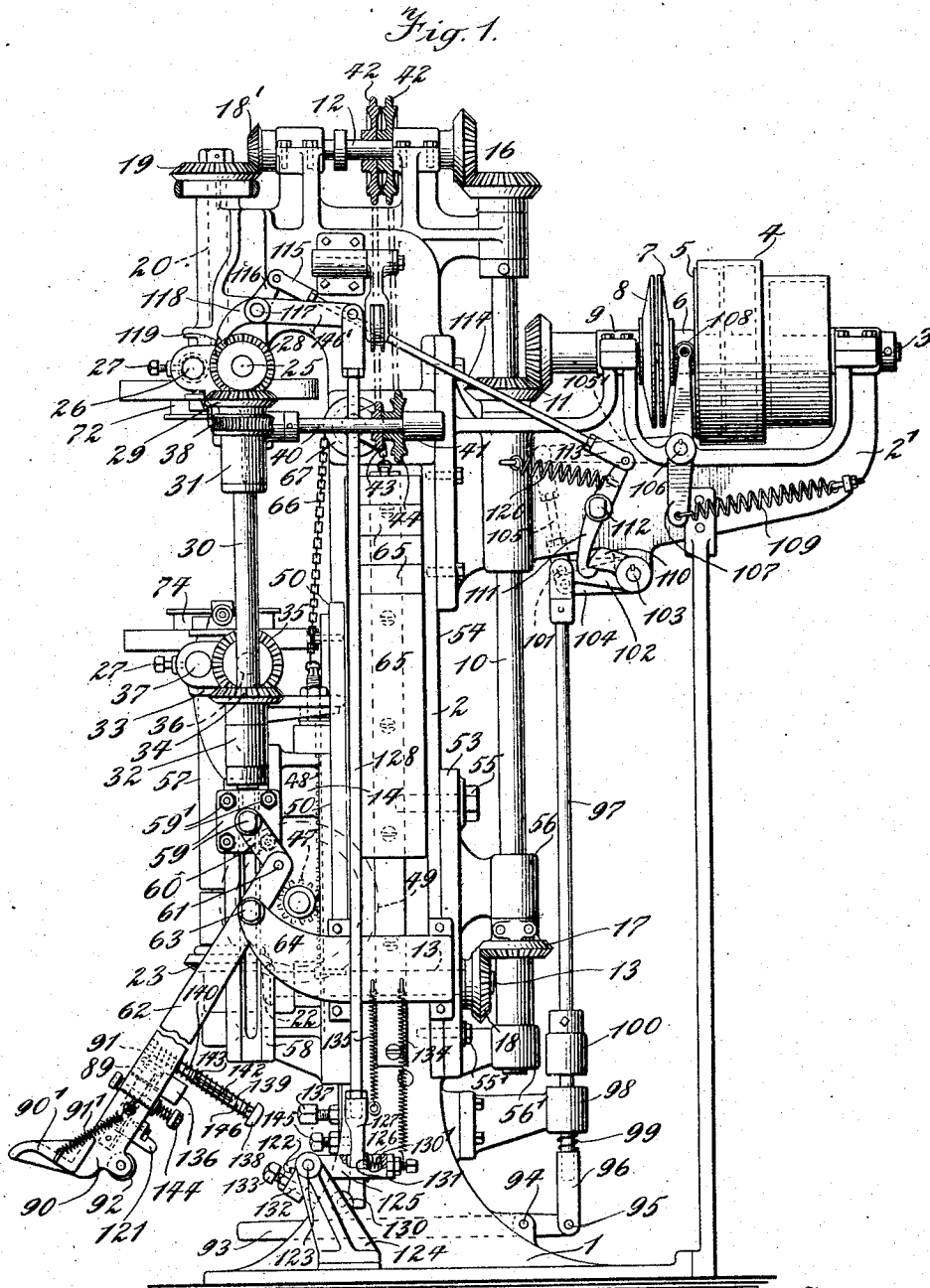


C. LEFFLER.
DOUBLE END CAN SEAMER.
APPLICATION FILED APR. 15, 1911.

1,047,666.

Patented Dec. 17, 1912.

5 SHEETS—SHEET 1.



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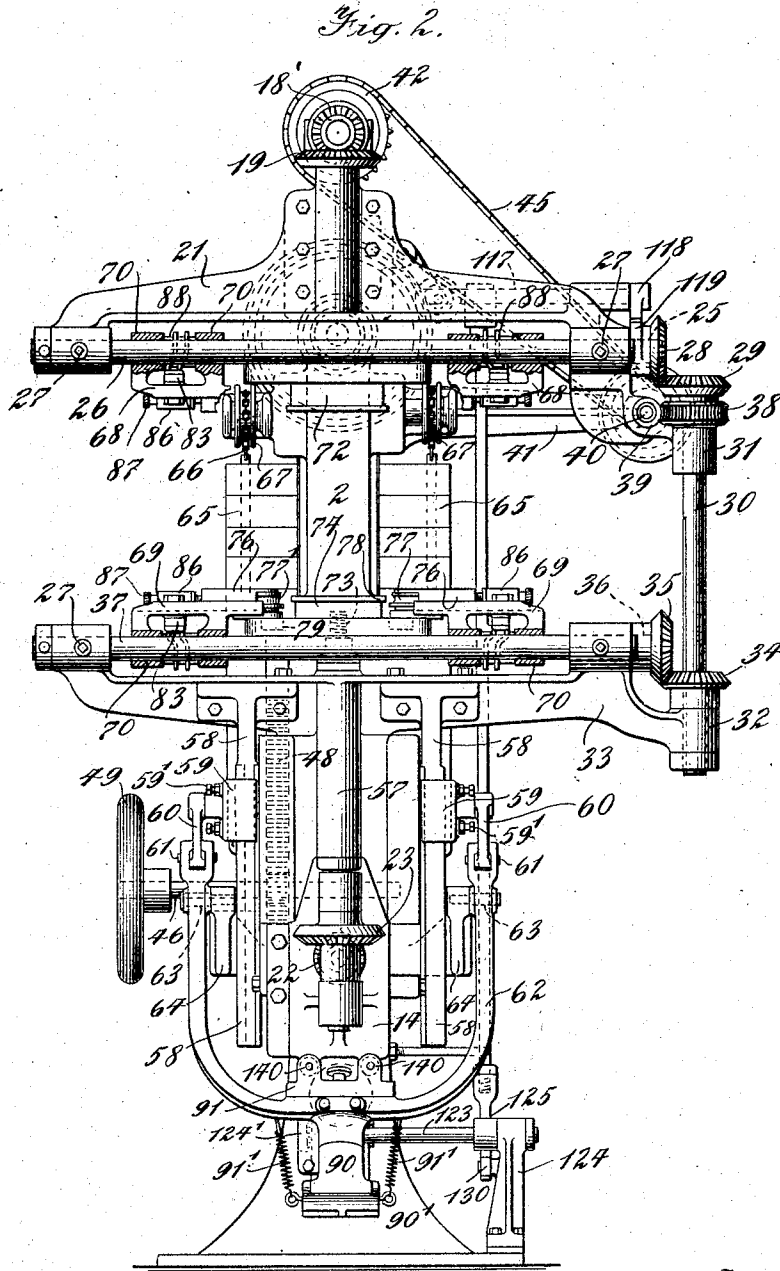
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5 SHEETS—SHEET 2.



