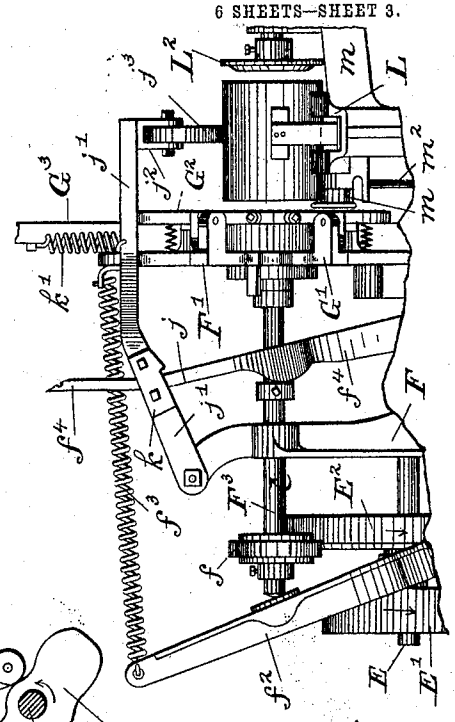

Fig. 4.

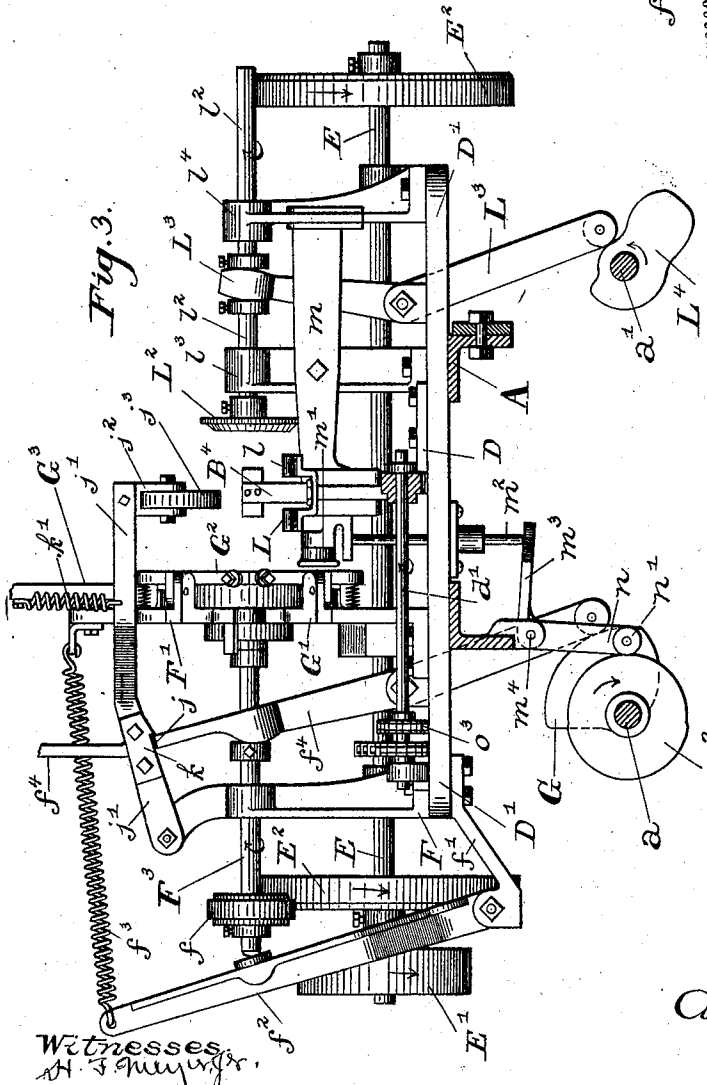

Fig. 3.

Fig. 10.

Witnesses,
H. J. Mulvey, Jr.
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6 SHEETS—SHEET 4.

