No. 855,287.

PATENTED MAY 28, 1907.

E. P. DATOW.

CAN SEAMING MACHINE.

APPLICATION FILED DEC. 12, 1906.

3 SHEETS—SHEET 1.

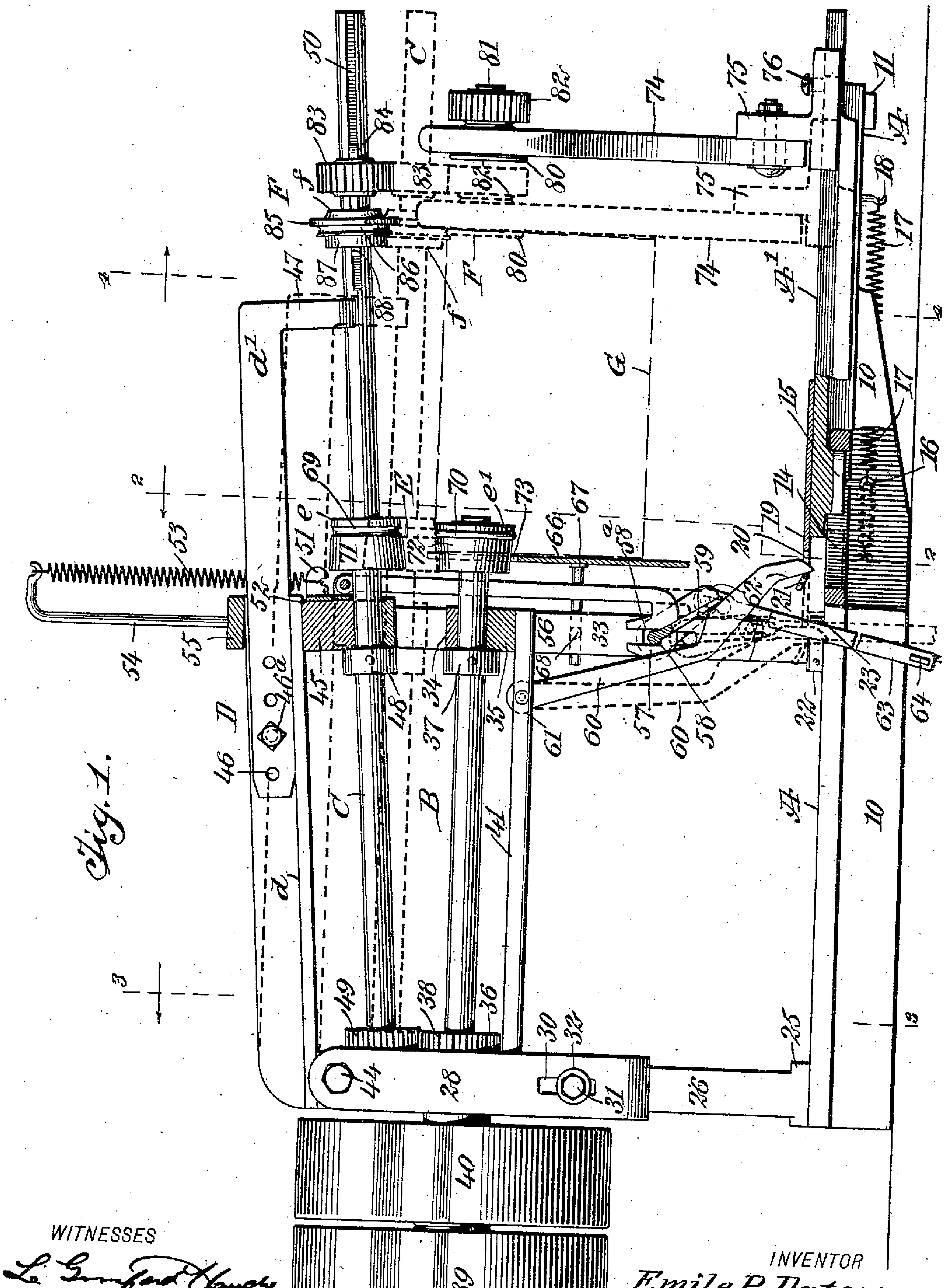


Fig. 1.

WITNESSES

INVENTOR
Emile P. Datow
BY Munn & Co
ATTORNEYS

No. 855,287.

PATENTED MAY 28, 1907.

E. P. DATOW.

CAN SEAMING MACHINE.

APPLICATION FILED DEC. 12, 1906.

3 SHEETS—SHEET 2.

Fig. 2.

