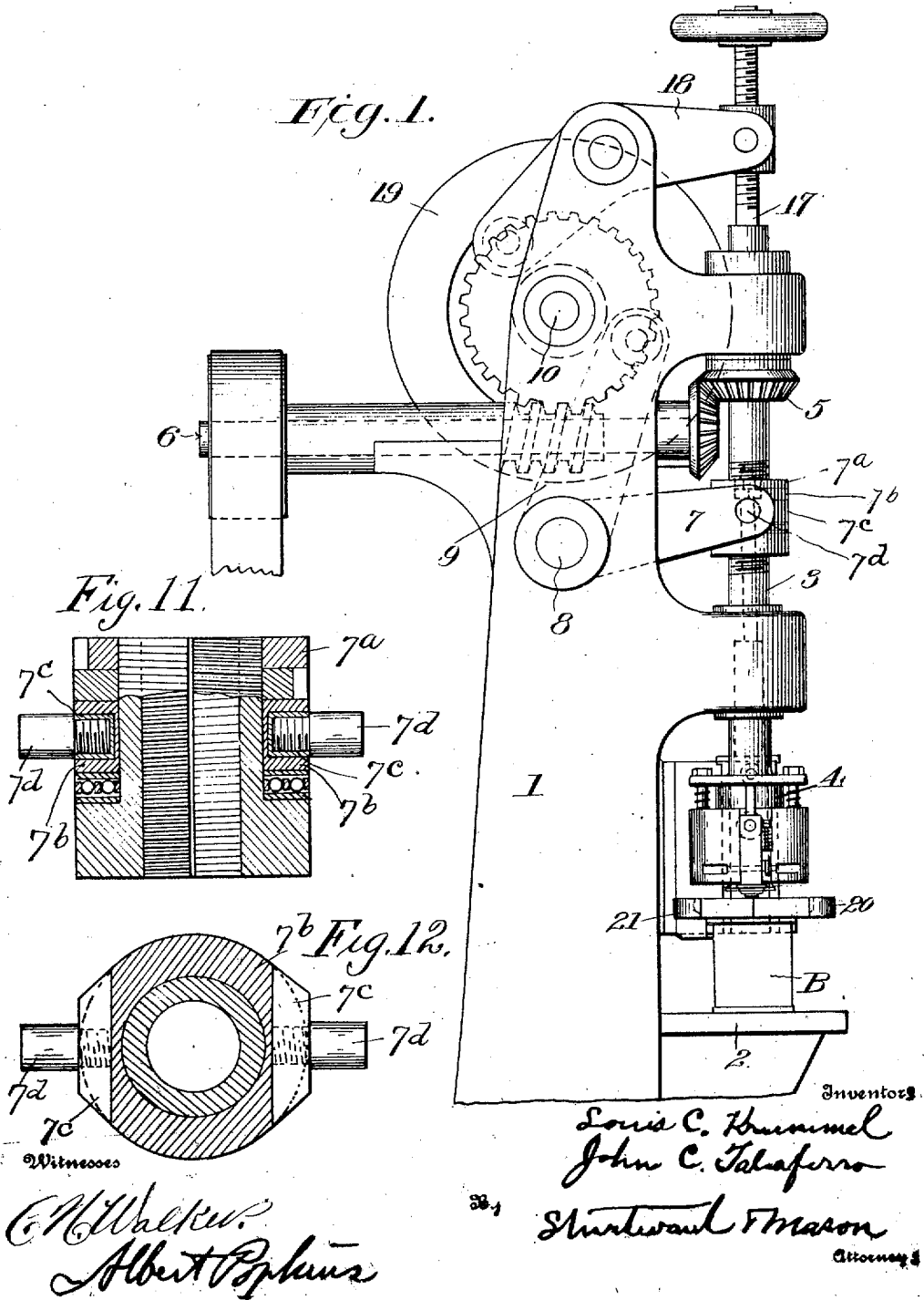


L. C. KRUMMEL & J. C. TALIAFERRO.
CAN CENTERING AND TRUING DEVICE.
APPLICATION FILED JUNE 30, 1909.

954,976.