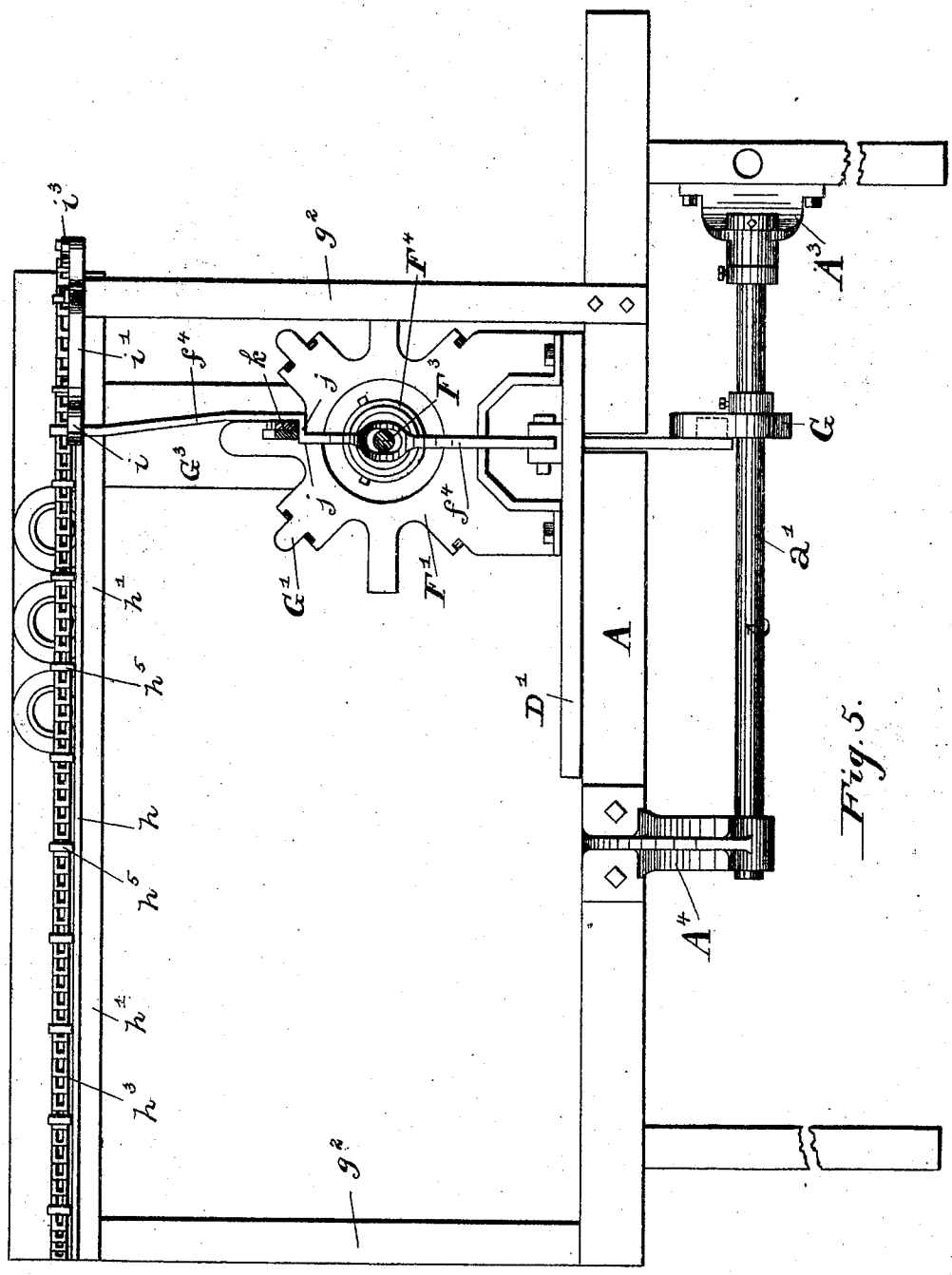

Fig. 5.

Witnesses.
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6 SHEETS—SHEET 5.