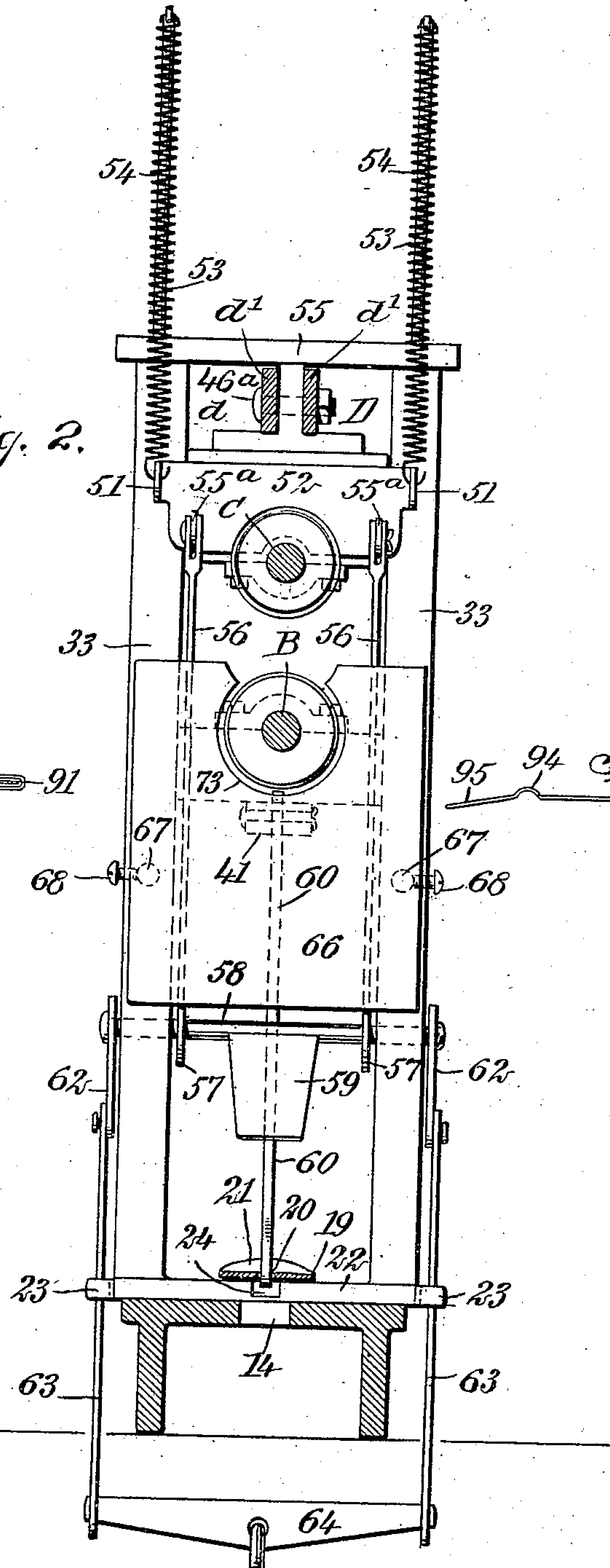


Fig. 5.