Patented Apr. 12, 1910.

4 SHEETS—SHEET 1.



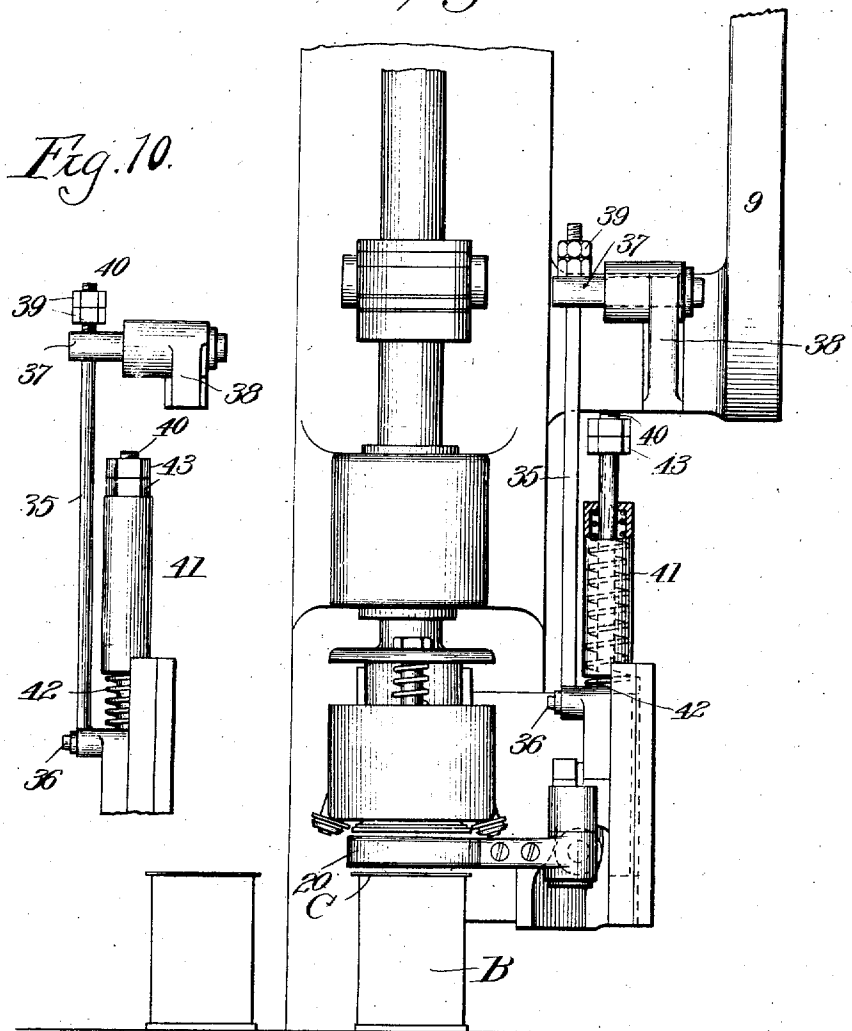
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

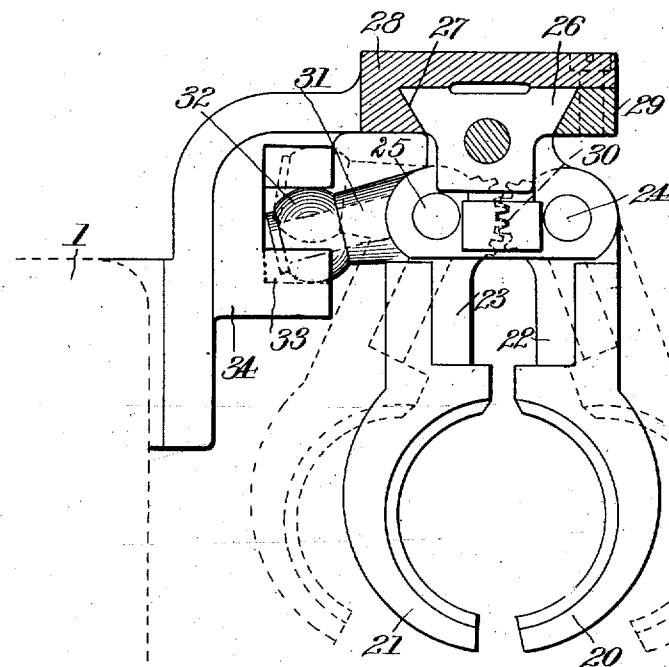


Fig. 4.

