

Oct. 7, 1930.

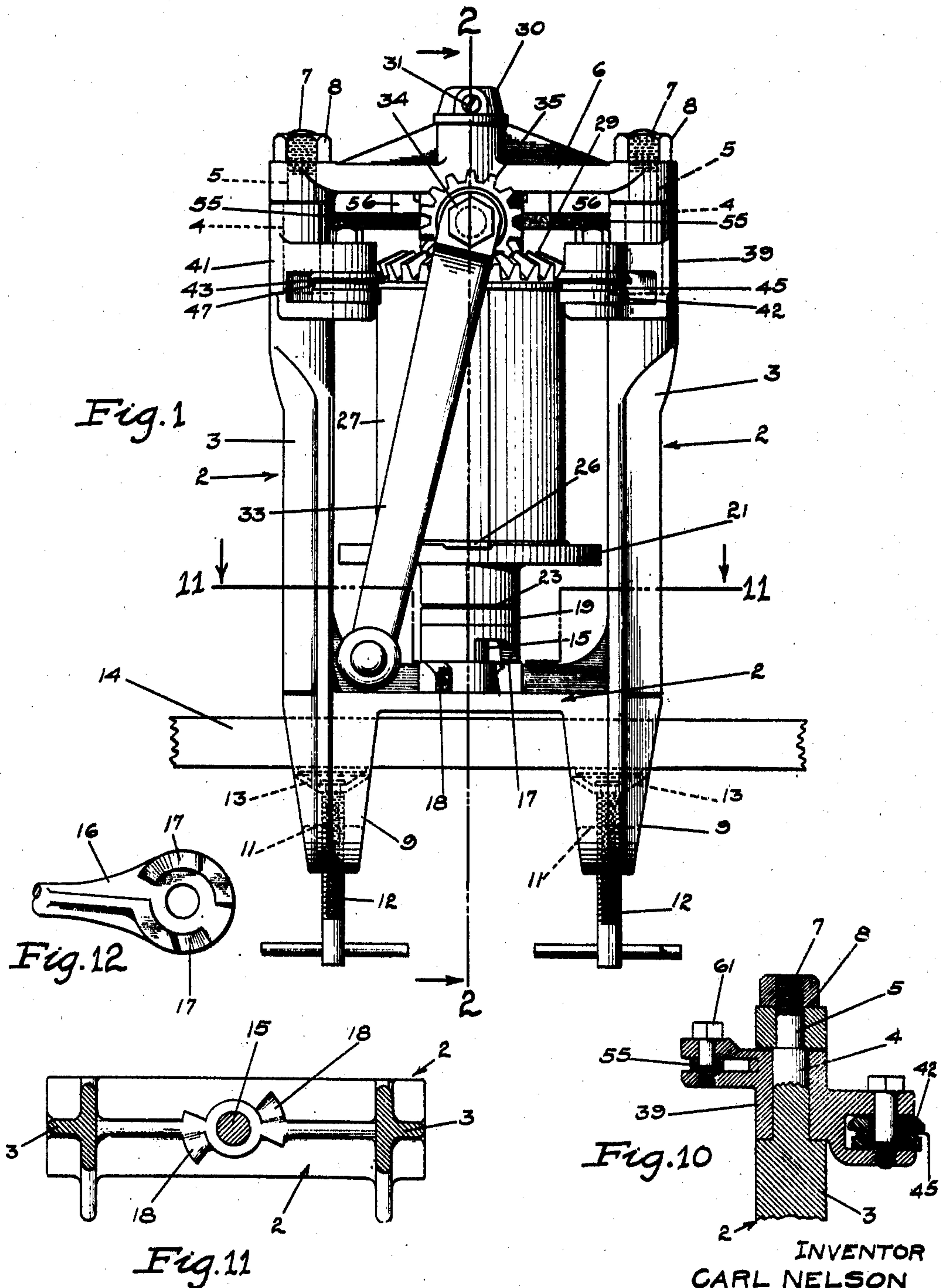
C. NELSON

1,777,761

CAN SEALING MACHINE

Filed May 22, 1929

3 Sheets-Sheet 1



INVENTOR
CARL NELSON
By *Paul Nelson*
ATTORNEYS

Oct. 7, 1930.