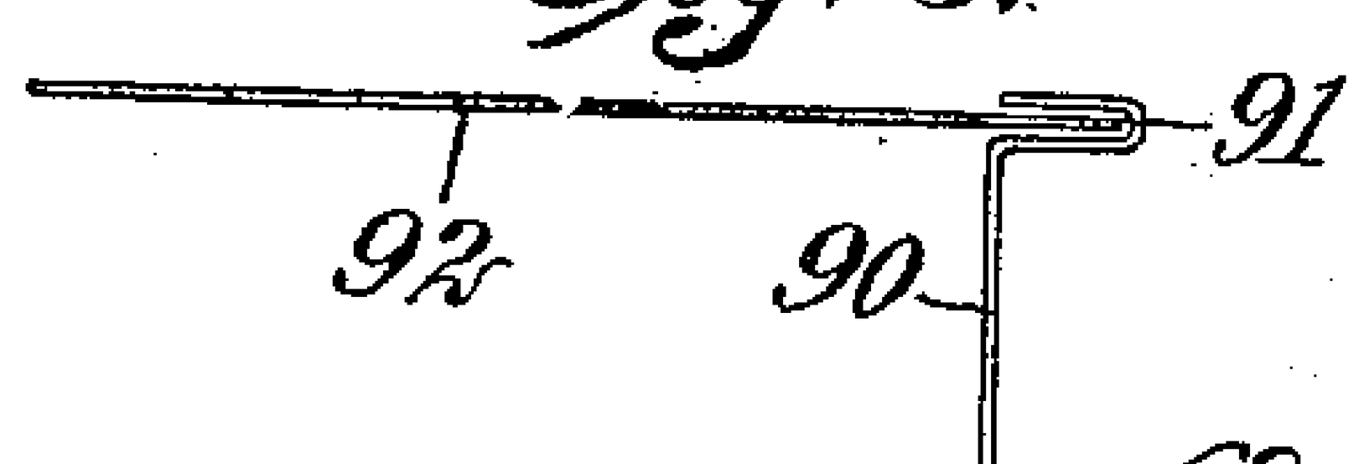
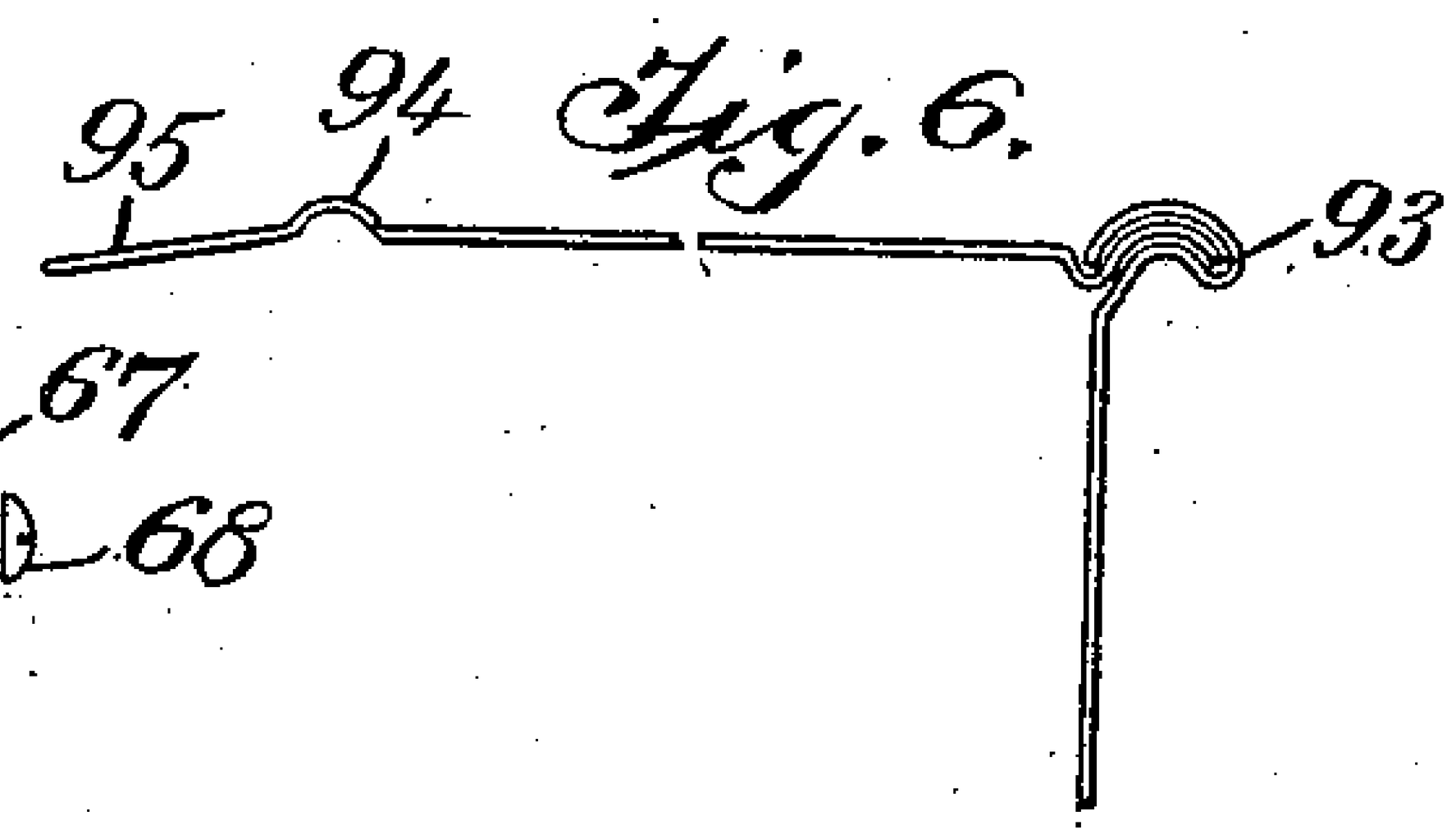


Fig. 6.



WITNESSES

L. Grumford Handy

J. Fedetcher

INVENTOR

Emile P. Datow

BY Munn & Co

ATTORNEYS

No. 855,287.

PATENTED MAY 28, 1907.

E. P. DATOW.

CAN SEAMING MACHINE.

APPLICATION FILED DEC. 12. 1906.