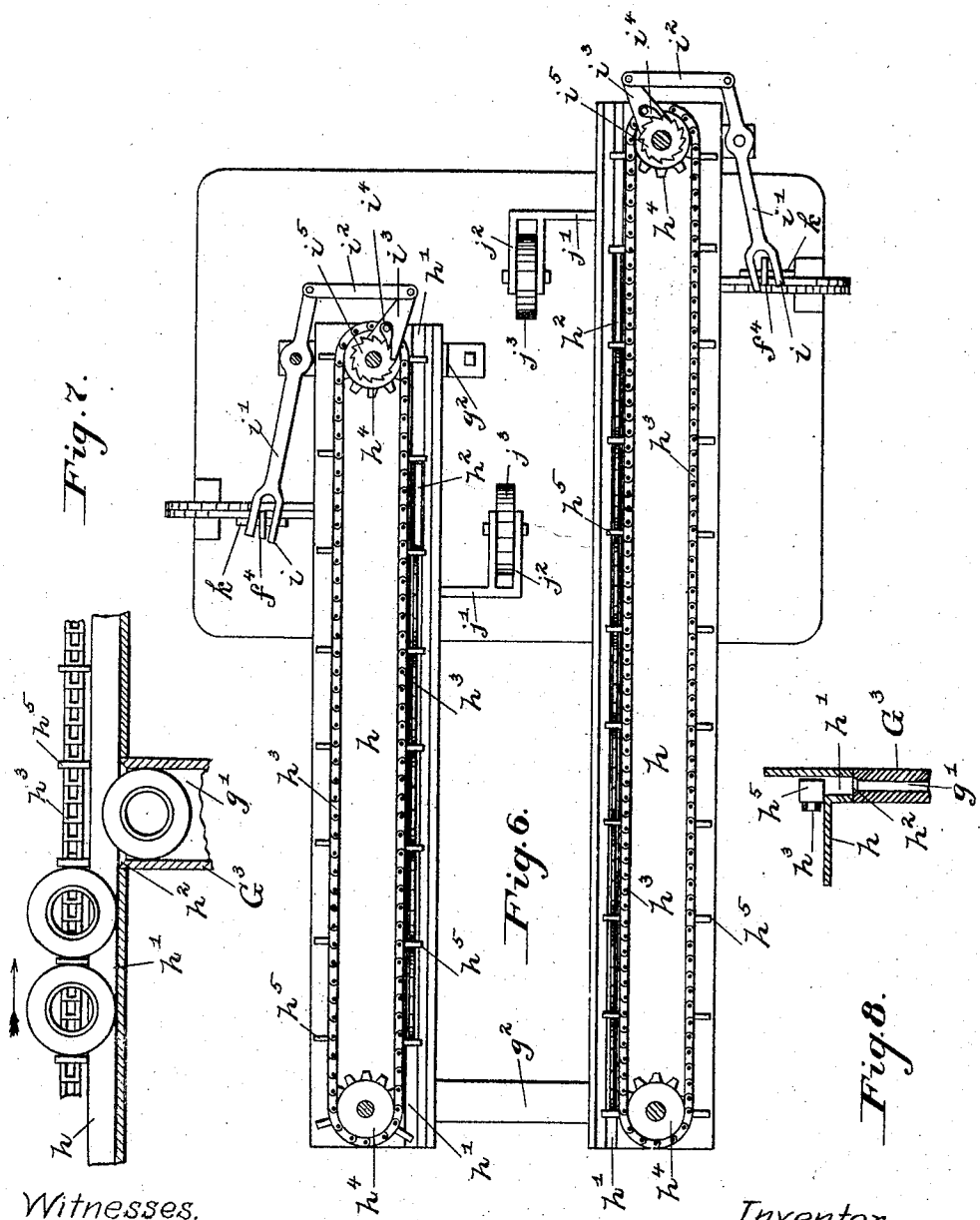

Fig. 7.

Fig. 6.

Fig. 8.

Witnesses.

Samuel J. Williamson.

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MACHINE FOR APPLYING THE ENDS TO SHEET METAL BODIES.

APPLICATION FILED NOV. 20, 1903.

6 SHEETS—SHEET 6.

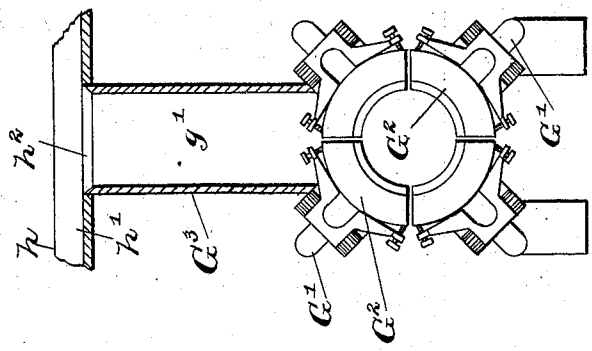

Fig. 12.

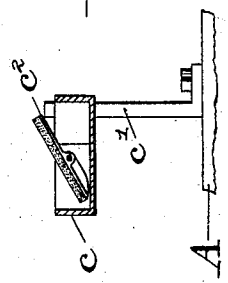

Fig. 15.

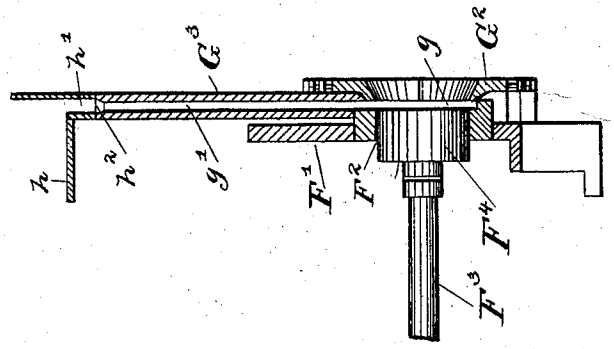

Fig. 11.

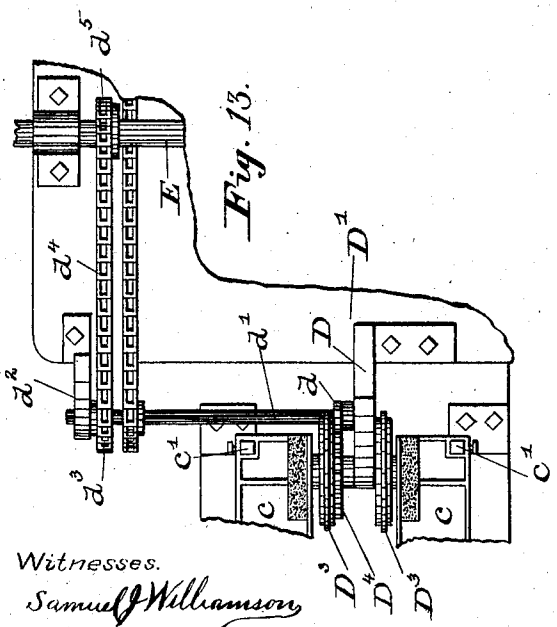

Fig. 13.

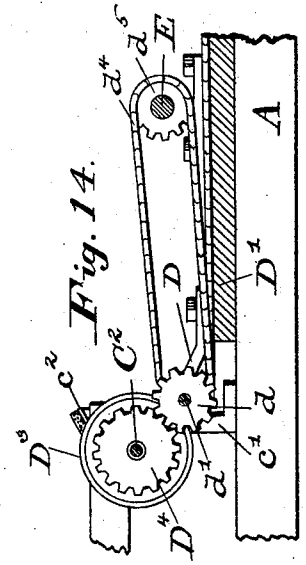

Fig. 14.