C. NELSON

1,777,761

CAN SEALING MACHINE

Filed May 22, 1929

3 Sheets-Sheet 2

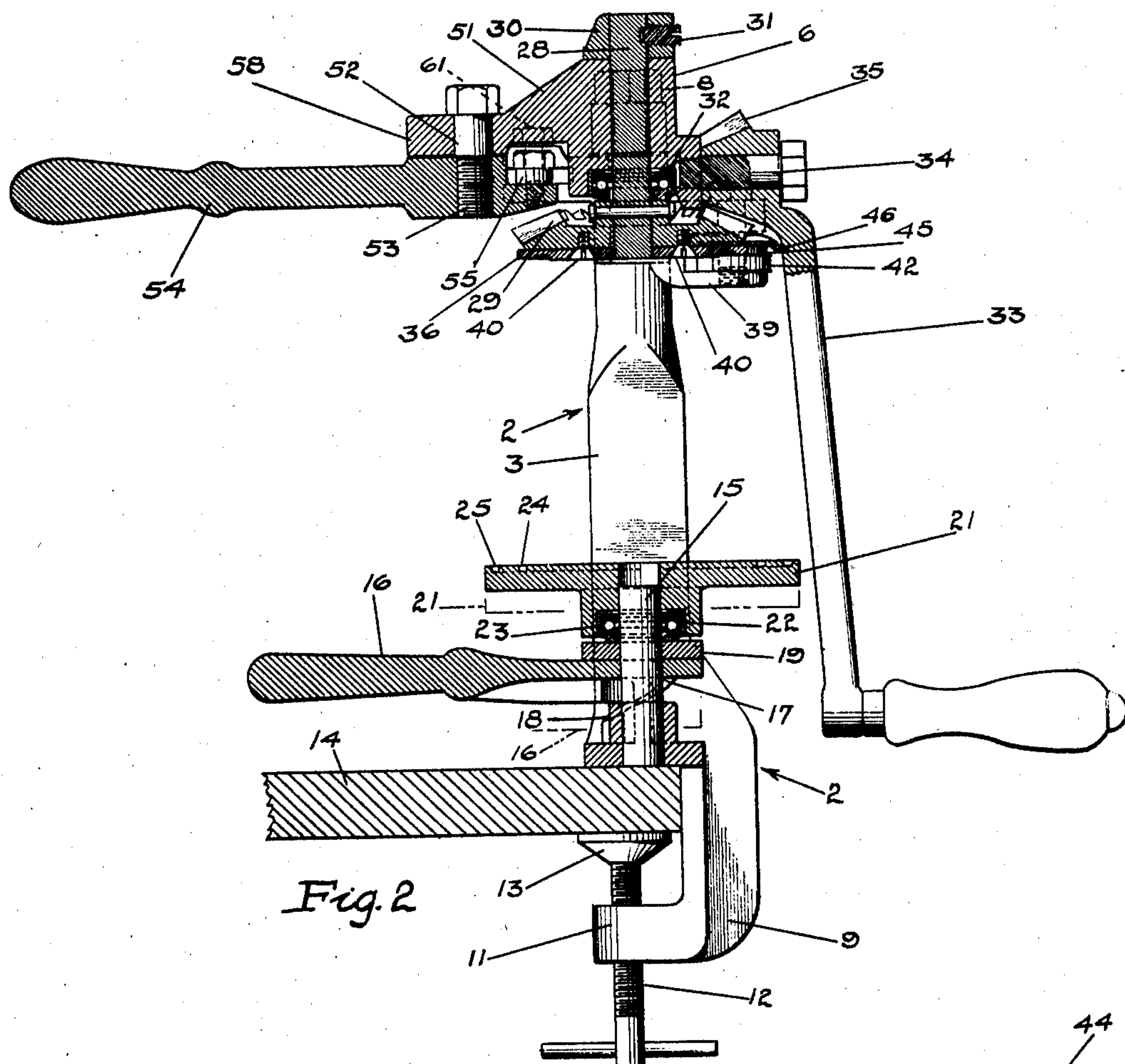