3 SHEETS—SHEET 3.

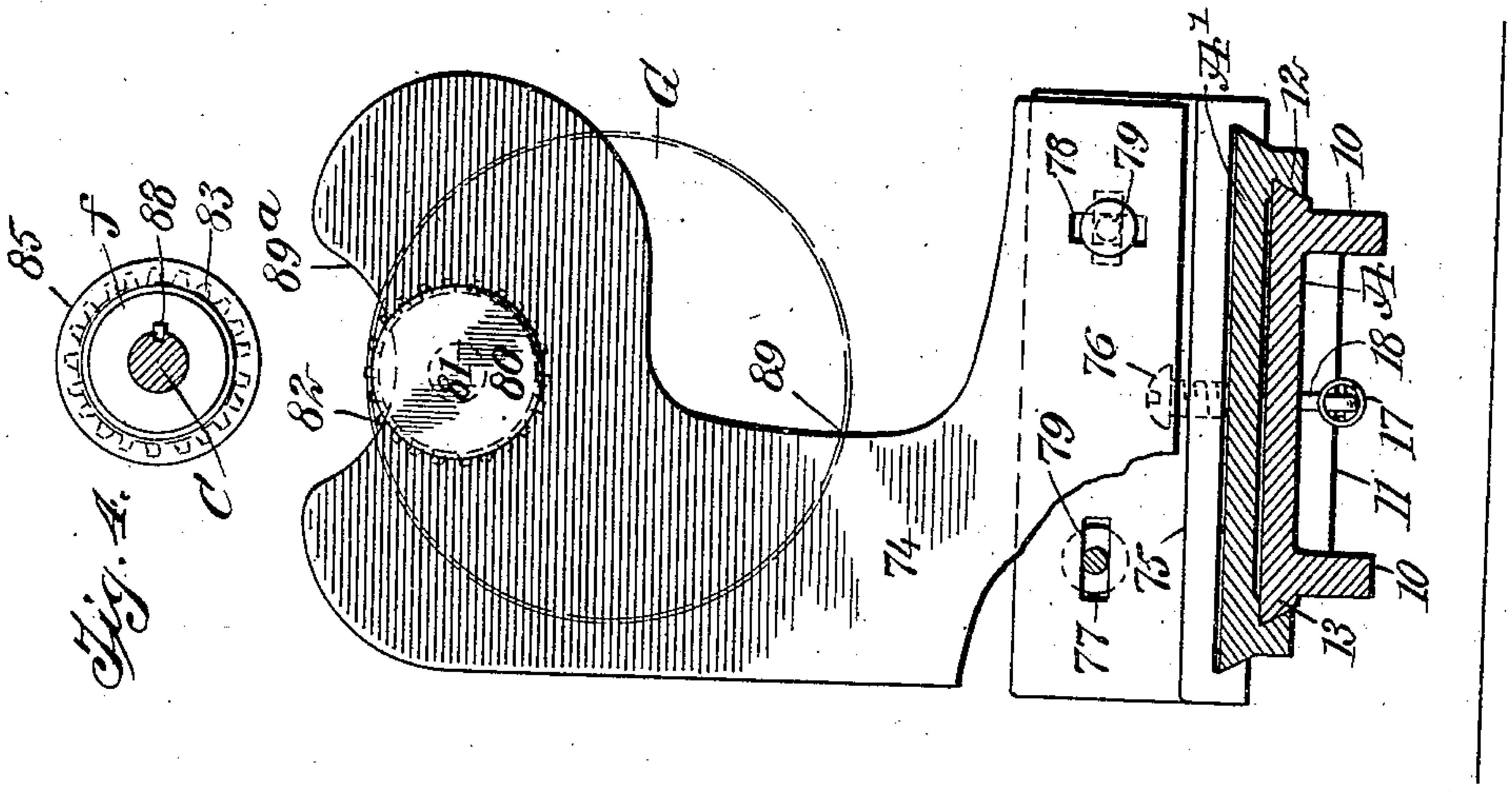


Fig. 4.

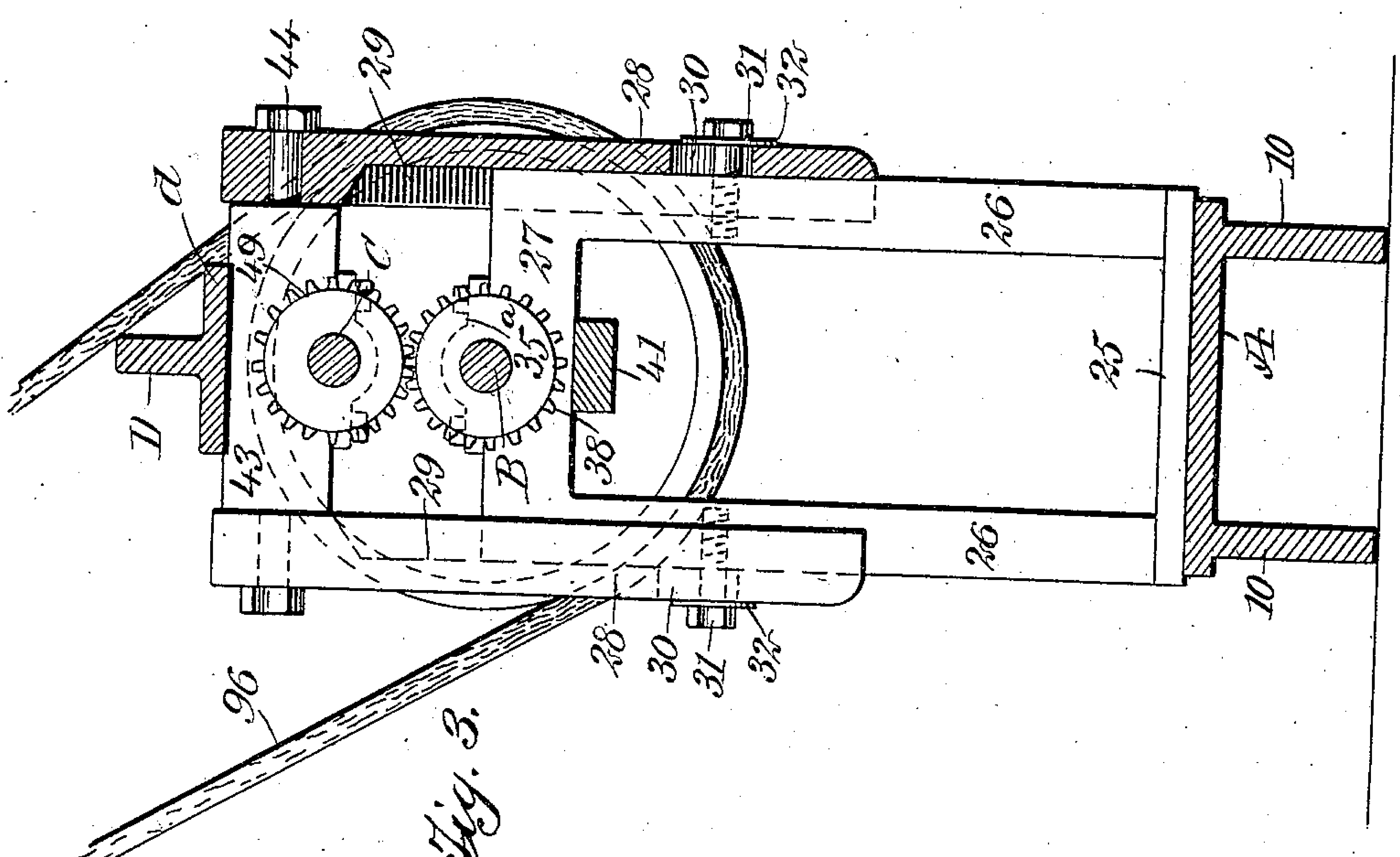


Fig. 3.