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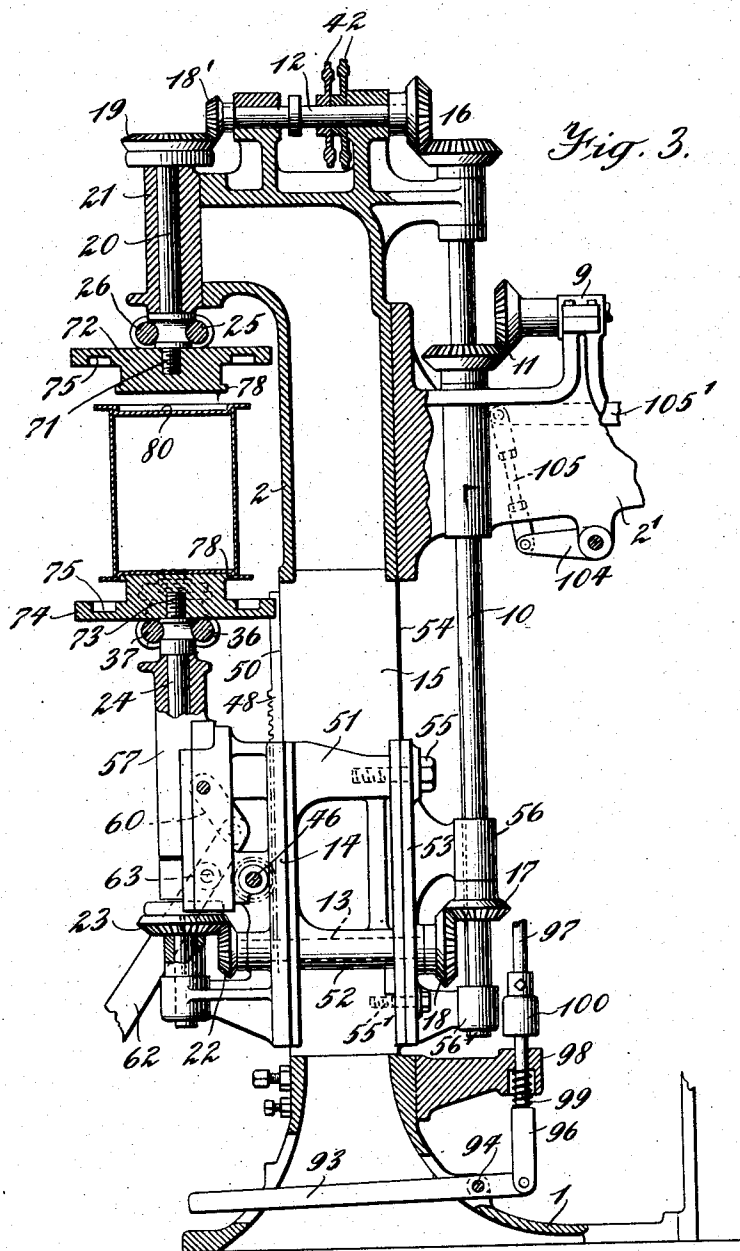
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5 SHEETS—SHEET 3.



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5 SHEETS-SHEET 4.

Fig. 4.