Fig. 2

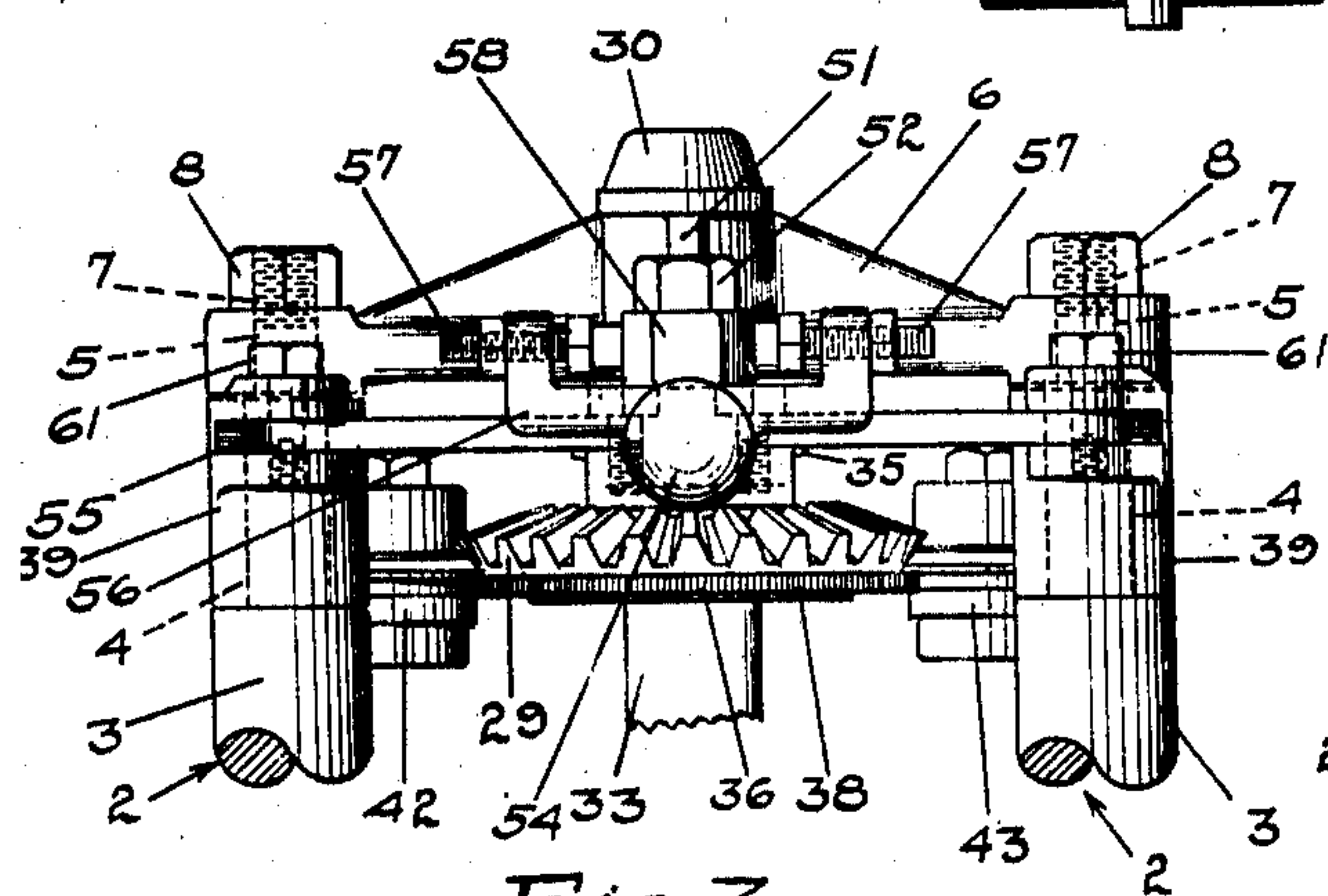


Fig. 3