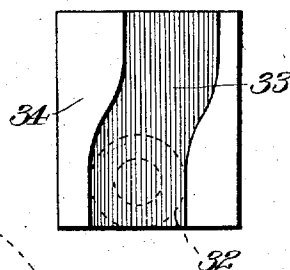


Fig. 5.

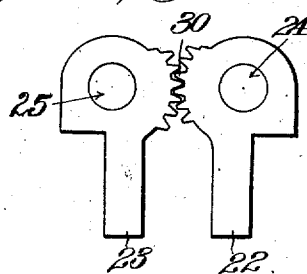
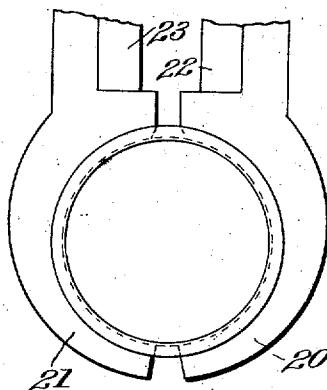


Fig. 6.



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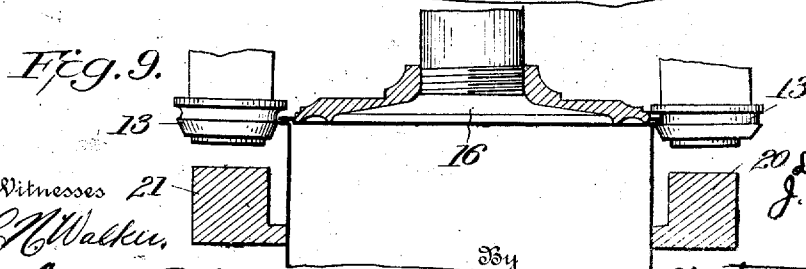
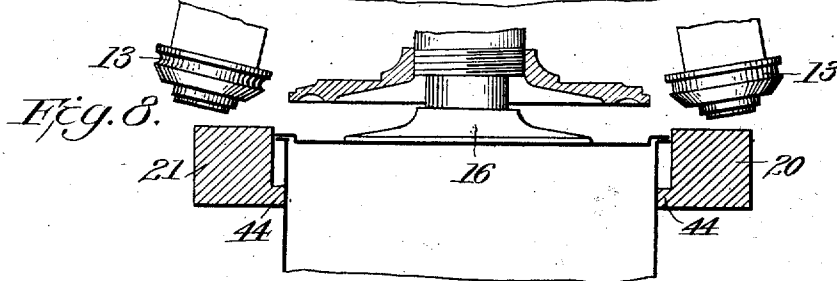
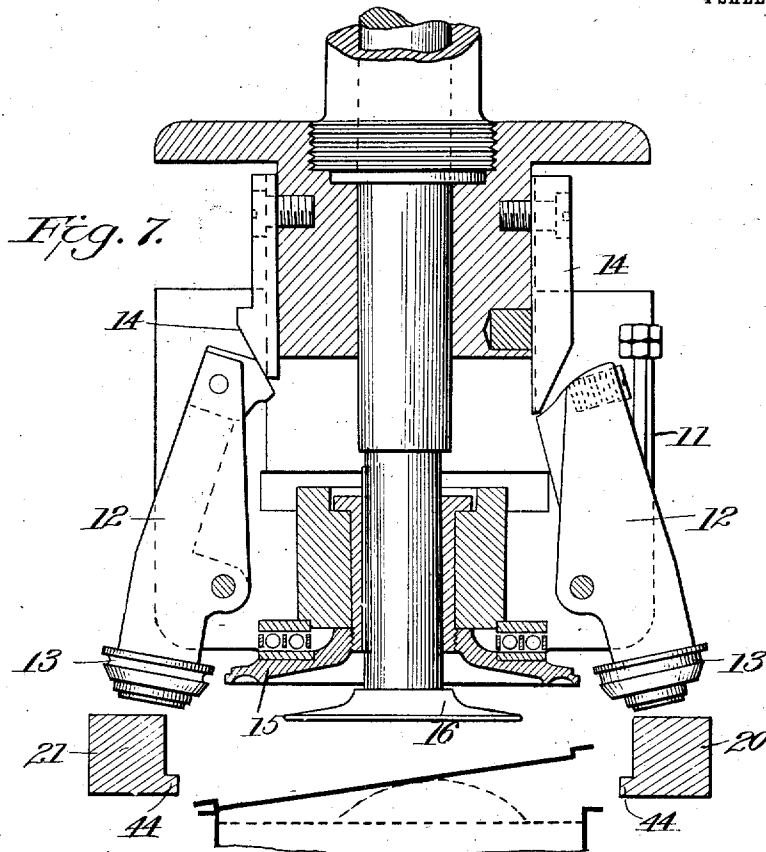
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