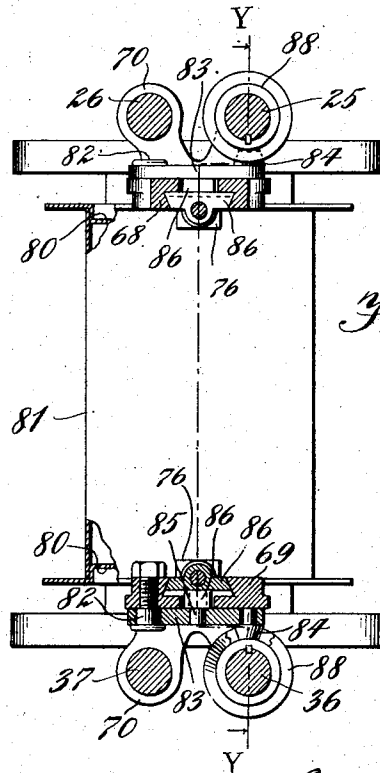
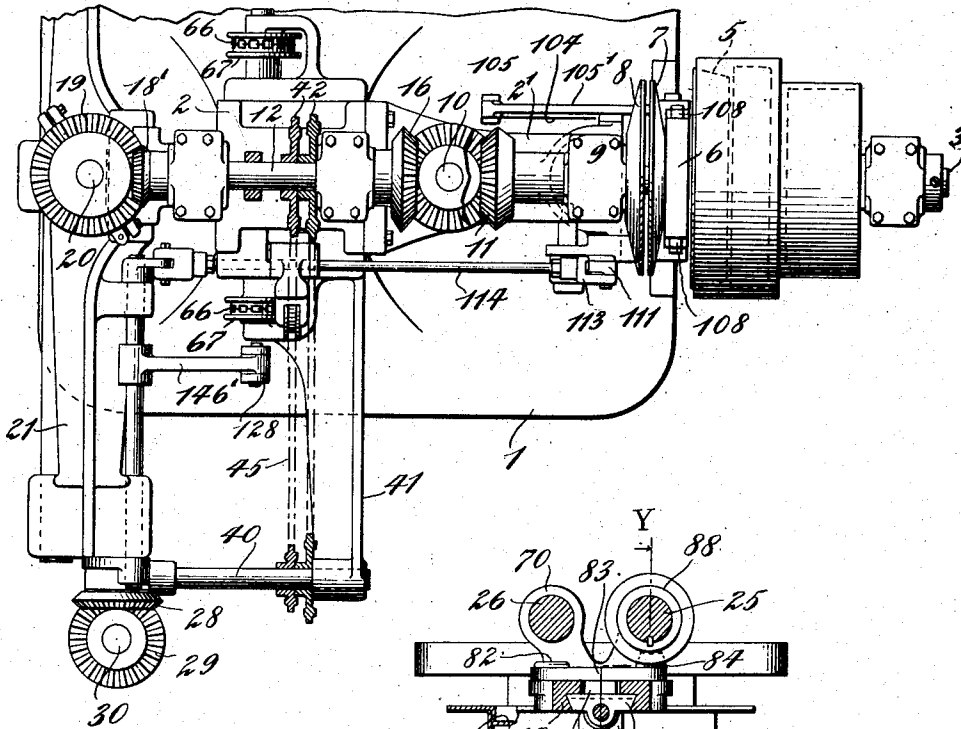


Fig. 6.

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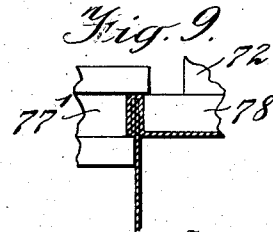
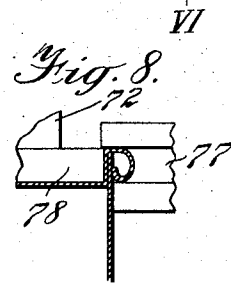
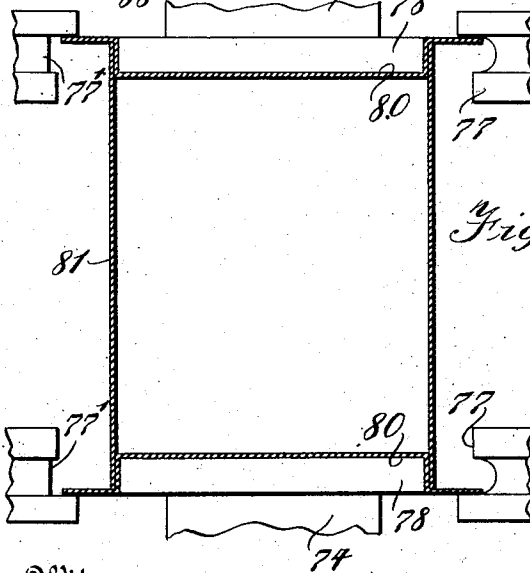
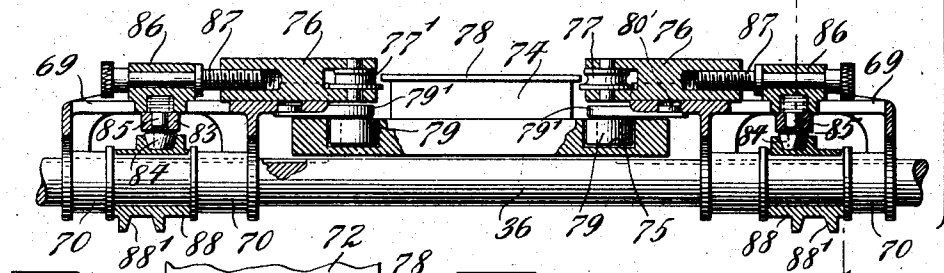
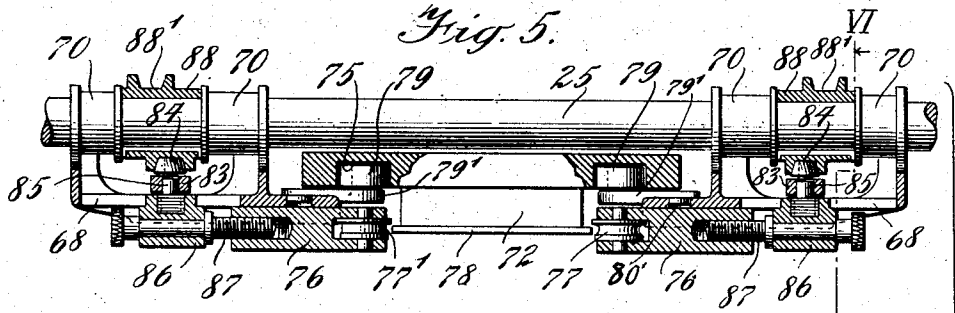
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APPLICATION FILED APR. 15, 1911.

1,047,666.

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5 SHEETS-SHEET 5.



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UNITED STATES PATENT OFFICE.

CHARLES LEFFLER, OF NEW YORK, N. Y.

DOUBLE-END CAN-SEAMER.

1,047,666.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed April 15, 1911. Serial No. 621,213.

To all whom it may concern:

Be it known that I, CHARLES LEFFLER, a citizen of the United States, residing at the city of New York, in the borough of Brooklyn and State of New York, have invented certain new and useful Improvements in Double-End Can-Seamers, of which the following is a full, clear, and exact description.

This invention relates to machines for uniting the body and ends of metal cans or vessels by means of suitable seams, and especially to a mechanism for forming such seams in vessels or cans of other than cylindrical shape, such for instance, as rectangular or triangular vessels.

One of the objects of my invention is to produce a machine which shall be practically wholly automatic in its operation, relatively simple in construction, and capable of turning out good work rapidly.