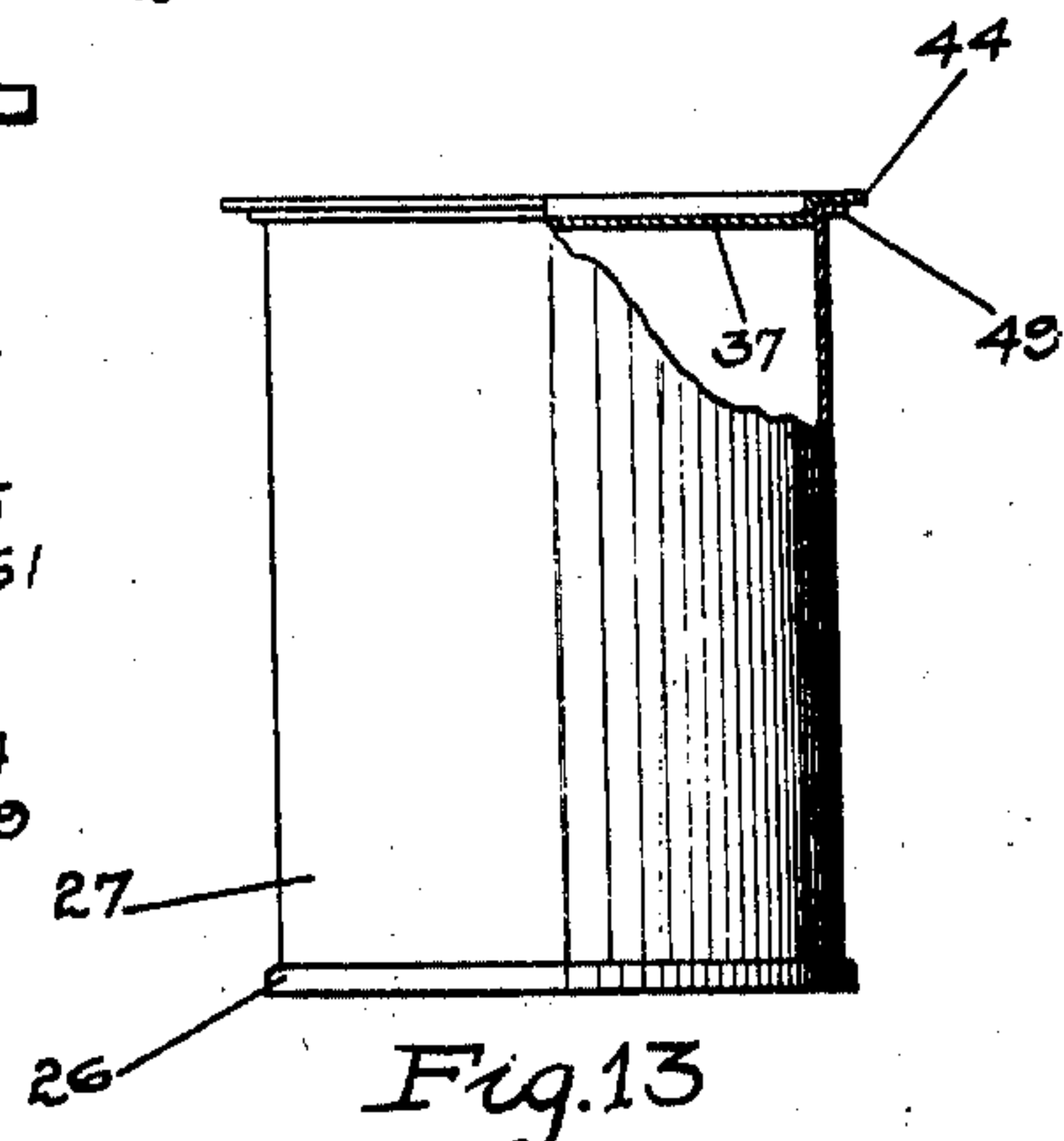


Fig. 13

INVENTOR
CARL NELSON

By *Paul Paul Nelson*
ATTORNEYS

Oct. 7, 1930.