LOUIS CHARLES KRUMMEL, OF CLINTON, CONNECTICUT, AND JOHN C. TALIAFERRO, OF BALTIMORE, MARYLAND, ASSIGNORS TO CONTINENTAL MACHINE COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

CAN CENTERING AND TRUING DEVICE.

954,976.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed June 30, 1909. Serial No. 505,277.

To all whom it may concern:

Be it known that we, LOUIS C. KRUMMEL and JOHN C. TALIAFERRO, citizens of the United States, residing at Clinton, in the county of Middlesex, State of Connecticut, and Baltimore, Maryland, respectively, have invented certain new and useful Improvements in Can Centering and Truing Devices, of which the following is a description, reference being had to the accompanying drawing and to the characters of reference marked thereon.

The invention relates to new and useful improvements in can closing machines, and has for an object to provide means for truing the can body, and centering the cover relative to the can body, said means operating in advance of and during the operation of the means for securing the cover to said can body.

A further object of the invention is to provide a can-closing machine with a seaming head, and with a device for truing the can body and centering the same relative to the seaming head, and for centering the cover relative to the can body.

A further object of the invention is to provide a can-closing machine having a seaming head, with a centering device for centering the cover relative to the can body prior to the same being engaged by the seaming head, and for holding said cover centered until seated in the can body by the action of the seaming head.

These and other objects will in part be obvious, and will in part be hereinafter more fully disclosed.

In the drawings which show by way of illustration one embodiment of the invention,—Figure 1 is a side view of a portion of a machine having our improvements applied thereto; Fig. 2 is a front view of a portion of the same; Fig. 3 is a sectional view, showing the centering devices in plan; Fig. 4 is a detail showing the cam for operating the centering jaws. Fig. 5 is a detail showing the means for connecting the centering jaws. Fig. 6 is a plan view showing a can body and can cover engaged by the centering device. Fig. 7 is a sectional view showing the parts of a seaming head with the head in raised position, centering jaws in section and a portion of the can body.

Fig. 8 shows the can body engaged by the centering and truing device, before said can body is engaged by the seaming head. Fig. 9 is a view similar to Fig. 8, showing the position of the centering device during the formation of the seam. Fig. 10 is a detail showing the centering mechanism support in different positions. Fig. 11 is a detail in section, showing the sleeve for connecting the operating lever to the spindle. Fig. 12 is a horizontal section of the same.

In the drawings, 1 is a portion of the framework of the machine, which carries a supporting table 2 on which the cans may rest during the operation thereon. The seaming head herein illustrated forms no part of the present invention, but is shown, described and claimed in the patent granted to Louis C. Krummel, September 21, 1909, No. 934,921. Said seaming head is shown herein merely for the purpose of illustration, and it should be understood that our improved centering and truing device may be used in connection with any desired form of seaming head.

