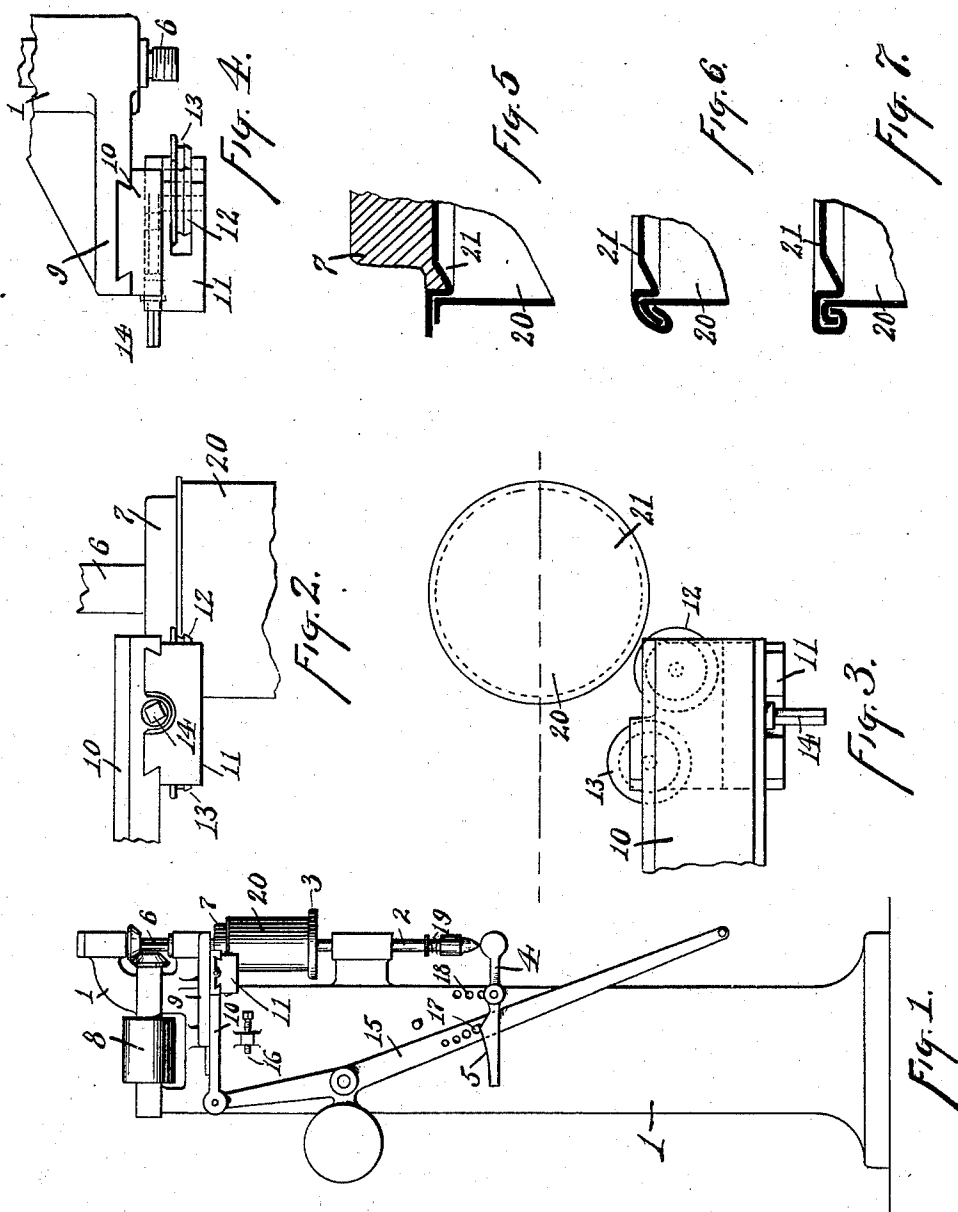


(No Model.)