WITNESSES

L. Grayford Vande

Fred Acker

INVENTOR

Emile P. Datow

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

EMILE P. DATOW, OF NEW ORLEANS, LOUISIANA.

CAN-SEAMING MACHINE.

No. 855,287. Specification of Letters Patent. Patented May 28, 1907.

Application filed December 12, 1906. Serial No. 347,407.

To all whom it may concern:

Be it known that I, EMILE P. DATOW, a citizen of the United States, and a resident of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Can-Seaming Machine, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide an automatic, adjustable, differential single seaming machine of exceedingly simple, durable and economic construction, and one in which the operation of seaming can be quickly comprehended by any person of ordinary intelligence.

The machine is adapted for use in connection with any type of pieced cylindrical tinware, as for example it is designed to seam on the ends of coffee, baking-powder, fruit, fish meat and all other cylindrical cans, dippers, pails, pots and all manner of cylindrical pieced vessels, as well as any cylindrical utensils or package made from more than one piece of sheet metal.

A further purpose of the invention is to provide a machine that does not require the body of the articles to be flanged before they can be seamed, thus avoiding one expensive operation and two handlings of the articles, since in the operation of my machine the ends are loosely slipped on to the straight bodies just as the ends come from the seaming block, the seaming being accomplished by the single operation of a treadle.

It is also a purpose of the invention to automatically effect at said single operation of the treadle the seaming of the bottom of the vessel and the beading and mouthing of its open end portion when the said vessel is adapted to receive a slip cover.

A further purpose of the invention is to so construct the machine that it can be readily adapted for automatically seaming at one operation both ends of friction cover cans, such as oyster cans, etc.

Another purpose of the invention is to provide a machine that can be adjusted quickly and conveniently to cans of varying heights and diameters without requiring a separate seaming chuck for each different diameter, since such chucks are not employed.

Another purpose of the invention is to so construct the machine that it will be compact, capable of being operated with speed by unskilled labor and so that but few parts are employed and those not liable to disarrangement.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

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 figures.

Figure 1 is a sectional side elevation of the machine; Fig. 2 is a vertical section taken practically on the line 2—2 of Fig. 1; Fig. 3 is a vertical section taken substantially on the line 3—3 of Fig. 1; Fig. 4 is a vertical section taken practically on the line 4—4 of Fig. 1; Fig. 5 is a view illustrating the relation of the bottom to the body of a can when placed in position in the machine; and Fig. 6 is a view illustrating the manner in which the seam is formed, the beading produced and the mouth tapered at one operation of the machine.

A represents the base of the machine, which is shown as provided with side pieces 10 having their forward ends tapering, and said side pieces are shown as not extending as far as the forward end of the top portion of the base; but said base may be of any desired construction. At the forward end of the base a strengthening batten 11 is shown. A platform A′ is mounted to slide upon the forward portion of the base, said platform being provided with inclined grooves 12 which receive similarly-inclined projections 13 from the side edges of the base so as to permit the platform being lifted from the base. The base A at a point below the forward end of the sliding platform A′ is provided with a longitudinal slot 14, shown in Figs. 1 and 2; and a projection 15 from the inner end portion of the sliding platform A′ extends down loosely through said slot 14. One end of a spring 17 is secured to the said projection 15 by means of a bolt or screw-eye 16, or its equivalent, the other end of the spring being attached to a suitable support 18 secured to the under face of the forward portion of the base A, as is shown in Fig. 1.

A lip 19 is made to extend from the central inner portion of the sliding platform A′, and the said lip is provided with a slot 20 for a purpose to be hereinafter described, and has

its inner or projecting end upwardly inclined so that at the inward movement of the sliding platform A′ the inner end of the lip 19 will pass over a sill 22 secured transversely upon the said base, which sill 22 is provided with outwardly-extending members 23 at its ends, the said members being guide members and adapted for a purpose to be hereinafter mentioned; and said sill is provided with a recess 24 in its outer edge, located substantially in horizontal alinement with the slot 14 in the base A, as is shown in Fig. 2. A second sill 25 is transversely secured upon the base A at its rear end, and standards 26 are carried upward from the sill 25, as is best shown in Fig. 3, said standards being connected at the top by a cross bar 27. Adjustable extensions 28 are provided for the standards 26, said extensions 28 being in the form of upright bars having grooves 29 in their inner faces to receive the outer longitudinal edges of the uprights 26, and each extension 28 from the side uprights 26 is provided with a longitudinal slot 30 near its lower end, through which slots adjusting bolts or screws 31 are passed into the uprights 26, said bolts or screws being provided with suitable washers 32, as is also best shown in Fig. 3, whereby the extensions 28 may be raised and lowered as required.