The seaming head, as herein shown, comprises a rotating spindle 3, which carries an inner sleeve 4 at its lower end. The spindle 3 is rotated through the gear 5 by the cross shaft 6. Said spindle is raised and lowered relative to the table 2, by means of a rock lever 7, which is rigidly mounted on a shaft 8, carried by suitable bearings in the frame 1 of the machine. Said shaft 8 has an arm 9 (see Figs. 1 and 2), which carries a roller engaging a face cam mounted on the shaft 10, which in turn is geared to the shaft 6 by a worm gear.

The lever 7 is connected to the spindle 3, so as to move the same longitudinally by means of a sleeve 7^a. This sleeve is threaded on to the spindle so that the same may be adjusted on the spindle. The sleeve 7^a carries a ring 7^b which is supported so that said sleeve may rotate freely relative to the ring. The ring 7^b is provided with recesses in which are mounted slides 7^c, carrying pins 7^d, which engage suitable bearings formed in the lever 7. The sliding connection between the ring and the lever 7 allows the lever to swing about its fulcrum and the end thereof to move in a curved line while the spindle reciprocates in a vertical line.

The inner sleeve 4 has a cooperating outer sleeve 11, on which are pivoted levers 12 carrying seaming rolls 13. The levers 12 are operated by suitable cams 14 carried by the inner sleeve, when the inner sleeve is moved relative to the outer sleeve. A chuck 15 is supported by the outer sleeve, and is adapted to engage the cover during the seaming operation.

A center pad 16 is carried by a rod 17, which projects up through the rotating spindle 3, and said rod is moved up and down by means of a rock lever 18, which carries a roller running in a face cam 19 mounted on the shaft 10 of the machine.

In the operation of the seaming head, the spindle 3 is continuously rotated, carrying with it the inner and outer sleeves and the seaming rolls. The chuck is preferably splined to the rod 17, and the rod 17 is held from rotating by means of its connection with the lever 18.

When the can body has been placed on the table 2, the center pad 16 first descends, engaging the cover and seating the same on the can body, after which the chuck engages the cover and then the seaming rolls operate to form the closing seam. After the closing seam is finished, the seaming head is raised from the can body, and the center pad holds the can body from movement with the seaming head, so that it is stripped therefrom.

Where can bodies are handled and conveyed to a machine without having an end secured thereto, there is great liability of the can body becoming distorted, so that considerable trouble has arisen in placing the cover or end in the can body by the closing machine. Then again where a distorted can body has been temporarily trued, and the cover seated, it is found that the spring of the can body will at times crowd off the cover unless the can body is held in its trued up shape until after the cover is secured. Furthermore, it often occurs in practice that the solid contents of a can protrudes about the top or rim line of the can, and interferes with the seating or centering of the cover on the can body. This invention resides in a centering and truing device which operates in conjunction with the seaming head, engages the can body, rounds up the same preparatory to receiving the cover, holding the same rounded up until the cover is secured on the can body, centers the can body relative to the seaming head; centers the cover relative to the can body, regardless of whether the cover is resting on the rim of the can body or tilted by the solid contents of the can, and holds said cover centered until seated in the can body by the seaming head.

Our improved centering and truing device comprises, as herein illustrated, two jaws 20 and 21. Said jaws are recessed and

curved to conform to the proper shape of the can body and cover, and are so disposed relative to each other as to engage the opposite sides of the can body and round up the same and simultaneously center the cover, so that said can body is properly shaped and the cover positioned to be seated in the can body. Said jaws 20 and 21 are detachably secured to the arms 22 and 23 respectively, which arms are pivoted at 24 and 25 to a sliding support 26. The support 26 is dovetailed in cross section, and runs in a suitable guideway 27, formed in a bracket arm 28, which may be secured to the framework of the machine.