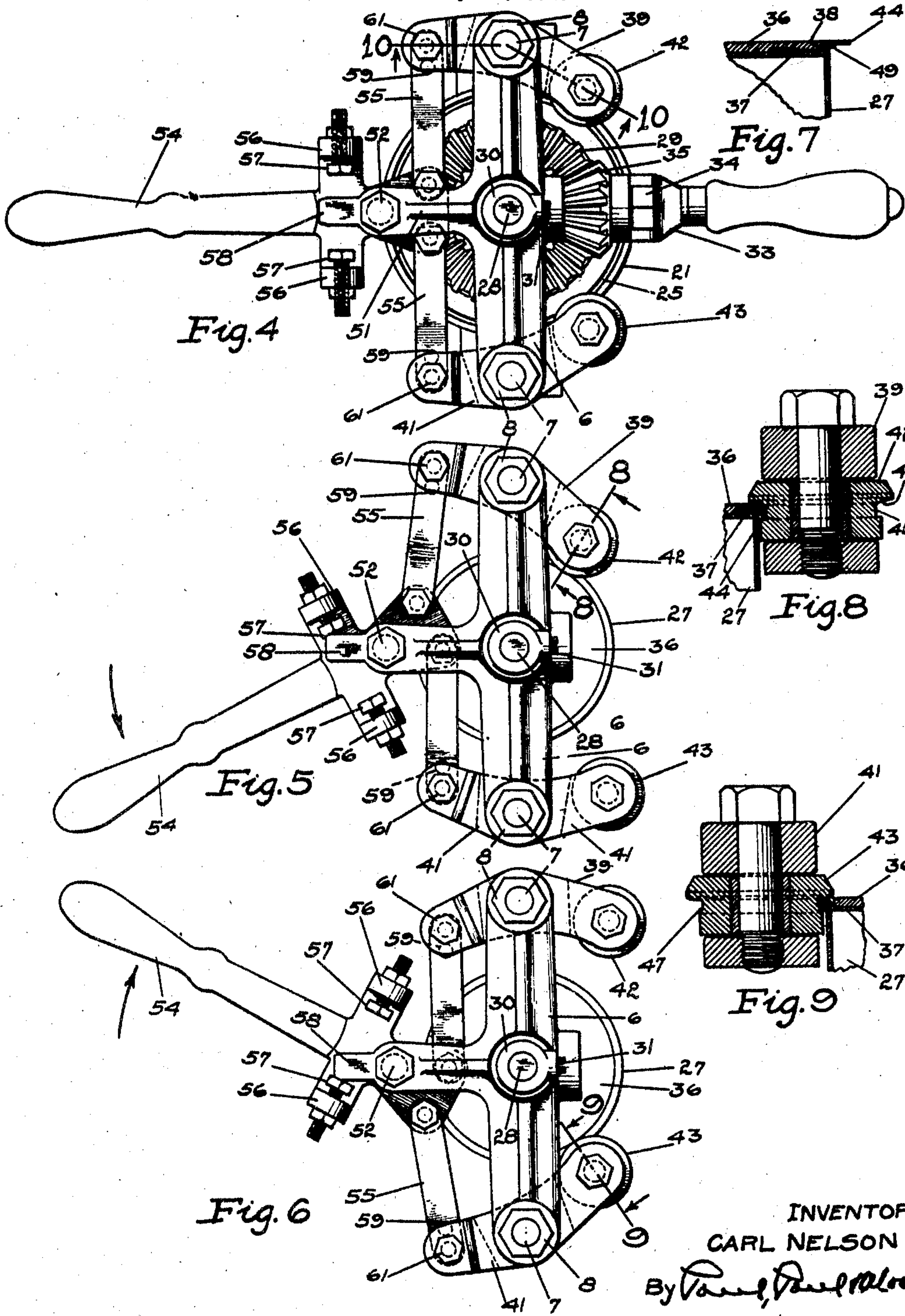
C. NELSON

1,777,761

CAN SEALING MACHINE

Filed May 22, 1929

3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

CARL NELSON, OF EAU CLAIRE, WISCONSIN, ASSIGNOR TO NATIONAL PRESSURE COOKER COMPANY, OF EAU CLAIRE, WISCONSIN, A CORPORATION OF WISCONSIN

CAN-SEALING MACHINE

Application filed May 22, 1929. Serial No. 365,018.

This invention relates to improvements in can sealing machines of the character shown and described in my Patent No. 1,744,661, issued January 21, 1930.

5 An object of the present invention is to provide a can sealing machine having means for rotating the can and its closure, and provided with seaming rollers adapted to be moved, one at a time, into engagement with the marginal edge of the can closure to bend it downwardly and inwardly to seam it to the can body in hermetically sealed relation.

15 A further object is to provide a can sealing machine comprising a frame adapted to be clamped to a suitable support such, for example, as a table, and having upper and lower chuck plates between which the can to be sealed is held, and yokes being mounted in the upper portion of the frame, each carrying a peripherally grooved roller having means for moving them into seaming engagement with the closure and can body, during rotation of the can and closure, and being provided with means for adjusting it to cans of different sizes.

25 Features of the invention reside in the means provided for holding and rotating the can and closure; the means for successively moving the seaming rollers into engagement with the closure and can; the means for vertically moving the lower chuck plate and holding it in elevated position to secure the can and closure between the chuck plates; and, in the general construction of the machine as a whole.

30 Other objects of the invention will appear from the following description and accompanying drawings and will be pointed out in the annexed claims.

40 In the accompanying drawings, there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown as various changes may be made within the scope of the claims which follow.

In the drawings;

50 Figure 1 is a front elevation of the ma-

chine showing a can positioned between the chuck plates;

Figure 2 is a vertical sectional view on the line 2—2 of Figure 1 with the can removed from the machine;

Figure 3 is a detail view showing the upper portion of the machine;

Figure 4 is a plan view of the machine showing the means for supporting the seaming rollers and the lever for moving the rollers into and out of engagement with the can closure and body, the lever being shown in normal position;

Figure 5 is a similar view, with some of the parts omitted, showing the lever operated to move one of the rollers into engagement with the marginal flange of the can closure;

Figure 6 is a view similar to Figure 5, showing the lever moved in the opposite direction to move the other seaming roller into engagement with the edge of the can closure to bend it inwardly into seaming engagement with the flange provided on the can body;

Figure 7 is a detail sectional view showing a portion of a can with a closure positioned thereon and the upper chuck plate seated against the closure;

Figure 8 is a detail sectional view on the line 8—8 of Figure 5, showing the first operation in securing the closure to the can body;

Figure 9 is a detail sectional view on the line 9—9 of Figure 6, showing the final operation in securing the closure to the can body;

Figure 10 is a detail sectional view on the line 10—10 of Figure 4;

Figure 11 is a sectional plan view on the line 11—11 of Figure 1, showing only the machine frame;

Figure 12 is a detail view showing one end of the cam lever; and

Figure 13 is a view showing a can with a closure positioned thereon ready to be seamed.