I further aim herein to expedite the manufacture of cans by performing two seaming operations simultaneously, the seams so formed being preferably what are known as double seams.

In some of its aspects the machine in question is an improvement upon the double seaming machine described in my Patent No. 648,037, since heretofore it has been possible to seam only one end at a time of cans of square or irregular shape, and it is believed that the herein described mechanism, adapted as it is to automatically double seam the tops and bottoms to the bodies of such square or irregular cans, represents a decided advance in the art. In general therefore while the mechanism in question relates to that general class of can seamers in which an edge of a can is seamed by forming and sealing dies which by reason of a suitable pattern can are caused to follow the general contour of the can and press an edge of the same into shape, by reason of the novel construction now employed, the said mechanism is adapted to operate upon a plurality of edges of such a can simultaneously.

The foregoing and other objects of my invention will be hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings which form a part hereof and in which like reference characters

designate like parts throughout the several views: Figure 1 is a side elevation of one embodiment of my invention, a small section of the treadle latch lever being broken away to show the construction of this part. Fig. 2 is a front elevation of the machine, portions of the die carriages hereinafter described being broken away for convenience in illustration. Fig. 3 is a vertical partial section taken substantially on the median line of the elevation shown in Fig. 2. Fig. 4 is a partial plan view. Fig. 5 is a detail section of the upper and lower seaming mechanisms proper. Fig. 6 is a detail section of the said seaming mechanisms taken on line VI—VI of Fig. 5, but showing a can in position therebetween. Fig. 7 is a detail section showing the relative disposition of the rollers and can forming parts before the seaming operation has begun. Fig. 8 is a fragmentary section taken through a flange of the can during the course of such operation. Fig. 9 is a similar section taken through the edge of the can substantially at the completion of said operation.

The machine illustrated in the accompanying drawings has a base 1 from which extends upwardly a standard 2, which standard carries the driving mechanism and most of the operative parts of the device.

Driving mechanism.—Laterally projecting from the rear of the standard is a bracket 2' which is provided with bearings wherein is journaled a drive shaft 3, which carries a pulley 4, preferably of the stepped type, and the inner side of the pulley adjacent the standard is pocketed to form a seat for a friction clutch member 5, the engaging walls of the pocket and clutch member being preferably slightly tapered in the usual manner. The clutch member 5 is secured to a sleeve 6 which is adapted to be moved freely longitudinally of shaft 3, and the forward end of this sleeve carries a friction disk 7 which is adapted to engage a corresponding disk 8, the latter being fixedly mounted upon the adjacent bearing 9. Disks 7 and 8 constitute a brake, the purpose of which will hereinafter be referred to. Shaft 3 is adapted to drive a vertical shaft 10 by means of beveled gear connections 11, and shaft 10 in turn is adapted to drive two preferably horizontal and parallel countershafts respectively designated 12 and 13; the shaft 12 be-

ing journaled in suitable bearings disposed at the top of the standard, while shaft 13 is journaled in a traveling block broadly designated 14, said block being mounted in a slideway 15 (see Fig. 3) in the body of the standard. Shaft 12 is driven through the instrumentality of beveled gears 16, while shaft 13 is driven by means of beveled gears which, for convenience, will be designated separately as 17 and 18; gear 17 being feathered upon shaft 10 so as to adapt it for longitudinal movement thereupon. Shaft 12 at its forward extremity carries a beveled pinion 18' which is meshed with a beveled gear 19, the latter being mounted upon the upper extremity of a preferably vertical spindle 20 which is journaled in a suitable cross-head 21 carried by the upper part of the standard. Correspondingly, the forward extremity of shaft 13 carries a beveled pinion 22 which is in mesh with a beveled gear 23, which in turn drives a vertical spindle 24, the latter being disposed in alignment with spindle 20 and below the same. It may be here noted that gear 23 is also feathered upon spindle 24 so that the said spindle is freely movable longitudinally through this gear.

The head 21 carries two guide rods or shafts 25 and 26; shaft 25 being revolvably mounted while shaft 26 is fixed, being held against displacement by means of set screws 27, or the like. As viewed in Fig. 2 the right hand extremity of shaft 25 is fitted with a beveled gear 28 which is in mesh with a beveled gear 29, the latter being mounted upon a vertical countershaft 30, the upper extremity of which is journaled as at 31 in a bearing which depends from the cross-head 21, while the lower extremity of this shaft is journaled as at 32 in a bearing which projects laterally from a second cross-head 33 indirectly carried by the traveling block 14. Immediately above the bearing 32 is disposed a beveled gear 34 preferably of the same dimensions as gear 29, and gear 34 is in turn meshed with a gear 35 mounted upon the right hand extremity of a revolvable shaft 36 which corresponds substantially to shaft 25 above referred to, being parallel therewith and being in like manner one of a pair of guide shafts, the companion or stationary shaft of the latter pair, which corresponds to shaft 26 above referred to, being shaft 37. The shaft 30 has a feathered connection with the gear 34 so that the latter is adapted to be displaced upwardly or downwardly while being driven by said shaft. Immediately below the gear 29 is a worm wheel 38 which is secured to the shaft 30, and which is driven by a worm 39 mounted upon a short countershaft 40 as shown in Fig. 2. Shaft 40 is journaled at its forward extremity in a bearing car-

ried by the stationary cross-head 21, and at its rear extremity in a bearing bracket 41 secured to the side of the standard. Shaft 40 is preferably driven from shaft 12 by means of a chain drive, one or more sprockets 42 being mounted upon shaft 12 and corresponding sprockets 43-44 being carried by shaft 40. Sprocket 43 is of smaller diameter than sprocket 44, while the sprockets 42 may be of the same size, but one set of said sprockets being connected by chain 45 at any one time, the difference in size of the different sprockets permitting change of speed of the shaft 40 and the die operating mechanism driven thereby, with respect to the speed of the spindles. In general, it will be seen that while the spindles 20 and 24 may be driven at a relatively high speed, the guide shafts 25 and 36 will usually be driven quite slowly; and further that the respective sets of gears are of such relative sizes as to permit the driving of spindles 20 and 24 at the same speed, while shafts 25 and 36 are also driven in synchronism with each other.