The side 29 of the guideway 27 is detachably secured to the bracket arm in any suitable way. The arms 22 and 23 supporting the jaws 20 and 21, are provided with intermeshing gear teeth 30, so that all movements of one arm are conveyed to the other arm.

The arm 23 has a projecting stud 31, which carries a roller 32 running in a cam groove 33 formed in the block 34 secured to the bracket arm 28. The cam groove 33 is so constructed that if the roller 32 be moved up and down in the cam groove, said roller will operate to swing the jaw 21 and through the gearing 30 between the arms 22 and 23 also swing the jaw 20.

As a means for raising the sliding support 26, we have provided a lifting rod 35, which is pivoted at 36 to the support 26, and at its upper end freely extends through a projecting member 37 carried at the outer end of an arm 38, which is rigidly secured to the rock shaft 8.

The upper end of the rod 35 has adjustable stop nuts 39. The sliding support 26 is also provided with an upwardly extending rod 40, which projects through a barrel 41 rigidly attached to the bracket arm 28. The barrel 41 receives a spring 42 which surrounds the rod 40, bearing at the upper end against the partially closed end of the barrel, and at its lower end against the upper end of the support 26. This spring normally forces the sliding support 26 downwardly. Adjustable nuts 43 carried by the upper end of the rod 40 will limit the downward movement of the sliding support 26.

It will be evident that as the shaft 8 is oscillated through the arm 9, the arm 38 will cause the projecting member 37 to engage the adjustable nuts 39 on the rod 35 when the arm moves upward, and lift the sliding support 26 against the tension of the spring 42. When the arm 38 moves in the opposite direction, the spring will move the sliding support 26 downward, until the adjustable nuts 43 engage the upper end of the partially closed barrel 41, which will prevent any further downward movement of the sliding support 26. The arm 38 may,

however, continue its downward movement, as the projecting member 37 will freely slide down on the rod 35, as shown in Fig. 7.

In the operation of our device, the centering and truing jaws are moved upward by means of the rod 35, when the seaming head is raised from its operative position. In this position, the can body B with the cover C thereon, may be placed underneath the centering and truing jaws and the seaming head. As the seaming head moves downward toward the can body, the centering jaws will be moved downward by the spring 41 and the roller 32 operating in the cam groove 33 will gradually close the jaws or move the same inward into contact with the can body and cover. If the can body is distorted said jaws will round up the can body so that the same is properly shaped to receive the cover. At the same time that the can body is rounded up, the jaws will also center the can body relative to the seaming head. By the use of our device, therefore, it is unnecessary to use any other centering devices other than perhaps a guiding rail to guide the can body approximately underneath the seaming head, and so that it will come within the space between the jaws, and allow the jaws to descend down over the can body, so that when the jaws are closed they will engage the can body and center the same, as above noted. The jaws also engage the cover and center the same relative to the can body. If the cover is held above the rim of the can by the floating solid contents of the same, the centering jaws will nevertheless engage the cover and hold the same centrally over the can body, so that when the center pad engages the cover, it will be carried down and properly seated in the can body. After the centering jaws have engaged the can body, and the cover, a further downward movement of the seaming head will bring the center pad into contact with the can cover and seat the same firmly in the can body, as above noted. The centering jaws will continue their downward movement until they have moved a sufficient distance below the flange of the cover and can body to allow the operation of the seaming rolls. The centering and truing jaws will remain in contact with the can body until the cover is secured thereto, and will, therefore, hold the can body in proper shape until the cover is secured. Further downward movement of the centering jaws is prevented by reason of the fact that the stop nuts 43 will limit the downward movement of the sliding support carrying the jaws. The seaming rolls are now forced inward by a further downward movement of the inner sleeve, thus properly forming the seam. After the seaming operation is complete, the seaming head will move upward and the centering jaws will

open up and be carried to a position above the top of the can, allowing the same to be freely removed from the machine.

The centering jaws, as clearly shown in Fig. 8, have a laterally projecting portion 44, which engages the can body for truing up the same, while the portion of the jaw above the projecting portion operates to center the cover relative to the can body.