J. B. FOOTE.
CAN SEAMING MACHINE.

No. 476,258.

Patented June 7, 1892.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN B. FOOTE, OF HAMILTON, OHIO.

CAN-SEAMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 476,258, dated June 7, 1892.

Application filed February 12, 1892. Serial No. 421,256½. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. FOOTE, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Can-Seaming Machines, of which the following is a specification.

This invention pertains to a machine for forming the seam which unites the body of a can to the top or bottom of the can. The machine is also applicable to cups, buckets, &c.

My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a machine exemplifying my invention; Fig. 2, a portion of the same view upon an enlarged scale, parts being recognizable by the reference-figures; Fig. 3, a plan of the parts shown in Fig. 2; Fig. 4, a front elevation of the main parts shown in Fig. 2 in connection with the bracket which supports the roll-slide; and Figs. 5, 6, and 7, vertical sections through the seam of the can and serving to illustrate in an exemplifying manner, the operation of the machine.

In the drawings, 1 indicates fixed frame parts of the machine, requiring no further explanation than that they are to be adapted to give proper support to the moving parts; 2, a vertical spindle mounted in a bearing in the frame and arranged for free rotation and free vertical movement, this spindle being hereinafter designated the "table-spindle;" 3, a disk mounted on the upper end of the table-spindle and forming a table, on which may be set the can or other article to be seamed, this disk being hereinafter designated the "table;" 4, a lever pivoted to the frame and having its outer end disposed under the lower end of the table-spindle, so as to form the step-bearing therefor, the lower end of the table-spindle being preferably provided with a pointed tip, so as to cause the step-bearing to be fairly free from friction; 5, inclines or cams formed upon the rear end of the lever 4, as hereinafter explained; 6, a driving-spindle vertically mounted in the frame in line with the table-spindle and some distance above the table; 7, a driving-disk secured upon the lower end of the driving-spindle, this disk being of such di-

ameter and of such form upon its lower face as to adapt it to fit the grooved bottom of a can, as indicated in Fig. 5; 8, a driving-pulley, whose shaft is geared to the driving-spindle, whereby the driving-spindle and driving-disk may be continuously driven by power; 9, a guide-bracket supported by the frame near the level of the driving-disk and forming a horizontal slide-guide tangent to a circle struck from the axis of the driving-spindle; 10, a slide arranged for reciprocation in this guide and having at its forward end a slide-guide at right angles to its own path of movement; 11, a block mounted in this last-mentioned slide-guide and arranged for adjusting motion at right angles to the slide 10; 12, a seaming-roll mounted upon a vertical axis on the inner portion of this block, this roll having a peripheral contour of a form adapted to engage the flange of a can-bottom and turn that flange inwardly in the form of seam chosen for exemplification, the drawings showing this roll as being formed with a top flange and a concave groove just below the top flange, the inner periphery of this roll projecting from its carriage or block, so as to be free to engage the seam of the can as the carriage is moved tangentially past the seam; 13, a similar roll similarly mounted in the carriage or block, but projecting inwardly beyond the other roll and to the rear of it, so that roll 12, as slide 10 moves forward, moves in a path tangent to one circle struck from the axis of the spindles, while roll 13 moves in a path tangent to a smaller circle, roll 13 being shown as having a similar contour to roll 12, except that the groove below the flange is square instead of concave, as seen in Fig. 2; 14, an adjusting-screw for moving the carriage or block in and out upon the slide; 15, a foot-lever pivoted to the frame and connected with the slide, so that pressure of the foot may cause the slide to move forwardly; 16, a stop-screw to determine the limit of forward motion of the slide, the screw being shown in the example as mounted in the frame of the machine in the path of movement of the lever 15, so as to interrupt the forward motion of that lever; 17, a pin in the foot-lever adapted to operate upon the inclines or cams 5 of the step-lever 4, whereby the first operation of the foot-lever is to quickly elevate the step of the

table-spindle, and also the table and can, which may be supported upon it; 18, series of holes for adjusting the step-lever 4 vertically, so as to suit the machine to different heights of cans; 19, a spring at the base of the table-spindle between its step-tip and a collar on the table-spindle, whereby the upward pressure of the step-lever is transmitted elastically to the table-spindle; 20, a can to be seamed, resting upon the table and clamped between that table and the driving-disk, and 21 the bottom or cap of the can to be seamed to the body of the can.