Witnesses.
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G. Ferdinand Vogt

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Attorney's.

UNITED STATES PATENT OFFICE.

CHARLES H. AYARS, OF SALEM, NEW JERSEY, ASSIGNOR TO AYARS MACHINE COMPANY, OF SALEM, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR APPLYING THE ENDS TO SHEET-METAL BODIES.

No. 800,124. Specification of Letters Patent. Patented Sept. 19, 1905.

Application filed November 20, 1903. Serial No. 181,927.

To all whom it may concern:

Be it known that I, CHARLES H. AYARS, a citizen of the United States, residing at Salem, in the county of Salem and State of New Jersey, have invented certain new and useful Improvements in Machines for Applying the Ends to Sheet-Metal Bodies, of which the following is a specification.

This invention relates to a machine for applying the ends to sheet-metal bodies.

One object of the invention is to provide means for fluxing the bodies before the application of the ends, then to apply one end and then the other, and finally before discharging the body to again flux the headed ends.

Another object of the invention is to provide improved mechanism for feeding the ends to be applied to the bodies, so that the same will be positively fed one at a time.

Another object of the invention is to provide improved mechanism whereby the feeding of the ends will automatically be stopped when there is no body in position to receive them.

Another object of the invention is to provide improved mechanism for crimping the flanges of the ends on the bodies before they leave the heading mechanism, and thereby prevent the heads from becoming loosened or displaced prior to soldering the ends.

With these and other objects in view the invention is illustrated in the accompanying drawings, in which—

Figure 1 illustrates a side elevation of the machine, the device for feeding the ends having been omitted. Fig. 2 is a plan view of same. Fig. 3 is a horizontal section on the lines 3 3 of Figs. 1 and 2. Fig. 4 is a fragmentary view of the related parts shown in Fig. 3, which automatically control the mechanism for feeding the ends or tops and bottoms. Fig. 5 illustrates a side elevation of the mechanism for intermittently feeding the tops and bottoms. Fig. 6 is a plan view of same. Fig. 7 is an enlarged sectional detail of a portion of the chain-feed and the vertical connecting-chute for conveying the ends or tops and bottoms to the point where they are to be applied to the can-bodies. Fig. 8 is a vertical sectional view of same. Fig. 9 is a detail perspective view, on an enlarged scale, of a portion of the lever which operates the chain-feed for the tops and bottoms. Fig. 10 is a detail perspective view of the plate for engaging and locking the lever shown in Fig. 9 to prevent the feeding of tops or bottoms during the absence of a can-body. Figs. 11 and 12 illustrate two views of the head for receiving the tops and bottoms to center same with respect to the can-body, and Figs. 13 and 14 illustrate a top plan and side elevation, respectively, of the fluxing mechanism. Fig. 15 is a vertical section through the flux-box.

In the drawings, reference being had particularly to Figs. 1 and 2, A designates a table or stand of any suitable construction, and in the present instance having brackets A' and A^2 on one side and A^3 and A^4 on the opposite side. A horizontal shaft a extends lengthwise of the machine at one side and has bearing in the brackets A' and A^2, and another horizontal shaft a' extends along the opposite side of said machine and in a direction parallel with the shaft a. A shaft a^2 extends in a crosswise direction at one end of the machine or at right angles to the shafts a and a', and all said shafts are provided at their ends with gearing, so that motion will be transmitted from the shaft a to shaft a' through shaft a^2. At the opposite end the machine is provided with a horizontal driving-shaft a^3, which is geared to the shaft a. The shafts a and a' are both cam-shafts on which suitably-shaped cams are carried to operate the various levers and impart motion to the latter at the proper time to perform the several successive operations. On top of the table and at each end thereof are suitable bearings B and B', which support horizontal shafts B^2, each of which latter carry a sprocket-wheel B^3. These sprocket-wheels are centrally located with respect to the width of the machine and are connected by a sprocket conveyer-chain B^4, having the ordinary laterally-projecting arms. One of the shafts B^2, it will be seen, has position over the driving-shaft a^3 and at one end carries a ratchet-wheel b and also a pawl b'. Beneath this shaft and pivotally secured to the frame of the table is a lever b^2, which latter is provided with a roller, and a cam b^3 is carried on the shaft a^3 and has an ordinary cam-groove, which receives the roller on said lever b^2 and imparts a rocking movement to the upper end of said lever. A rod b^4 connects the cam-lever b^2 with the pawl b', and as the lever is rocked a reciprocating movement is imparted to the pawl and an inter-

mittent rotary motion given the shaft B^2. This motion of the said shaft will obviously transmit a step-by-step or intermittent movement to the conveyer-chain B^4 in the direction indicated by the dart.