Traveling block and appurtenances.—The traveling block 14 has mounted transversely thereof a short shaft 46 which carries a pinion 47 which is adapted for engagement with a rack 48 secured to the standard to one side of the slideway 15. Shaft 46 also carries a handwheel 49, by means of which pinion 47 may be rotated, and thereby the traveling block may be raised or lowered, as desired. As shown in Fig. 3, this block bears against finished surfaces upon the front of the standard, and extensions thereof respectively designated 51 and 52 extend rearwardly through the slideway 15 and carry a back or clamping plate 53 which correspondingly engages finished surfaces 54 upon the rear side of the standard. Bolts 55 and 55' when tightened clamp the standard firmly between the traveling block and its plate 53 and thereby prevent inadvertent displacement of the former, bolts 55 preferably being of somewhat larger diameter than bolts 55' owing to the greater strain placed thereupon when the mechanism is in operation. It may be here noted that the shaft 13 above referred to extends through and is journaled in the extension 52 and that the lower extremity of shaft 10 is journaled in bearings 56 and 56', which bearings are carried by the plate 53.

Slidably mounted in the front of the traveling block 14 is a journal block 57, which carries the cross-head 33 above referred to, being in the exemplification shown integrally united thereto as shown in Fig. 2. Depending from the cross-head 33 are two posts 58 upon each of which is mounted a clamping block 59 which is adjustable longitudinally with respect to its post and is

adapted to be secured thereto in any desired position by means of set screws 59'. Pivotal-ly connected to blocks 59 are links 60, one of which is disposed upon either side of the machine; the free extremities of these links being respectively connected at 61 to the extremities of a bifurcated treadle lever 62; said lever being pivoted at 63—63 to brackets 64—64, the latter being fixedly secured to the respective sides of the standard. In effect therefore the respective upper extremities of the lever 62 which extend between the pivotal points 63 and 61, co-act with the links 60 to form toggles whereby the bearing block 57 and its cross head 33 may be raised or lowered as desired through a limited travel by means of the bifurcated treadle lever.

The weight of the traveling block and the parts carried thereby is preferably counterbalanced by weights 65 by means of chains 66 which pass over suitable idlers 67, mounted on the sides of the standard near the top thereof.

Can seaming mechanism proper.—Having described the power transmitting and controlling devices and the respective means for raising and lowering the lower cross-head and its attendant parts, I shall now refer to the can seaming mechanism proper. The nature of the gearing whereby shafts 25 and 36 are driven is such that they make but one rotation while the spindles 20 and 24 are making, let us say, 12 rotations, although these relative speeds are variable. Mounted upon the guide shafts 25 and 26 are two carriages 68, each carriage being adapted to slide back and forth over the said shafts. Correspondingly, two carriages 69 are mounted upon the lower set of guide shafts 36—37. All four of these carriages 68 and 69 are substantially identical, those upon the right hand side of the machine, of course, being right handed with respect to those on the left. The said carriages are each supported by the respective sets of guide shafts by means of brackets 70 through which the shafts extend, there being four brackets for each carriage.

The lower extremity of the spindle 20 is threaded as at 71 for engagement with a chuck block 72, while the upper extremity of the spindle 24 is correspondingly threaded at 73 for engagement with a chuck block 74; blocks 72 and 74 in this instance being substantially identical. Each of these chuck blocks is provided with a horizontal flange having in one surface thereof a cam groove 75, the cam groove in chuck block 72 being upon the under side and that in block 74 being upon the upper side; the said grooves substantially conforming in shape to the ends of the body of the can or vessel upon which the cover and bottom are to be se-

cured by the machine. The carriages 68 65 above referred to are radially disposed with reference to the axis of the chuck block 72 and upon opposite sides of said block, and carriages 69 are correspondingly located with respect to the lower block 74. As 70 shown in Fig. 5 each of the carriages 68 and 69 has mounted thereon a slide or die block 76, each of which slides has preferably, as shown in Fig. 6, a dovetailed connection with its respective carriage. The 75 inner extremity of each of these die blocks carries a die or forming roll 77 or 77' which is revolvably mounted therein and is substantially aligned with a flange or anvil 78, one of which is provided around the lower face 80 of block 72 and another of which is disposed around the upper face of block 74. Cam groove rollers 79 are mounted upon detachable blocks 79, which are attached in any suitable manner as by interlocking 85 lugs and recesses 80', as shown, to the respective carriages 68—69, and are adapted for engagement with the cam grooves 75 above referred to. When therefore the chuck blocks 72 and 74 rotate, which they do 90 in synchronism, the respective carriages 68 will be caused to approach and recede from each other, while correspondingly carriages 69 will be similarly actuated.

The flanges or anvils 78 are of practically 95 the same shape as the can and are respectively adapted to pass into depressions 80 in the top and bottom of the can, as shown in Fig. 7; the top and bottom of the can 81 in this instance being identical. 100

The anvils or flanges 78 co-act with the respective forming rolls to seam the cans when in operation, and to this end each die block 76 receives an additional and independent motion in the following manner: 105 Pivoted to each carriage at 82, as best shown in Fig. 6, is a short lever 83 which carries upon its free end a roller 84. Substantially midway between the pivotal stud 82 and the roller 84, the lever 83 is apertured for the 110 reception of a pin or bolt 85 which projects laterally from an adjustment block 86, each of these blocks being adjustably connected to a corresponding die-block 76, by means of a screw 87. Mounted between the respective 115 sets of brackets 70 which are in engagement with the rotatable guide rods 25 and 36 are cam sleeves 88, one of these sleeves being provided for each carriage, and each sleeve 88 has a cam groove 88' in which rides the 120 corresponding roller 84 of one of the levers 83 above referred to. As the cam sleeves are feathered upon their respective rotatable guide rods they rotate with these rods, the said sleeves being hence adapted to slowly 125 oscillate the respective levers 83 by reason of the engagement of the rollers 84 of said levers with the cam grooves. The levers 83

in turn slowly reciprocate the blocks 86 and slides 76 along their respective carriages and thereby cause the dies or forming rollers to alternately approach and recede from the flange like anvils 78. The adjustment screws 87 permit the approach of the dies toward said anvils to be adjusted to a nicety; while the relative angular displacement of the cam grooves 88' with respect to each other determines the lag or retardation of one set of dies, *i. e.* the finishing dies 77' behind the inturning dies 77; the purpose of which will be hereinafter referred to.