The novel can sealing machine featured in this invention comprises a frame 2 including upright spaced-apart posts 3—3, provided at their upper extremities with cylindrical ex-

55

60

65

70

75

80

85

90

95

100

tensions 4, each provided with a reduced portion 5 adapted to receive a cross member 6, as best shown in Figure 1. The reduced portions 5 are terminally threaded, as indicated at 7 to receive nuts 8, whereby the cross member 6 may be rigidly secured to the cylindrical extensions 4 to connect together the upper ends of the posts 3—3.

The lower portion of the frame 2 is provided with depending portions 9 having inwardly projecting lugs 11, provided with threaded sockets adapted to receive clamping screws 12, provided with heads 13 adapted to engage the lower surface of a table top 14, as shown in Figure 2. The heads 13 are rotatably connected with the screws 12. By means of the clamping screws 12, the machine may be quickly secured to the edge of a kitchen table or other suitable support, as shown in Figures 1 and 2.

A post 15 is suitably secured to the lower horizontal portion of the frame 2, and is adapted to receive one end of a cam lever 16, having cam faces 17 provided thereon adapted to engage correspondingly shaped cam faces 18, provided upon the lower horizontal portion of the frame 2, as shown in Figure 11. A spacing washer or collar 19 may also be mounted on the upright post 15 and seated against the upper surface of the cam lever 16, as best shown in Figure 2. A chuck plate 21 is bored to receive the upper end of the post 15 and has a counterbore 22 adapted to receive an anti-friction thrust bearing 23, projecting slightly below the hub of the chuck plate 21, so as to seat against the upper face of the spacing collar 19, or on the cam lever 16, as the case may be. It will thus be seen that the chuck plate 21 is mounted for relative rotation upon the post 15. The collar 19 is used only when sealing small cans. When a large can is to be sealed, the collar 19 is removed from the post 15.

Annular grooves 24 and 25 are provided in the face of the chuck plate 21, each adapted to receive the bead 26 provided on the can body 27, as shown in Figure 13. By thus providing two or more grooves in the face of the chuck plate 21, different sizes of cans may be supported thereon.

A shaft 28, having a bevel gear 29 secured to the lower end thereof, is rotatably mounted in a suitable bearing provided in the cross member 6, as best shown in Figure 2. A collar 30 is demountably secured to the upper end of the shaft 28 by means of a set screw 31. This collar prevents the shaft 28 and gear 29 from becoming disengaged from the cross member 6, when the can is removed from the machine, as shown in Figure 2. The lower portion of the cross member 6 is counterbored to receive a suitable anti-friction thrust bearing 32, with which the upper face of the hub of the gear 29 is engaged, as shown. An operating crank 33 is rotatably mounted upon a

stud 34 secured to the cross member 6. This crank has a bevel pinion 35 which meshes with the bevel gear 29, so that when the crank 33 is rotated, the gear 29 and shaft 28 will also be rotated.

An upper chuck plate 36 is demountably secured to the lower face of the gear 29 by suitable screws 40, having their heads countersunk in the chuck plate, as shown. The lower terminal of the shaft 28 projects slightly below the lower face of the bevel gear 29, so as to provide a means for centering the chuck plate 36 upon the gear, it being understood that the chuck plate is bored to receive the shaft.

The diameter of the upper chuck plate 36 is such as to substantially fit into the depression provided in the can closure 37, as shown in Figure 7, and its periphery is preferably knurled as indicated at 38 in Figure 3, so that when the chuck plate is fitted into the depression in the closure 37, a driving engagement is obtained between the closure and the chuck plate.

The means provided for seaming the closure to the can body, is best shown in Figures 4, 5, 6, 8, and 9, and comprises a pair of yokes 39 and 41 mounted for oscillatory movement upon the cylindrical extensions 4 of the posts 3—3, as best shown in Figure 10. Seaming rollers 42 and 43 are mounted in the yokes 39 and 41, respectively, adapted to be moved into and out of engagement with the marginal edge 44 of the can closure 37, as shown in Figures 5 and 6. A groove 45 is provided in the periphery of the roller 42 having an upper inclined face 46 adapted to engage the marginal edge of the closure flange 44 and bend it downwardly, as shown in Figure 8. A groove 47 is also provided in the periphery of the roller 43 which is shaped so as to bend the edge of the can closure 44 inwardly against and under the outwardly turned marginal edge 49, provided at the upper end of the can body, as shown in Figures 7 and 13.