Attention is first directed to Fig. 5, illustrating in section an ordinary form of can-joint to be seamed, the body of the can being outwardly flanged and the bottom of the can being pressed into a shape adapting it to fit within the body of the can and to project outwardly over the flange of the body, it being the duty of the seaming-machine to curl the bottom flange inwardly under the body-flange, as indicated in Fig. 6, and then to fold the seam downwardly, as indicated in Fig. 7, and then to smash the seam flat against the body of the can. This is a well-known form of double seam for can-work and is selected as a mere example of the work of the present machine. In curling and forming such a seam the work is performed by the successive action of properly-formed rolls upon the seam as the can revolves.

The operation of the machine is as follows: The machine being empty, the driving-disk in rotation, the treadle forward, the roll-carriage back, and the table down, all is ready to receive the can. The roll-carriage is first to be adjusted by means of screw 14, so that the inner periphery of roll 12 will, as the roll travels forwardly, engage the seam properly and then pass the seam tangentially, the object of this adjustment being to suit the parts to operations on different sizes of cans, &c. The attendant takes the can-body, with the bottom or cap loosely applied, and sets it upon the table of the machine, under the driving-disk, and then pushes upon the foot-treadle, the first effect of which is to raise the table and compress the can endwise between the table and the driving-disk, whereby the bottom or cap is pressed firmly to place and the can put into rapid rotation. Continued rearward movement of the treadle causes the roll-carriage to move forwardly, thus bringing roll 12 into engagement with the seam of the revolving can, the effect of the engagement, as the can continues to revolve, being to spin or curl the flange of the bottom or cap under the flange of the body, as in Fig. 6. This roll com-

pletes its work when it reaches the center or tangent point of the seam. It is capable of doing no more, and its further forward movement in its tangent path is virtually away from the can; but the further forward movement of the roll-carriage brings the second roll 13 into engagement with the seam, and this roll performs the final flattening or smashing operation on the seam, this second roll being arranged so far inwardly as to be incapable of tangential passage past the seam. The final work of this last roll may be stopped when pressure upon the treadle can advance it no farther by reason of the resistance offered to it by the seam, or the stop-screw 16 may be set to limit the forward movement of this roll, thus insuring uniformity of work. When the seam is thus completed, the foot-treadle is allowed to return to normal position, thus moving the roll-carriage back and lowering the table and permitting the can to be removed and a new one placed in position.

For cans of other diameters a new driving-disk may require to be placed upon the driving-spindle, and the roll-carriage will then be properly adjusted across the slide and proper adjustment made at the stop-screw 16. For cans of other lengths the step-lever and cam-pin will be properly adjusted vertically in an obvious manner.

I claim as my invention—

1. In a can-seaming machine, the combination, substantially as set forth, with devices for holding and rotating a can, of a roll-carriage arranged for movement tangential to the can, a seaming-roll mounted in such carriage and so disposed that its periphery may engage the seam of the can, and an adjustable stop for limiting the advance of the carriage.

2. In a can-seaming machine, the combination, substantially as set forth, of two spindles arranged in a single axial line and provided with clamping-disks upon their contiguous ends, a roll-carriage arranged for movement tangential to said spindles, one or more seaming-rolls carried by said carriage and adapted to make peripheral engagement with the seam of a can clamped between said disks, and a treadle or lever connected with one of said spindles and with said carriage and arranged by its movement to first move said spindle toward its fellow spindle and then move said roll-carriage.

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Witnesses:

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