It is obvious of course that, by reason of the feathered connection between the rotatable guide shafts 25; 36, and the cam sleeves mounted thereupon, the carriages when actuated by the cam grooved chuck blocks will be free to approach and recede from said blocks, carrying the cam sleeves and connected parts along with them.

Automatic stopping device.—I shall next consider the means employed for starting the driving mechanism and for automatically stopping the same. The bifurcated treadle lever 62 carries downwardly projecting through the central portion or stem thereof a short preferably cylindrical rod 89 which is adapted for movement through said lever by having a feathered connection therewith. Secured to the lower extremity of this rod is a foot piece 90 which has laterally projecting therefrom a recessed extension 90' adapted for the reception of a portion of the foot of the operator. The upper extremity of rod 89 is headed and extends through a bracket 91 which is secured to the lever 62 in any suitable manner, the headed end of rod 89 being normally spaced slightly from the upper surface of the bracket 91 by means of springs 91', the upper extremities of which are attached to the respective arms of the bifurcated foot lever, the lower ends of said springs being connected to the extension 90' of the foot piece 90. The pressure of the foot of the operator upon this foot piece hence urges said foot piece downwardly, carrying its supporting rod 89 down with it until the head of the latter engages bracket 91. Of course when the foot piece is released springs 91' return the foot piece to its upper position.

A roller 92 is mounted between suitable lugs which project rearwardly from the foot piece 90 and this roller is adapted for engagement with the forward extremity of a lever 93 when the foot piece is in its innermost and downmost position. Lever 93 extends through the center of the base 1 and is pivoted thereto at 94; the short or rear arm of said lever being pivotally connected at 95 to member 96 into which is threaded a rod 97 which extends through a bracket 98 secured to the base. A spring 99 is disposed

between the upper surface of member 96 and the said bracket so that the forward or roller engaging end of the lever 93 normally occupies its uppermost position, rod 97 being provided with a suitable collar 100 which serves as a stop to prevent the lever being unduly raised.

Rod 97 is pivotally connected at 101 to a crank-arm 102, which is mounted on a rock-shaft 103, being preferably keyed thereto. This rock-shaft has mounted upon its further extremity, as viewed in Fig. 1, a second crank-arm 104, to which is connected a link 105, shown in dotted lines in said figure, and the upper extremity of which link is in turn connected to an arm 105', which is mounted upon a second rock-shaft 106, journaled in suitable lugs which project upwardly from the bracket 2'. Rock-shaft 106 carries upon its front extremity, as viewed in Fig. 1, the forked lever 107, the upwardly projecting arms of which carry rollers 108 which are disposed in engagement with suitable flanges upon the sleeve 6, above referred to, which is mounted upon the shaft 3. The lower extremity of lever 107 is connected with a spring 109, the other extremity of which is connected to the bracket 2'. By reason of this spring the said lever has a tendency toward clutch opening position; the sleeve 6 above mentioned carrying the clutch member 5 and brake member 7 in the manner above described.

The forward extremity of rock-shaft 103, as viewed in Fig. 1, carries a latch or finger 110 which is adapted for engagement with the hooked end of a short lever 111, the latter being mounted at 112 upon the side of bracket 2', and having its upper extremity pivotally connected to a part 113 into which is screwed a rod 114, this rod being preferably adjustable into and out of the part 113, whereby the overall length of these connecting elements may be varied for purposes of adjustment. The farther extremity of rod 114 is in like manner secured to a corresponding pivoted part 115 which is connected to a short crank-arm 116, which latter is in turn mounted upon a rock-shaft 117. The forward extremity of this shaft, as viewed in Fig. 1, carries a pawl 118, the extremity of which bears against the hub of the bevel gear 25. This hub is provided at one point thereon with a cam-like projection or trip 119, one face of which is preferably curved or beveled, and the other face of which is relatively abrupt.

When the toe of the operator is inserted into the foot piece and the foot is thrust forward while correspondingly pressing downwardly upon the foot piece, lever 62 will be swung around substantially into parallelism with the spindles 20—24, and the roller 92 will engage lever 93 depressing

the forward end thereof and thereby elevating rod 97, which in turn rotates rock-shaft 103 and thereby performs two functions, in that rock-shaft 106 is actuated through the instrumentality of link 105 by reason of which the brake will be released and the clutch thrown into operation, thereby starting the driving mechanism. Simultaneously the finger or latch 110 will engage and lock with the hooked extremity of lever 111, the latter being normally held in latching position by means of a spring 120. While the forward extremity of lever 93 is being depressed in the foregoing manner, a hook 121, which is secured upon the rear of the stem of the bifurcated lever 62, will latch with a hooked member 122, which is fixedly mounted upon a rock shaft 123. This shaft is carried in suitable brackets 124-124', and has secured thereto, adjacent bracket 124, a crank arm 125. This arm is slotted as at 126 for the reception of a reciprocable member 127 which is secured to the lower extremity of a rod 128. The lower extremity of member 127 is somewhat arcuately concaved upon its forward face to adapt it to bear snugly against a roller 130 which is carried on the inner side of bracket 124, being normally driven thereagainst by a spring 130' which is also disposed in said slot, a suitable shoe 131 being provided between the spring and the member 127. As shown in Fig. 1, the rock-shaft 123 also carries a short arm 132 rigidly secured thereto in any suitable manner, and through this arm projects a set screw 133 which is adapted to engage the base. This screw serves as a stop to limit the upward movement of lever 125, which has a tendency toward its upper position by reason of its connection with a spring 134. The member 127 which for reasons hereinafter referred to may be termed a friction element, and its rod 128 also have a tendency toward their upper position, a spring 135 being connected in any suitable manner to the friction element or member as shown in Fig. 1. It is evident therefore that by reason of spring 134 the treadle hook or latch 122 will be normally in position to engage the hook 121 and to thereby lock the treadle lever 62 in its vertical position, when moved thereinto. A stop 136 is provided upon the rear side of lever 62 which is adapted for engagement with the head of a set screw 137, whereby the inward movement of said lever may be positively but adjustably determined. This lever has a tendency toward its outer or upper position since spring pressed plungers 138 are disposed rearwardly of the said lever, being mounted upon the bracket 91 by forming the stems 139 of said plunger hollow, and thereby adapting the same for the reception of pins 140 which project from lugs which