A lateral extension 51 is provided on the cross member 6 and is bored to receive a shouldered stud 52 having its lower threaded terminal 53 received in threaded engagement with a lever 54, as best shown in Figure 2. Links 55 connect one end of the lever 54 with the yokes 39 and 41, so that when the lever is oscillated from side to side, as shown in Figures 5 and 6, the seaming rollers 42 and 43 will be moved, one at a time, into engagement with the marginal edge 44 of the can closure, as shown in Figures 5 and 6. Oppositely extending lugs 56 are provided upon the lever 54, and each is provided with an adjustably mounted abutment screw 57 adapted to engage a projection 58 provided upon the extension 51 of the cross member 6. These abutment screws and the projection 58 limit the oscillatory movement of the lever

54, as will be seen by reference to Figures 5 and 6.

In the operation of this novel can sealing machine, the can is inserted between the chuck plates, as shown in Figure 1. If the can is of small diameter, the bead 26 at the bottom thereof is seated in the annular groove 24 of the chuck plate, it being understood that the chuck plate 21 is in its lowermost position, when the can is initially placed thereon. The lever 16 is then oscillated, thereby causing the cam faces 17 and 18 to elevate the lever 16, resulting in the chuck plate 21 moving upwardly on the post 15, until the upper chuck plate 36 engages the can closure, as shown in Figure 7. The cam faces 17 and 18 are so shaped that when the lever is in a certain position, the chuck plate 21 will be retained in elevated position, regardless of the downward pressure exerted thereagainst, because of the can being inserted between the two chuck plates.

The operator will then rotate the crank 33 and, at the same time, swing the lever 54 from the position shown in Figure 4 to that shown in Figure 5, thereby causing the seaming roller 42 to move into engagement with the flange 44 of the closure and bend it downwardly, as shown in Figure 8. The lever 54 is then swung from the position shown in Figure 5 to that shown in Figure 6, thereby moving the roller 42 out of engagement with the flange 44, and at the same time, moving the roller 43 into engagement therewith, as best shown in Figures 6 and 9, thereby causing the closure flange to be bent inwardly and rolled against the flange 49 of the can body, resulting in the closure being seamed to the can body in hermetically sealed relation. The lever 54 is then returned to its normal position, as shown in Figure 4, and the lever 16 oscillated to lower the chuck plate 21, whereupon the sealed can may be removed from between the two chuck plates and another can inserted therebetween.

Additional apertures 59 are provided in the links 55 to provide means for adjusting the relative positions of the seaming rollers 42 and 43, to adapt the machine for cans of different diameters. When the screws 61 are inserted through the apertures 59 in the links 55, the opposite ends of the yokes 39 will be relatively adjusted so as to provide a wider space between the seaming rollers 42 and 43, whereby a can of larger diameter may be sealed in the machine.

The construction of the machine is such that the cans may be quickly inserted between and removed from the chuck plates without loss of time. The particular mounting of the seaming rollers and the means for operating them is also such that they may be quickly moved into and out of seaming engagement with the closure flange 44, while the can is being rotated by means of the

crank 33. The anti-friction bearings 22 and 32 reduce friction to a minimum, thereby providing such a machine which will readily lend itself for use in homes and the like for sealing different sizes of cans.

I claim as my invention:

1. A can sealing machine comprising a frame, means for holding a can with a closure positioned thereon, means for rotating said can-holding means, pivoted members on said frame each carrying a seaming roller, means operatively connecting together said members, and a lever for actuating said connecting means to cause said rollers to engage and secure the closure to the can body in hermetically sealed relation.

2. A can sealing machine comprising a frame, means for holding a can with a closure positioned thereon, means for rotating said can-holding means, members pivotally mounted on said frame and each carrying a seaming roller, and a hand lever for operating said members to cause said rollers to successively engage the edge of the can closure and seam it to the can body in hermetically sealed relation.

3. A can sealing machine comprising a frame, means for holding a can with a closure positioned thereon, means for rotating said can-holding means, members pivotally mounted on said frame and each carrying a grooved roller, and a lever for simultaneously operating said members to cause first one and then the other of said rollers to engage the edge of the can closure, whereby said edge will be rolled downwardly and seamed to the can body in hermetically sealed relation.

4. A can sealer comprising a frame, chuck plates between which the can and its closure are held, means for rotating said chuck plates to impart rotary movement to the can and closure, yokes pivotally mounted on said frame and each carrying a peripherally grooved roller, and manual means for operating said yokes to cause said rollers to engage the edge of the can closure and seam it to the can body in hermetically sealed relation.