The drive shaft B of the machine is in this instance horizontal, but I desire it to be understood at this point that the machine will operate as readily when the parts are vertically arranged as when horizontally arranged as illustrated. This drive shaft B is mounted to turn at its forward end in horizontal bearings 34 located on a cross bar 35 that connects uprights 33 extending from the forward sill 22, and said uprights 33 are of greater height than the combined uprights 26 and 28 at the rear of the machine.

The drive shaft B at its rear portion is mounted to turn in bearings 35ª secured upon the upper cross bar 27 of the rear uprights 26, as is shown in Fig. 3, and extends some distance beyond said rear uprights.

Adjacent to the forward face of the cross or connecting bar 27 the drive shaft B is provided with a gear 38, and at its rear end said drive shaft is provided with a loose pulley 39 and a fast pulley 40; and the cross bar 27 at the rear and the cross bar 35 at the forward portion of the machine are connected by a longitudinal bar 41, as is shown in Fig. 1.

A block 43 is pivotally mounted between the upper end portions of the extension members 28 of the rear standards 26, the pivotal connection being made through the medium of suitable trunnions 44 as is shown in Fig. 3. The rear end of an arm D is secured to the upper face of the pivoted block 43, and said arm D is preferably in two sections, a main rear section *d* and a forward section *d′*, the forward section being adjustable upon the rear section. The rear section of the arm is usually in the form of an inverted T as illustrated, and the forward section *d′* is bifurcated to straddle the web of the rear section *d* of said arm. The forward section *d′* is provided with a series of apertures 46, through any one of which apertures a bolt 46ª may be passed, which bolt is carried by the web portion of the rear or main section *d* of said arm D, so that the arm D may be lengthened or shortened at will. A bearing block 45 is secured to the under face of the forward end of the rear or main section *d* of the arm D, which bearing block extends down in the space between the forward uprights 33; and at the forward end of the extension or forward section *d′* of the arm D a downwardly, extending member 47 is provided.

A driven shaft C is located over the drive shaft B. The driven shaft C extends out farther forward than the drive shaft B. The said driven shaft is journaled at its rear end in the pivoted block 43 located between the rear uprights 26, and between its ends is journaled in the block 45 extending down from the arm D. Said shaft likewise engages with the downwardly-extending forward member 47 of the said arm D as is shown in Fig. 1.

The drive shaft B is prevented from having end movement by means of a collar 37 secured thereto and engaging with the rear face of the bearing 34 for said shaft; and the driven or pivotally-mounted shaft C is prevented from having end movement by the attachment thereto of a similar collar 48 engaging with its intermediate bearing 45; and at the rear end of the pivoted driven shaft C a gear 49 is secured, adapted to mesh with the lower gear 38, and the adjustable extensions 28 for the rear standards 26 are provided in order that the two gears 38 and 49 may be readily brought into proper registry.

A groove 50 is produced in the outer end of the shaft C for a purpose to be hereinafter described, and lugs 51 are made to project forwardly from the bearing block 45 carried by the arm D. These lugs 51 are usually struck out or formed upon a plate 52 secured in any suitable or approved manner to the forward face of the block 45, and springs 53 are secured at their lower ends to the lugs 51, which springs are carried upward and are attached at their upper ends to standards 54, supported by a cross bar 55 that connects the top portions of the uprights 33.

Lugs 55ª extend out from the plate 52 between the lugs 51 connected with the springs 53, and said lugs 55ª, which may be termed intermediate lugs, are pivotally connected with the upper ends of vertical bars 56, which bars 56 extend downward in front of the cross bar 35 connecting the uprights 33, and the lower ends of the said bars 56 ex-

tend horizontally rearward and are provided with substantially U-shaped terminals 57, in which terminals a bar 58 is received, said bar being mounted to slide in slots 58ª produced in the lower portions of the said uprights 33. The said bar 58 is provided with a downwardly and forwardly extending central tongue 59, and this tongue engages with an actuating bar 60 for the sliding platform A′, the lower portion of said actuating bar being downwardly and forwardly inclined, and its lower portion is made to enter the lots 20 in the projection 19 from the rear or inner end of said sliding platform A′, as is particularly shown in Figs. 1 and 2, while the upper end 61 of said actuating bar 60 is pivoted in the cross bar 41 connecting the rear and the forward uprights 26 and 33, so that when the bar 58 is rocked in a direction to carry the tongue 59 to the rear the sliding platform A is carried rearward until its inner end engages with the forward sill 22. The said bar 58 is so rocked and is drawn downward so as to carry the pivoted driven shaft C from its normal upper inclined position to a horizontal position in the following manner:

Crank arms 62 are secured to the ends of the bar 58, which arms have normally a downward and forward inclination, and links 63 are pivotally attached to the said crank arms 62, which links extend downward to an engagement with the rear faces of the lugs or extensions 23 from the forward sill 22, and are united at their lower ends by a connecting bar 64, which bar by means of a link 65, or its equivalent, is connected with a suitable foot treadle, whereby to draw down the shaft C, bringing the springs 53 under tension, and at the same time to carry the sliding platform A′ to the rear to the limit above stated.