Above the table A and extending vertically at each side of the chain B^4 are two walls C, which form a chute and between which the cylindric bodies roll onto the said chain conveyer. These two walls C are each provided near their inner ends with a vertical slot C', and a shaft C^2 extends horizontally across said walls and through said slots and is pivotally supported at each end by a vertically-movable arm C^3. This shaft C^2 carries a roll C^4 near each end, which bear on the circumferential ends of a body for the purpose of distributing a fluxing solution prior to the application of ends to the bodies, as will now be more fully described.

Beneath the roll C^4 and at each side of the conveyer-chain is a flux-box c, which is supported on a vertical standard c' above the table. Pivotally mounted in each of these boxes is an inclined plate c^2, having a covering of some suitable absorbent material, and these covered plates each have position directly beneath one of the rolls C^4 for a purpose now to be described.

By reference to Figs. 1, 2, 13, and 14 it will be seen that an upwardly-extending inclined bracket D is secured to a plate D', and said bracket extends in a direction toward the flux-boxes c and between the latter, but beneath the conveyer-chain. This bracket at its upper end supports a horizontal shaft, which latter, as will be seen in Fig. 1, has position beneath the rolls C^4 and carries two disks or wheels D^2, each of which has position on said shaft, so as to revolve in a vertical plane at the sides of the flux-boxes. A gear D^4 is also mounted on said horizontal shaft and meshes with a pinion d on a horizontal shaft d', which latter is also supported at one end by the bracket D and at the other end by a bracket d^2. A sprocket d^3 is also on said shaft d', and a chain d^4 passes around said sprocket and also around a sprocket d^5 on a continuously-driven shaft E, from which rotary motion is transmitted through the chain and sprockets to the shafts d' and C^2 and by the latter to the wheels D^3.

It has been explained that the conveyer-chain is moved intermittently and that this intermittent movement carries the cylindric bodies forward. Each forward movement of the chain carries a body to be stopped, so as to rest on the wheels D^3, and while so held these wheels, which are continuously revolved, cause the body to be revolved while in contact with the padded absorbent material on the pivoted plates c^2, and the rolls C^4 rest on the body at the side opposite the said plates c^2. It is therefore obvious that while revolving flux will be transferred from the pads onto the edges of the body and be distributed by the said rolls. It will also be seen that both ends of the body are simultaneously fluxed prior to receiving the ends. The chain then moves the fluxed bodies forward and the operation of applying one of the ends begins. It is to be understood that the present construction is designed to apply first one end and then the other to the bodies. The mechanism for accomplishing this will now be described.

A horizontal shaft E is supported in suitable bearings at opposite sides of the plate D', and said shaft extends in a direction parallel with the top surface of said plate and in a direction crosswise of the latter. This shaft is provided at one end with a pulley E', through which the same is continuously revolved. Friction-wheels E^2 are also carried on said shaft, one at each end thereof, and these wheels are continuously and rapidly revolved with said shaft E. The rapid revolution of this shaft is utilized to revolve the can-bodies after one or the other end has been applied, so that during such revolution the flange on the end may be crimped on the body before the latter leaves the machine to be soldered. As the ends are not both applied at the same time, but one at a time, the mechanism about to be described is duplicated, and this duplicate mechanism is arranged on opposite sides of the shaft E, the mechanism on one side of the shaft arranged to apply the bottoms, while the mechanism on the opposite side of said shaft designed to apply the tops. Only one of these mechanisms will therefore be described in detail in order to avoid repetition.

At one side of the shaft E and extending vertically from the plate D' is a bracket F, and in front of said bracket and at the side of said chain conveyer B^4 is a vertically-extending head F', provided with a central horizontal bore F^2. A horizontal shaft F^3 extends through and is supported in said bracket F, and the inner end of said shaft carries a plunger F^4, which fits and has slight horizontal movement in said bore. The opposite or outer end of this shaft F^3 carries a friction-wheel f, which is preferably provided with an exterior band of rubber or other suitable material for a purpose as will presently appear. A bracket f' is bolted to the plate D' and at its outer end pivotally supports the lower end of an upwardly-extending lever f^2. This lever f^2 contacts with the outer end of the shaft F^3, and a coiled or spiral spring f^3 is attached at one end to the upper free end of said lever, while the other end of said spring is attached to a stationary portion of the machine, which in the present instance is the head F'. It will be seen that this spring f^3 is under tension and pulls the lever f^2 constantly against the end of said shaft F^3. At certain periods in the operation of the machine the lever f^2 is

designed to be moved inward, and thereby move the shaft F^3 in the same direction and bring the friction-wheel f into contact with the circumference of the revolving wheel E^2 and impart a rapid rotary movement to said shaft F^3 and plunger F^4. Normally the shaft F^3 is stationary and is held outward against the action of the spring f^3 by a vertically-projecting lever f^4, through which the said shaft passes, as seen in Fig. 5, and a collar on the shaft serves as an abutment against which said lever presses to hold the shaft outward. This lever f^4 is pivoted to the plate D', and its lower end projects below said plate and is provided with a roller which works on the face of a cam G on the cam-shaft a, as clearly seen in Fig. 3. It will also be readily seen by reference to said Fig. 3 that the cam G operates the lever f^4 to move the shaft F^3 outward and hold it there during a given period and at the end of that period to release said lever and permit the spring f^3 and lever f^2 to move said shaft in the opposite direction, at which time it is revolved.