While we have shown herein a stationary table and the centering jaws as moving with the seaming head, it will be obvious that we may mount the different parts and operate the same in various ways, the essential feature being that the centering jaws are brought into operative relation with the can body and cover in advance of the operation of the securing means, and remain in this position until the cover is secured to the can body.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a can closing machine, the combination of means for centering the cover over the can body, means for engaging the cover and seating the same in the can body while held by the centering means, and means for securing the cover to the can body, said seating means operating to hold said cover seated in the can body until secured by said securing means.

2. In a can closing machine, the combination of means for truing the can body and centering the cover over the same, means for engaging the cover and seating the same in the can body while held by said centering means, and means for securing the cover to the can body, said seating means operating to hold said cover seated in the can body until secured by said securing means.

3. In a can closing machine, the combination of means for truing the can body and centering the cover over the same, a seating pad adapted to engage the cover and seat the same in the can body while held by said centering means, means for reciprocating said seating pad and means for securing the cover to the can body, said pad operating to hold said cover seated in the can body until secured by said securing means.

4. In a can closing machine, the combination of means for truing the can body and centering the cover over said can body, a seating pad adapted to engage said cover and seat the same in the can body while held by said centering and truing means, means for reciprocating said pad, a chuck for engaging said cover, seaming rolls for securing the cover to the can body, said pad operating to hold said cover seated until secured by the seaming roll.

5. In a can closing machine, the combination of means for securing the cover to the can body, means for centering the can body

relative to the securing means, means for centering the cover relative to the can body, and means engaging the cover and seating the same in the can body while held by the centering means, said seating means operating to hold said cover seated in the can body until secured by said securing means.

6. In a can-closing machine, the combination with a seaming head, a support for the can body, means for moving the seaming head relative to said support, a centering and truing device for the can body and cover, means for moving said centering and truing device with the seaming head and in advance thereof, so that the can body and cover are engaged by said centering and truing device before the operation of the seaming head.

7. The combination of seaming rolls, a center pad engaging the can cover, a centering and truing device for the can body and cover, means for operating the centering and truing device to round up the can body and center the body cover before its engagement by the center pad, means for operating the center pad to seat the cover in the can body while held by the centering and truing device, and to retain the cover seated in the can body until secured thereto by the seaming rolls.

8. The combination of seaming rolls, a chuck and a centering and truing device for the can body and cover, means for moving the centering and truing device into contact with the can body and cover in advance of the engagement of the cover by the chuck, a seating pad engaging the cover and seating the same in the can body in advance of the engagement of the cover by the chuck, and means for operating said seating pad whereby the cover is retained in the can body until the seaming rolls have secured the can cover to the can body.

9. In a can closing machine, the combination of means for centering the cover over a can body, including curved jaws, means for moving the jaws, means for connecting the same whereby said jaws move simultaneously toward and from the cover, means operating to seat the cover in the can body while held by the centering means, and means for securing the cover to the can body.

10. In a can closing machine, the combination of a centering and truing device for the can body, and can cover including curved jaws for shaping the can body and for centering the cover, means for pivotally supporting said jaws, means for simultaneously moving said jaws about their pivotal support and toward and from said can body, means operating to seat the cover in the can body, while held by said centering means, and means for securing the cover to the can body.

11. A centering and truing device including in combination, curved jaws for shaping the can body, a sliding support on which said jaws are carried, means for moving said support so as to raise and lower said jaws relative to the can body, and means for moving said jaws toward and from the can body as they are raised and lowered.

12. A centering and truing device including in combination, curved jaws for shaping the can body, a sliding support carrying said curved jaws, means for raising and lowering said support relative to said can body, means for moving said jaws into contact with the can body, as the support is lowered, and means for moving said jaws out of contact with the can body as the support is raised.

13. A centering and truing device including in combination, curved jaws for shaping the can body, a sliding support carrying said curved jaws, means for moving said jaws toward and from the can body, means for positively raising said jaws above the can body, and a spring for lowering said jaws and causing the same to contact with the can body.