extend upwardly from said bracket. The outward movement of each plunger with respect to its pin 140 is limited by slotting the stem of the plunger as at 142 and providing a small pin 143 which extends laterally from the pin 140 and projects into said slot. In order to insure an invariable outward displacement of lever 62, when its latch is released, it is advisable that auxiliary spring pressed members 144 be provided which are adapted for engagement with the heads of set screws 145 so that when the plunger is in its initial position these members exert a considerable tendency to start the same outwardly while after it has been once so started the weaker springs 146 of plungers 138 continue to drive it outwardly until the weight of the parts uplifted by the toggles above referred to is adapted to exert its effort and to thereby retain the lever in its outermost position.

Rod 128 is connected with the rock-shaft 117 by means of a crank arm 146', which is securely mounted on said shaft.

Operation.—Assuming that the pulley 4 is constantly running and is normally disconnected from the shaft 3, the clutch being open, and that the body of a can with its top and bottom members has been assembled as shown in Fig. 7 and has been placed upon the lower block 74 as shown in Fig. 3, the toe of the operator is then thrust into the pocket 90' and lever 62 is urged inwardly and downwardly in the manner above described, thereby effecting a latching engagement between hooks 121 and 122 and substantially simultaneously depressing lever 93 and operating the clutch mechanism and releasing the brake in the manner above described. Before, however, this clutch mechanism will have been operated, the supporting block 74 with the can parts will have been lifted by the toggle action until the top of the can is in engagement with the block 72. Thereafter both spindles 20 and 24 will rotate in synchronism at considerable speed and during the course of such rotation, the rotatable guide rods 25 and 36 will be caused to rotate at a much slower rate,—in this instance such rods making one revolution while the said spindles are making twelve. This will cause the levers 83 to swing inwardly toward the can about their pivotal points 82. Of course before the machine starts the forming rolls are spaced from the edge of the can, but as soon as the parts begin to rotate the cam sleeves 88 begin to move in the forming rolls by moving the levers 83 in the manner already described, and the top and bottom rollers 77 finally strike the edge of the cover and the edge of the bottom of the can shown in Fig. 7, and begin to curl the said edges over in the manner shown in Fig. 8; a number of

revolutions of the can being utilized to bring
 the respective edges to the shape shown.
 When the top and bottom seams have been
 thus partially formed by one set of the roll-
 5 ers, the other set, 77'—77', on the other side
 of the can, whose slides have been previously
 set so that they cannot come into action until
 the seams had been thus partially formed,
 come into contact with their respective seams
 10 and gradually press them into the finished
 condition exemplified in Fig. 9. While this
 second set of forming rolls is at work upon
 the can, the first mentioned set are being
 retracted toward their original position by
 15 their cam sleeves, and are therefore ready
 when the can is finished to act upon the next
 can. In completing the can the shaft 25
 makes one revolution, at the end of which
 the cam or strip 119 carried thereby moves
 20 the pawl 118 and thereby the rock-shaft 117,
 crank-arm 116 and rod 114, and thereby dis-
 places the latching lever 111, releasing the
 latch 110. Simultaneously with this action
 the crank arm 146', which is mounted upon
 25 the rock-shaft 117, moves rod 128 down-
 wardly and thereby rocks lever 125 about
 its pivotal axis, and thereby releases hook
 121. The spring pressed plungers 144 and
 138 above described then urge lever 62
 30 abruptly outwardly, breaking the toggle and
 lowering the block 74, thereby withdrawing
 the completed can from its engagement
 with the upper block 72. The releasing of
 the latch 110 at the same time allows spring
 35 109 to displace lever 107, and thereby open
 the clutch and throw the brake disks into
 operation, effectively bringing the mecha-
 nism to an almost immediate stop. This im-
 mediate action of the clutch releasing and
 40 braking mechanism is possible by reason of
 the fact that the roller 92 was already out
 of engagement with its lever 93 even though
 the treadle lever had not as yet moved out-
 wardly, roller 92 being lifted free of lever
 45 93 when the foot of the operator is re-
 moved from the foot piece after starting the
 mechanism. The pressure exerted by spring
 109 is adjustable within limits so that the
 actual braking force exerted may be varied,
 50 and is in fact so adjusted to enable the ma-
 chine to be turned over sufficiently to per-
 mit cam 119 to just pass from under pawl
 118, the latter thereupon assuming the posi-
 tion shown in Fig. 1; and the mechanism be-
 55 ing then ready for seaming the next can.

The engagement between the reciprocable
 member 127 and lever 125 is a frictional one,
 the advantage of this construction being as
 follows: When the treadle is operated and
 60 the hooked parts 121 and 122 are thereby
 engaged, hooked member 122 is forced to
 rotate and thereby swings lever 125 down-
 wardly. Were it not for the frictional en-
 gagement between this part and the mem-

ber 127, the latter would be pulled down- 65
 wardly also, which would have displaced the
 latching element or lever 111, so that the
 machine would cease to operate as soon as
 the foot was removed from the foot piece.
 The member 127 being however somewhat 70
 cam shaped and in engagement with roller
 130 remains stationary in its uppermost po-
 sition while the lever 125 is passing there-
 over, and when the said lever snaps up-
 wardly due to the latching engagement of 75
 parts 121 and 122, it merely wipes upwardly
 again over member 127. On the other hand,
 when member 127 moves downwardly, as
 when actuated by the cam or trip 119, its
 frictional engagement with lever 125 is suf- 80
 ficient to effect the release of the treadle in
 the manner above described.