The head F' is provided in the present instance with four radial arms G', to each of which is pivoted a spring-pressed segment-plate G^2, and these plates are each provided with a beveled inner edge, as shown in Figs. 11 and 12. These segment-plates are each pivotally secured by their outer ends to the head, and the inner circular edges have position in front of the bore F^2 and plunger F^4, but leaving a space g in front of said plunger, as seen in Fig. 11. A chute G^3 extends vertically above said head, and the central space g' of said chute registers with the space g in front of said plunger. The upper end of the chute G^3 is attached to a horizontal conveyer, along which the ends are positively fed toward the chute. This conveyer is supported above the machine by vertical standards g^2, and the conveyer comprises a flat table or plate h, having a vertical groove or channel h' at its inner side. This groove or channel rests on top of the vertical chute G^3 and is provided with a slot h^2, which registers with the central space g' of said chute. An endless-chain conveyer h^3 passes around sprocket-wheels h^4, which are mounted at opposite ends of the table or plate h, and this chain is provided with laterally-projecting arms h^5, which project over said groove or channel h'. The ends, which may be either the heads or bottoms, are placed in the grooves or channels h' at one end of the machine, and as the chain conveyer is moved the ends are fed forward toward the slot h^2, where they drop into the chute G^3. The arms h^5 serve to properly space the several ends as they are being conveyed toward the chute.

An important feature of the present invention relates to the positive feeding of the ends so that they will be fed forward and dropped into the chute G^3 one at a time and are thereby prevented from choking and clogging in the chute by two ends overlapping. Another important feature is that automatic mechanism is provided to stop the feeding of ends if for any reason there is no body in front of the plunger to receive them. In order to perform these functions, it is necessary, first, that the conveyer-chain h^3 be fed or moved intermittently, and, second, that in the absence of a body to receive an end the feeding or movement of the chain be automatically stopped. The mechanism for accomplishing this will now be described.

By reference to Figs. 5 and 6 it will be seen that the lever f^4 projects vertically above the shaft F^3 and that the upper end of said lever takes in the forked end i of a horizontal pivoted lever i'. This lever i' is pivoted on top of one of the vertical standards g^2 and at its outer end is connected by a link i'' to an arm i^2, carried on the sprocket-shaft. This arm i^3 is provided with a pawl i^4, which engages a ratchet i^5 on the face of the sprocket-wheel h^4. It has heretofore been explained that the lever f^4 has movement toward and away from the head F', and it is this movement of the lever which is utilized to impart a reciprocating movement to the horizontal lever i' and also to the arm i^3 and pawl i^4. It will thus be seen that in every revolution of the cam-shaft a the lever f^4 is given one stroke forward and back again and that this movement causes the ratchet-wheel i^5 to be partially rotated and the chain conveyer moved forward one step and one end dropped into the chute. Each succeeding movement causes a like operation, so that the chain will be fed intermittently. The next step in the operation of this feeding mechanism is to automatically stop the feeding of the ends during the absence of a body to receive them. The lever f^4, as has heretofore been explained, extends vertically from the plate D', and the shaft F^3 passes through an elongated hole in same. Above the shaft F^3 this lever is provided with an offset or shoulder j, which extends in substantially a horizontal plane, as clearly seen in Figs. 5 and 9, and the upper end of said lever takes in the forked end i of the pivoted lever i'. An arm j' is pivoted at one end to the bracket F at the rear of the head F', and this arm extends around said head and terminates at a point above the conveyer-chain B^4. The latter end of the said arm j' carries a bracket j^2, in which a roller j^3 is journaled, so as to have position in front of the head F' and just above the chain B^4. A latch-plate k is secured at the side of said arm j' and is adapted to engage the offset or shoulder j on the lever f^4. A spring k' in the present instance is secured by one end to the chute G^3, and the other end of said spring is attached to the arm j' merely to help support the free end of said arm. It is to be understood, however, that this spring is not strong enough in itself to raise the free end of said arm, but merely serves as a resili-

ent support for said arm, and that the weight of the arm and roller is great enough to permit the arm to drop so that the latch-plate k may engage the offset or shoulder j on the lever f^4.

By reference to Figs. 3 and 4 the operation of the mechanism just described may be readily understood. It will be seen that the roller j^3 has position just above the chain conveyer B^4 and contacts with the cylindric walls of a body in position in front of the plunger F^4, ready to receive the head or bottom. (See Fig. 4.) While in contact with a body, the roller is elevated and the latch-plate k is disengaged from the shoulder j of the lever f^4. While the arm is thus raised and the latch-plate held out of engagement with shoulder j on the lever f^4, the cam G at the lower end of the lever turns so that the lever is free to be moved inward, and immediately upon release of the lever by the cam the spring f^3 will pull the lever f^2 inward and move the shaft F^3 toward the head F'. This lengthwise movement of the shaft F^3 causes the friction-wheel f to contact with the revolving wheel E^2 and rapidly revolve said shaft and the plunger F^4 on its inner end. In the absence of a can-body below the wheel j^3 the latter will drop and the arm j' will be lowered so that the latch-plate k will again engage the shoulder j on the lever f^4. While the latch is thus engaged, the lever f^4 will be locked against movement, and consequently the shaft F^3 and plunger F^4 will not be moved toward the head to eject a head or bottom. It will thus be seen that during the absence of a body the end-feeding mechanism will be automatically locked to prevent the feeding of the ends.