An apron 66 is located in front of the forward uprights 33. This apron 66 is adjustable forward or rearward through the medium of pins 67, that extend from its rear face through suitable openings in the said uprights or standards 33; and the apron 66 is held in its adjusted position by means of suitable set screws 68 or the equivalents thereof.

A combined beading and mouthing set E is located above the apron 66, as is particularly shown in Figs. 1 and 2. This set E consists of a female roller die *e* that is removably and adjustably located on the pivoted shaft C in front of the said uprights 33, and a male roller die *e′* that is removably and adjustably attached to the forward end of the drive shaft B, the two rollers dies *e* and *e′* bearing such relation to each other that when the shaft C is carried downward the two dies will clamp between them the material to be beaded and mouthed. The upper roller die *e* is provided with an annular groove 69, adapted to receive an annular rib 70 formed upon the lower or male die *e′*; and the upper roller die *e* to the rear of the groove 69 is given a conical or tapering ironing surface 71, and a corresponding surface 72 is given to the lower or male die *e′*; but the inclination of the two ironing surfaces 71 and 72 of the said roller dies are oppositely inclined, one of said surfaces being inclined forwardly and the other rearwardly as is shown in Fig. 1.

The apron 66 is provided with a recess 73 in its upper edge to accommodate the lower or male roller die *e′*; and the mouth portion of the can to be operated upon is made to bear against the apron 66 and is supported by the lower or male die *e′* of the beading and mouthing set of rollers, as is shown by dotted lines in Fig. 1. An adjustment of the apron 66 is provided in order that the mouthing of the can may be made as wide or as narrow as desired according to the slip cover it is adapted to receive.

A second apron 74 in the form of a standard as is best shown in Figs. 1 and 4, is located opposite the apron 66, the apron or standard 74 being at the forward end of the machine, and adjustably located for centering purposes upon a sliding support 75, which sliding support as is also shown in Figs. 1 and 4 has guided movement upon the sliding platform A′, and is held in adjusted position by means of a set screw 76 or the equivalent of the same.

The adjustment of the standard or apron 74 is both vertical and lateral, and to that end the vertical section of the sliding support 75 is provided with horizontal slots 77, and the standard or apron 74 is provided with vertical registering slots 78. Bolts 79, or the equivalents thereof, are passed through the registering slots, enabling the said apron-standard 74 to be adjusted relatively to the shaft C, in order to bring a member of a seaming set carried by said standard-apron in proper registry with a second member of the set carried by the shaft C. This seaming set is designated in the drawings by the reference letter F, and it consists of a seaming roller 80 located at the rear face of the standard-apron 74, the said seaming roller being secured to a shaft 81 loosely mounted at the upper central portion of the said standard apron as is shown in Figs. 1 and 4, and at the forward end portion of the shaft 81 a gear 82 is made fast. A gear 83 is adjustably secured to the outer end portion of the pivoted or driven shaft C, preferably by means of a key 84 that is passed through the hub portion of the gear and is received in the slot 50 of said shaft as is shown in Fig. 1. This gear 83 when the sliding support and its standard-apron 74 are drawn forward by the downward movement of the shaft C is brought into mesh with the gear 82 carried by the said standard-apron; and at such

time the seaming roller 80 is brought into engagement with the swaging roller *f* of the seaming set F, which swaging roller *f* is adjustably secured on the pivoted shaft C to the rear of the gear 83, as is shown in Fig. 1, and this swaging roller *f* is provided with an annular flange 85 adjacent to which a groove 86 is produced, adapted to mate with the seaming roller 80; and adjacent to the groove 86 at the rear thereof, a smooth or ironing surface 87 is formed on the said swaging roller. The seaming of the can is produced by the sealing roller 80 pressing the folded material into the groove 86 while the smooth surface 87 irons the outer face of the can where the seam is made. The swaging roller *f* of the said seaming set F is adjustably attached to the shaft C, by means of a key 88 entered into the groove 50 of said shaft C and passed through the hub of the swaging roller.

The standard apron 74 is initially adjusted on the sliding platform A′ so that the parts carried thereby will be forward of the gear 83 and the swaging roller *f* on the shaft C, occupying such relation to the said parts on the shaft C that when the shaft is drawn downward by the means heretofore described and the platform A′ is thereby moved inward, the gear 81 will mesh with the gear 83, and the seaming roller 80 will be in registry with the swaging roller *f* of the seaming set, so as to produce the seaming of the bottom of the can to its body at the same time that the beading and mouthing set of rollers E act upon said can; but if the can G is to be provided with a seamed cover the combined beading and mouthing set of the roller dies E are removed and substituted by a set of seaming roller dies, so that at one operation the bottom of the can is seamed to the body and the head of the cover of the can is seamed to its ring.

The apron-standard 74 is provided with a recess 89 in one of its side edges as is shown in Fig. 4, in order to prevent the fingers and the thumb of the operator being interferred with or crushed by the can in the movement of said apron-standard 74 as the can is placed between it and the inner apron 66, since in operation the can is supported by resting upon the lower die for example of the beading and mouthing set E and upon the seaming die 80 of the seaming set. Furthermore, the said apron standard 74 is provided with an upper recess 89ª, so as to permit the pivoted shaft C to occupy such a position that the gears 83 and 82 shall mesh when the said shaft C is lowered, and the dies of the seaming set will act properly on the can. The operative position of the machine in seaming and likewise in beading and mouthing is shown by dotted lines in Fig. 1.