In general, in this machine, as in the one
 described in my patent above referred to,
 the dies are carried in guides which permit 85
 them to reciprocate in a straight line so
 that they will act against the edges of the
 can and directly toward the center or axis
 of the same. All parts of the mechanism
 are, with exception of the initial actuation 90
 of the foot lever 62, operated entirely auto-
 matically in every respect, and all that is
 required of the operator is to put the can
 parts in position upon the lower block or
 chuck and to press the treadle. The lock- 95
 ing of the treadle and the automatic re-
 lease of the same is believed to be a par-
 ticularly meritorious feature; while the fact
 that it is possible herein to automatically
 bring double sets of seaming rolls into con- 100
 tact with the work by means of straight line
 motions, is of especial importance. The
 double seaming rolls further may be very
 accurately adjusted and perfect seams rolled
 at the highest speed, while other parts of 105
 the machine are correspondingly adapted to
 be adjusted to a nicety.

While the increase in the output and the
 saving in labor due to the herein described
 mechanism are very important items, one 110
 of the most advantageous features of this
 machine is that by its use cans with per-
 fectly straight bodies can be made. Cans
 made in a single end seamer, particularly
 when of large size, tend to twist, as the 115
 open end tends to drag the double seamed
 end. The fact that two separately but syn-
 chronously driven chucks are employed, en-
 tirely overcomes this tendency, and both
 ends of the can are driven at the same speed 120
 and stop at the same point, from which it
 follows that straight cans must result.

Having described my invention, I claim:

1. In a can seaming machine, a pair of
 revoluble chucks, a die movable toward and 125
 from one of said chucks, a reciprocably
 mounted support for said last mentioned
 chuck and its die, said chuck and die be-

ing movable toward and from the other of said chucks, mechanism for rotating said chucks in synchronism, cooperating mechanism for moving said die, said cooperating mechanism having rotatable elements carried by said reciprocally mounted support.

2. In a can seaming machine, a pair of revoluble chucks adapted to hold a can therebetween when seaming the same, dies movable toward and from each of said chucks, a fixed support for one of said chucks and its die, a reciprocally mounted support for the other of said chucks and its die, mechanism for rotating said chucks in synchronism, cooperating mechanism for moving said dies, said cooperating mechanism having a movable element carried by said fixed support, and a synchronously movable element carried by said reciprocable support.

3. In a can seaming machine, a plurality of can supporting elements, a seaming die, mechanism for actuating said die and elements, said mechanism comprising a clutch, means for approximating one of said can supporting elements toward another, said means comprising a treadle, means for actuating said clutch also operable by said treadle, a treadle latch for holding said treadle in operative position when moved thereinto, automatic means for disengaging said treadle latch, said automatic disengaging means comprising treadle latch operating members having a frictional clamping engagement with each other.

4. In a can seaming machine, a plurality of can supporting elements, a seaming die, mechanism for actuating said elements, said mechanism comprising a clutch, means for approximating one of said can supporting elements toward another, said means comprising a lever, means for actuating said clutch also operable by said lever, a clutch latch for holding the parts of said clutch in operative relationship, a latch for holding said lever in operative position when moved thereinto, and automatic means for disengaging both of said latches, said automatic means and lever latch having a slip connection therebetween, whereby the clutch latch remains undisturbed when the lever is driven into latching position.

5. In a can seaming machine, can supporting elements, a seaming die, mechanism for actuating said elements, said mechanism comprising a clutch, means for approximating one of said can supporting elements toward another, a clutch latch for holding the parts of said clutch in operative relationship, a latch for holding said means in operative position when moved thereinto, and automatic means for disengaging both of said latches.

6. In a can seaming machine, can supporting elements, a seaming die, mechanism for

actuating said elements, said mechanism comprising a clutch, means for approximating one of said can supporting elements toward another, a clutch latch for holding the parts of said clutch in operative relationship, a latch for holding said means in operative position when moved thereinto, and automatic means for disengaging both of said latches, said automatic means and second mentioned latch having a connection therebetween whereby the clutch latch remains undisturbed when a portion of the first mentioned means is moved into latching position.

7. In a can seaming machine, a pair of revoluble chucks, a die movable toward and from each of said chucks, a reciprocally mounted support for one of said chucks and its die, said chuck and die being movable toward and from the other of said chucks, mechanism for rotating said chucks in synchronism, cooperating mechanism for moving said die, said cooperating mechanism having a rotatable element carried by said reciprocally mounted support.

8. In a can seaming machine, a pair of revoluble chucks, mechanism for positively driving said chucks in synchronism, sets of dies disposed adjacent said chucks, one set adjacent one of said chucks and the other set adjacent the other of said chucks, each of said sets of dies comprising a curling die and a finishing die, said curling die being mounted independently of said finishing die in each set, mechanism for moving said dies laterally toward and from said chucks, said mechanism comprising means for advancing both of said curling dies toward their respective chucks in advance of said finishing dies, and means for moving one of said chucks toward and from the other of said chucks.

9. In a can seaming machine, a pair of chucks, sets of dies disposed adjacent said chucks, one set adjacent one of said chucks and the other set adjacent the other of said chucks, means for effecting a relative rotary movement between said dies and chucks, each of said sets of dies comprising a curling die and a finishing die, said curling die being mounted independently of said finishing die in each set, mechanism for moving said dies laterally toward and from said chucks, said mechanism comprising means for advancing both of said curling dies toward their respective chucks in advance of said finishing dies, and means for moving one of said chucks toward and from the other of said chucks.

10. In a can seaming machine, a pair of chucks, sets of reciprocally mounted dies disposed adjacent said chucks, one set adjacent one of said chucks and the other set adjacent the other of said chucks, means for

effecting a relative rotary movement between said dies and chucks, each of said sets of dies comprising a curling die and a finishing die, mechanism for reciprocating said
5. dies toward and from said chucks, said mechanism comprising means for advancing both of said curling dies toward their respective chucks in advance of said finishing dies, and means for moving one of said

chucks toward and from the other of said 10 chucks.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

CHARLES LEFFLER.

Witnesses:

ABRAHAM BRINKERHOFF,
JOSEPH HARLACH.