It has been stated that the ends are fed to the chutes G^3 one at a time. It has also been stated that the shaft F^3 is rapidly revolved when the plunger has been moved through the head F'. The object and result of these operations will now be described.

As the bodies are moved by the conveyer B^4 from between the walls C of the chute they are deposited on a centering device L, which is provided with two parallel side bars l, having a plurality of depressions l', into which the bodies settle and are thereby properly spaced from each other and at the same time centered in front of the plungers F^4. Directly opposite the plungers and facing the latter is a disk L^2, carried on the end of a horizontal shaft l^2, which latter is supported by vertical brackets l^3 and l^4. A rock-arm L^3 is pivotally mounted with respect to the plate D', and the upper end of said arm is bifurcated so as to fit around said shaft l^2 between two collars, and the lower end of said arm is provided with a roller which contacts with the face of a cam L^4 on the shaft a'. This cam is designed to rock the arm L^3 and move the shaft l^2 and disk L^2 against the body in front of the disk and push said body up against the spring-pressed segment-plates G^2. At this moment the shaft F^3 is moved outward and the plunger F^4 contacts with the head or bottom in front of it and pushes it on the end of the centered body. The body is then rapidly revolved while clamped between the plunger F^4 and disk L^2. This revolution of the body is provided in order that the end may be crimped so as to be locked on the cylindric wall while the other end is being applied and during handling prior to the soldering operation. This crimping mechanism will now be described.

An arm m is pivoted to the side of the bracket l^3, and the inner end of said arm projects beneath the chain conveyer B^4 and carries a beaded roller m', which is free to turn in a vertical plane. This beaded roller m' has position directly in front of the head F' and confronts the lowermost segment-plate G^2. Beneath the roller and extending vertically through the plate D' is a pin m^2, on top of which the roller end of the arm m rests by reason of the preponderance of weight being at said end. The lower end of this vertical pin m^2 rests on the free end of a bell-crank lever m^3, which is pivoted at m^4 to the table A, and the other end n of said bell-crank lever is provided with a roller n', which contacts with a cam n^2 on the shaft a, as clearly seen in Fig. 3. By reference to this Fig. 3 it will be seen that the cam n^2 will operate the bell-crank lever to raise the pin m^2 and roller m' at the time the cam G permits the lever f^4 to be operated to allow the shaft F^3 and plunger F^4 to move through the head to apply an end to the body in front of it, and which body also has position just over the crimping beaded roller m'. As the roller m' is thus raised it contacts with the flange of the end which has just been applied to the body, and while in such contact the body is rapidly revolved and the crimping operation takes place. A spring P serves to return the shaft l^2 and keep the rock-arm L^3 in contact with the cam L^4.

As has heretofore been explained, the heading mechanism as described is duplicated, as the machine illustrated applies first one end to the body and the latter is moved forward, and the opposite end is then applied. It is also to be understood that a duplicate fluxing device is arranged with respect to the conveyer B^4 to flux the headed bodies after both ends have been applied, and the device is also a mere duplicate of the device hereinbefore described. The rollers of this second fluxing device are operated by a sprocket-chain o, which passes around a sprocket o' on the shaft o^2 and also over a sprocket o^3 on the shaft d'.

The several steps in the operation, briefly stated, are as follows: In practice this header-machine is preferably interposed between a machine which solders the side seams of the can-bodies and another machine which solders

the ends, so that the cylindric bodies are received from the side-seamer. The bodies are fed into the end of the chute between the two vertical walls C, from which they are deposited onto the intermittently-moving belt B^4 and conveyed to the fluxing device, where they are rapidly revolved and the flux applied while the belt is at rest and before either end is applied. The next movement of the belt deposits the cans on the centering device L, where they are properly spaced with respect to each other. The next movement of the belt deposits a body in front of the heading mechanism, where one end is applied and then crimped on the body. The belt on its next movement places the body between the two heading mechanisms, where it may remain or be inspected to be sure that the end has been properly applied previous to moving it in front of the other heading mechanism, where the opposite end is applied and crimped. After this latter operation the headed body is then moved to the second fluxing device, where both ends are again fluxed in the same manner as at first, and the bodies are then ready to be run into the floater or the machine for soldering the ends to the bodies.

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

1. A machine of the class described having a can-body conveyer, separate end-applying devices for applying the opposite ends to the bodies and means whereby either one of said end-applying devices may be held stationary without interfering with the operation of the other.

2. A machine of the class described having a can-body conveyer for moving the bodies in a direction at right angles to their length; independent means for applying opposite ends to said bodies; means for feeding the ends to be applied, and means for automatically stopping the ending mechanism during the absence of a body to receive the end.