5. A can sealing machine comprising a frame, chuck plates between which the can and its closure are held, means for rotating said chuck plates to impart rotary movement to the can and closure, yokes pivotally mounted on said frame and each carrying a grooved roller, and a lever pivoted to the frame and operatively connected to said yokes, said lever being adapted to move said rollers, one at a time, into engagement with the edge of the can closure to seam it to the can body.

6. A can sealing machine comprising a frame, spaced-apart chuck plates between which the can and closure to be sealed are held, means for rotating one of said chuck plates, means for moving the other of said

chuck plates towards and away from said first mentioned chuck plate whereby the can and closure may be clamped between said plates, yokes pivotally mounted on said frame and each carrying a grooved roller, a lever also mounted on the frame and operatively connected with said yokes whereby, when said lever is moved in one direction, one of said rollers will engage the marginal edge of the can closure and bend it in a direction lengthwise of the can body, and when said lever is moved in the opposite direction, the other of said rollers will engage said closure edge and bend it inwardly against the can body to seam it thereto.

7. A can sealing machine comprising a frame, upper and lower chuck plates between which the can and closure to be sealed are held, means for rotating the upper chuck plate, means for vertically moving the lower chuck plate whereby the can and closure may be clamped between said plates, yokes pivotally mounted on said frame and each carrying a grooved roller, a lever also mounted on said frame and operatively connected with said yokes whereby, when said lever is moved in one direction, one of said rollers will engage the marginal edge of the can closure and bend it downwardly, and when said lever is moved in the opposite direction, the other of said rollers will engage said closure edge and bend it inwardly to seam it to the can body.

8. A can sealing machine comprising a frame, an upper chuck plate, means for rotating said plate, a lower chuck plate mounted for rotary movement, a cam device for vertically moving said lower chuck plate and adapted to retain it in elevated position whereby a can and closure may be held between said plates, yokes pivotally mounted on said frame and each carrying a seaming roller, and a lever pivoted to the frame between said yokes and having link connections therewith, said lever being adapted to move said rollers, one at a time, into engagement with the marginal edge of the closure, to bend said edge downwardly and inwardly into interlocking engagement with a flange on the can body, whereby said closure will be seamed to the can body in hermetically sealed relation.

9. A can sealing machine comprising a frame, an upper chuck plate, means for rotating said plate, a lower chuck plate mounted for rotary movement, a cam device for vertically moving said lower chuck plate and adapted to retain it in elevated position whereby a can and closure may be held between said plates, yokes pivotally mounted in said frame and each carrying a seaming roller, means permitting adjustment of said rollers to cans of different diameters, a lever pivoted to the frame between said yokes and having link connections therewith, said le-

ver being adapted to move said rollers, one at a time, into engagement with the marginal edge of the closure, to bend said edge downwardly and inwardly into interlocking engagement with a flange on the can body, whereby said closure will be seamed to the can body in hermetically sealed relation, and means for limiting swinging movement of the lever.

10. A can sealing machine comprising a frame including spaced apart upright posts, a cross member connecting together the upper ends of said posts, yokes mounted on said frame and each carrying a seaming roller, a shaft mounted in said cross member and having a gear secured thereto, a crank also mounted on said cross member and having a pinion engaging said gear, a chuck plate demountably secured to said gear and adapted to engage a can closure, a lever having link connections with said yokes and whereby said seaming rollers may be moved, one at a time, into seaming engagement with said closure, a chuck plate rotatably mounted in the lower portion of the frame and adapted to engage the bottom of a can, said lower chuck plate being adapted for vertical adjustment to adapt the machine to cans of different heights, and a cam lever for moving the lower chuck plate upwardly to secure a can and closure between said plates, during the seaming operation.

11. A can sealing machine comprising a frame including spaced-apart upright posts, a cylindrical extension at the upper end of each post, a yoke mounted on each extension and adapted for swinging movement, a seaming roller on each yoke, a cross member connecting together said extensions, a shaft mounted in said cross member and having a gear secured thereto, a crank also mounted on said cross member and having a pinion engaging said gear, a chuck plate demountably secured to said gear and adapted to engage a can closure, a lever having link connections with said yokes and whereby said seaming rollers may be moved, one at a time, into seaming engagement with said closure, a chuck plate rotatably mounted in the lower portion of the frame and adapted to engage the bottom of a can, said lower chuck plate being adapted for vertical adjustment to adapt the machine to cans of different heights, and a cam lever for moving the lower chuck plate upwardly to secure a can and closure between said plates, during the seaming operation.

In witness whereof, I have hereunto set my hand this 17th day of May, 1929.

CARL NELSON.