It is evident that without adjustment the machine can be adapted to cans of different heights or lengths and to different diameters, which renders the machine exceedingly valuable, and enables work of different character to be expeditiously performed. It is also evident that the machine is very simple, comprising but few parts, and that its operation is within the comprehension of unskilled labor. Furthermore, the heads or bottoms 90 of the cans are placed upon the body 92 as they leave the seaming block, namely, having their marginal edges 91 struck up and bent to a U-shaped as is shown in Fig. 5, the ends of the body 92 of the can being simply introduced into said U-shaped flanges.

In Fig. 6 I have illustrated the principal portion of a can after it has been operated upon by the machine but with the seam 93 not fully folded, wherein it will be observed that at the same time the seam 93 is made a bead 94 is produced, and the mouth portion 95 of the can is given the necessary inward inclination to receive a slip cover. Since in the operation of this machine the heads of the cans are not required to be flanged before they can be seamed, an expensive operation is dispensed with and two handlings of the article are avoided.

In the operation of the machine the ends 90 of the can just as they leave the shaping block, are slipped upon the straight bodies 92 of the cans as is shown in Fig. 5, and the cans or other articles to be operated upon are placed between the two aprons 66 and 74 supported by the two lower roller dies E and 80, or other equivalents employed. The belt 90 is then shifted from the loose pulley 39 to the fast pulley 40, and the treadle is depressed, whereupon the shaft C is drawn downward, the apron-standard 74 is drawn inward or rearward and the gears 38 and 49 are brought into full mesh, and likewise the gears 82 and 83; and the pivoted shaft C is rotated by the drive shaft B, causing the two sets or roller dies E and F to simultaneously operate upon the can to seam the bottom to the body, produce the bead 94 at the mouth and give the necessary taper 95 to the mouth section of the can for the reception of a slip cover. At the release of the treadle the shaft C and the apron-standard 74 are automatically returned to their normal position.

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

1. In a can-seaming machine, a drive shaft, a driven shaft pivotally mounted over the drive shaft, being adapted for movement to and from the same, a driving connection between the two shafts, a slidable support, a seaming set one member whereof is carried by the driven shaft, the other member being carried by the movable support, a gear connection between the driven shaft and the seaming member carried by said support,

which connection is brought about when the driven shaft is drawn in direction of the drive shaft.

2. In a can-seaming machine, a drive-shaft, a driven shaft pivotally mounted for movement to and from the drive shaft, a driving connection between the two shafts, a slidable support, a seaming set, one member of which is secured to the driven shaft and the other member being carried by the said slidable support, means for turning the member of the seaming set carried by the support when the driven shaft is drawn in direction of the drive shaft, and means for bringing the two members of the seaming set in co-operative relation when the said driven shaft is moved in direction of the drive shaft.

3. In a can-seaming machine, a drive shaft, a driven shaft mounted for movement to and from the drive shaft, a driving connection between the two shafts, a third shaft located beneath the driven shaft, a support for said third shaft, a seaming set one member of which is secured to the driven shaft, the other member being attached to the third shaft, gear connections between said third shaft and the driven shaft when the driven shaft is drawn toward the drive shaft, and means for moving the driven shaft toward the drive shaft and simultaneously bring the members of the seaming set in co-operative relation.

4. In a can-seaming machine, a drive shaft, a driven shaft mounted for movement to and from the drive shaft, a driving connection between the two shafts, a third shaft parallel with the driven shaft and independent of the drive shaft, means for driving the third shaft from the driven shaft, a combined beading and mouthing set of dies, one member whereof is carried by the drive shaft and the other by the driven shaft, and a set of seaming dies, one member of which is carried by the driven shaft and the other by said third shaft.

5. In a can-seaming machine, the combination with a drive shaft, a driven shaft mounted for movement to and from the drive shaft, a gear connection between the two shafts, a third shaft mounted parallel with and adjacent to the driven shaft independent of the drive shaft, means for driving the said third shaft from the driven shaft, tension-controlled means for holding the driven shaft out of alinement with the drive shaft, and means for bringing the driven shaft into alinement with the drive shaft, of a set of combined beading and mouthing roller dies, one of which is attached to the driven shaft and the other to the drive shaft, and a set of seaming dies, one of which is carried by the driven shaft and the other by the said third shaft.

6. In a can-seaming machine, the combination with a base, supports from the base, a drive shaft mounted upon said supports, a driven shaft pivotally mounted in said supports for parallel movement to and from the drive shaft, a platform mounted to slide upon the base, a support carried by the said platform, and a third shaft mounted in said support, being parallel with the driven shaft, of means for driving the third shaft from the said driven shaft, a combined beading and mouthing set of roller dies, one of which is secured to the driven shaft and the other to the drive shaft, a set of seaming dies, one of which is secured to the driven shaft and the other to the said third shaft, tension-controlled means for normally holding the driven shaft out of parallelism with the drive shaft, and means for simultaneously lowering the driven shaft and bringing the dies of the two sets in co-operative relation.

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

EMILE P. DATOW.

Witnesses:
H. SCHILL,
K. WUCHUND.