3. A machine of the class described having a can-body conveyer, separate end-applying devices for applying opposite ends to the bodies and each of said devices having a plunger to force the end on the body; independent means for moving the plungers, and means to lock one plunger and hold it stationary without interfering with the operation of the other plunger.

4. A machine of the class described having a can-body conveyer; independent mechanism for applying opposite ends to said bodies; means for positively feeding the ends to the ending mechanisms and means for automatically stopping the end-feeding mechanism during the absence of a body to receive the end.

5. A machine of the class described having a can-body conveyer; means for applying one end to said bodies and then rotating said body; means for crimping said end while the body is rotated, and means for applying the opposite end to said body and again rotating it while the latter end is being crimped.

6. A machine of the class described having a can-body conveyer; means for applying the ends to said bodies, and end-feeding means operated by the applying means whereby to feed one end after the one previously fed has been applied.

7. A machine of the class described having a can-body conveyer; means for applying the ends to said bodies; end-feeding means operated by the applying means, and means for automatically stopping both the end feeding and end-applying means during the absence of a can-body to receive the end.

8. A machine of the class described having a can-body conveyer; a reciprocating plunger at one side of said conveyer; a separate conveyer for feeding the ends one at a time in front of said plunger, and means for simultaneously operating the end-feeding conveyer when the plunger is reciprocated.

9. A machine of the class described having a can-body conveyer; a reciprocating plunger at one side of said conveyer; a separate conveyer for feeding the ends, one at a time in front of said plunger; means for operating said end-feeding conveyer when the plunger is operated, and means to prevent operation of the plunger and end-feeding conveyer during the absence of a can-body from in front of said plunger.

10. A machine of the class described having a can-body conveyer; a head; a shaft carrying a plunger which latter is adapted to be reciprocated in said head; a movable endless conveyer for feeding the ends, to said head and in front of the plunger, and means coacting between the said plunger-shaft and endless end-feeding conveyer for intermittently moving said conveyer forward to feed one end at a time.

11. A machine of the class described having a can-body conveyer; a head; a shaft carrying a plunger which is adapted to be reciprocated in said head; a movable endless conveyer for feeding the ends to said head and in front of said plunger; a lever adapted to be reciprocated by said plunger-shaft and means coacting between said lever and endless end-feeding conveyer whereby to intermittently move said conveyer to feed one end at a time.

12. A machine of the class described having a can-body conveyer; a reciprocating shaft carrying a plunger; means for feeding the ends one at a time in front of said plunger; a lever adapted to be reciprocated with said shaft, and means coacting with said lever to prevent reciprocating movement of said shaft and plunger during the absence of a can-body to receive the end.

13. A machine of the class described having a can-body conveyer; a reciprocating shaft car-

rying a plunger; means for feeding the ends one at a time in front of said plunger; a lever adapted to be reciprocated with said shaft and plunger; an arm carrying a roller at one end which has position in the path of the can-bodies on said conveyer, and means coacting between said arm and lever to prevent reciprocation of said shaft and plunger during the absence of a can-body.

14. A machine of the class described having a can-body conveyer; a shaft carrying a friction-wheel; a reciprocating shaft carrying a plunger at one end and a friction-wheel at the opposite end adapted to be moved into and out of contact with the first-named friction-wheel; means for feeding ends in front of said plunger; means for moving said reciprocating shaft to apply the end to the body and bring the friction-wheels together to cause the shaft to revolve; means for crimping the end on the body while the shaft is revolved, and means for locking said shaft against movement during the absence of a can-body to receive the end.

15. A machine of the class described having a can-body conveyer; two independent reciprocating plungers, one at each side of said conveyer and each plunger being in a different vertical plane from the other; two end-feeding conveyers one for each plunger; means for operating said end-feeding conveyers independently of each other, and means for stopping the operation of either of the plungers and the end-feeding conveyer independently of the other plunger and its end-feeding conveyer.

16. A machine of the class described having a can-body conveyer; a head at each side of said conveyer and each head having a reciprocating plunger, said two heads and plungers having positions in different vertical planes; an endless chain conveyer above each of said heads for independently feeding ends in front of said plungers, and means whereby upon the return movement of said plungers after applying an end to a can-body the end-feeding conveyer for that plunger will feed another end in front of the said plunger.

17. A machine of the class described having a can-body conveyer; a flux-box at each side of said conveyer and each having a pivoted fluxing-pad; a pair of rollers revoluble between said flux-boxes and adapted to contact with the body and revolve same while in contact with said fluxing-pads; and means for applying the ends to said bodies after they have been fluxed.

18. A machine of the class described having a can-body conveyer, in combination with two independent end-applying devices and a stationary centering and spacing device having a plurality of ridges and depressions over which the bodies roll to center them with respect to the end-applying devices.

19. A machine of the class described having a can-body conveyer, in combination with two end-applying devices and a centering device having two parallel bars, one at each side of the conveyer and between which the conveyer moves, said bars each having an upper surface which is provided with a plurality of ridges and depressions over which the bodies roll when the conveyer is moved.

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

CHARLES H. AYARS.

Witnesses:
J. G. RICHMOND,
W. P. BALLINGER.