14. A centering and truing device including in combination, curved jaws for shaping the can body, a sliding support carrying said curved jaws, means for moving said jaws toward and from the can body, means for positively raising said jaws above the can body, a spring for lowering said jaws and causing the same to contact with the can body, and an adjustable means for limiting the downward movement of the centering jaws.

15. A centering and truing device including in combination, curved jaws for shaping the can body, means for pivotally supporting said jaws, gears connecting said jaws whereby said jaws are simultaneously moved in opposite directions, a projecting stud carried by one of said jaws, a roller mounted on said stud, and a cam groove cooperating with said roller for moving said jaws.

16. A centering and truing device including in combination, a support, means for raising and lowering said support, centering jaws pivoted to said support, means for connecting said jaws, whereby they are simultaneously moved in opposite directions, a stud connected with one of said jaws, a roller carried by said stud, and a stationary block having a cam groove engaging said roller for moving said jaws.

17. A centering and truing device including in combination, a sliding support, a rod pivoted to said sliding support, means for engaging the upper end of said rod for positively raising said support, a spring bearing on said support for lowering the same, a second rod carried by said support and having adjustable nuts mounted thereon for limiting the downward movement of the support,

centering jaws carried by said support, and means for causing the centering jaws to engage the can body when said support is moved downward by the spring.

5 18. In a can-closing machine, the combination with a seaming head, means for raising and lowering the same, of a centering device for centering the can body relative to the seaming head, and means for raising and
10 lowering the centering device with the seaming head.

19. In a can-closing machine, the combination with a seaming head, a stationary table, means for moving the seaming head
15 relative to the table, a centering device for centering the can body relative to the seaming head, and means for raising and lowering the centering device relative to the table.

20. In a can-closing machine, the combination with a seaming head, of a centering device for the can body including oppositely disposed curved jaws, means for raising and lowering said jaws, and means for
25 moving said jaws toward and from each other to engage and center the can relative to the seaming head.

21. In a can closing machine, the combination of a seaming head and a centering and truing device including curved jaws for
30 shaping the can body, means for operating said curved jaws to engage the can body at its upper end whereby said can body is rounded up to receive the cover, said curved jaws also centering the cover over the can
35 body, a seating pad for engaging the cover and seating the same in the can body, said seating pad operating to hold the cover seated until said cover is secured to the can body by the seaming head.

40 22. In a can closing machine, the combination of a seaming head, of a centering and truing device for the can body, including oppositely disposed curved jaws, means for lowering the jaws over the can body, and
45 for closing the same to center said can body and round up the same to receive the cover.

23. In a can closing machine, the combination with a seaming head, a centering and truing device for the can body, including oppositely disposed curved jaws, means
50 for normally supporting said jaws above the path of movement of the can body, for lowering said jaws over the can body, and for closing the same to center said can body, relative to the seaming head, and for round-
55 ing up the same to receive the cover.

24. In a can closing machine, the combination of a seaming head, a centering device for centering the cover relative to the can body including curved jaws, means for
60 normally supporting said centering device above the path of movement of the can body, and for lowering said centering device over the cover and means for closing said jaws, whereby said cover is engaged and centered
65 relative to the seaming head.

25. In a can closing machine, the combination with a seaming head, of a cover centering device for the can body, including
70 oppositely disposed cover engaging members, means for normally supporting said centering device above the path of movement of the can body, for lowering said centering device over said cover, for moving in-
75 ward the cover engaging members to center the cover relative to the can body, for moving said centering members downward out of the path of the seaming rolls, and for raising said centering members to normal
80 position above the can body after the cover is secured to said body.

In testimony whereof we affix our signatures, in presence of witnesses.

LOUIS CHARLES KRUMMEL.
JOHN C. TALIAFERRO.

Krummel's witnesses:

EZRA E. POST,
WM. G. BISSELL.

Taliaferro's witnesses:

RICHARD GWINN,
EUGENE G. MASON.