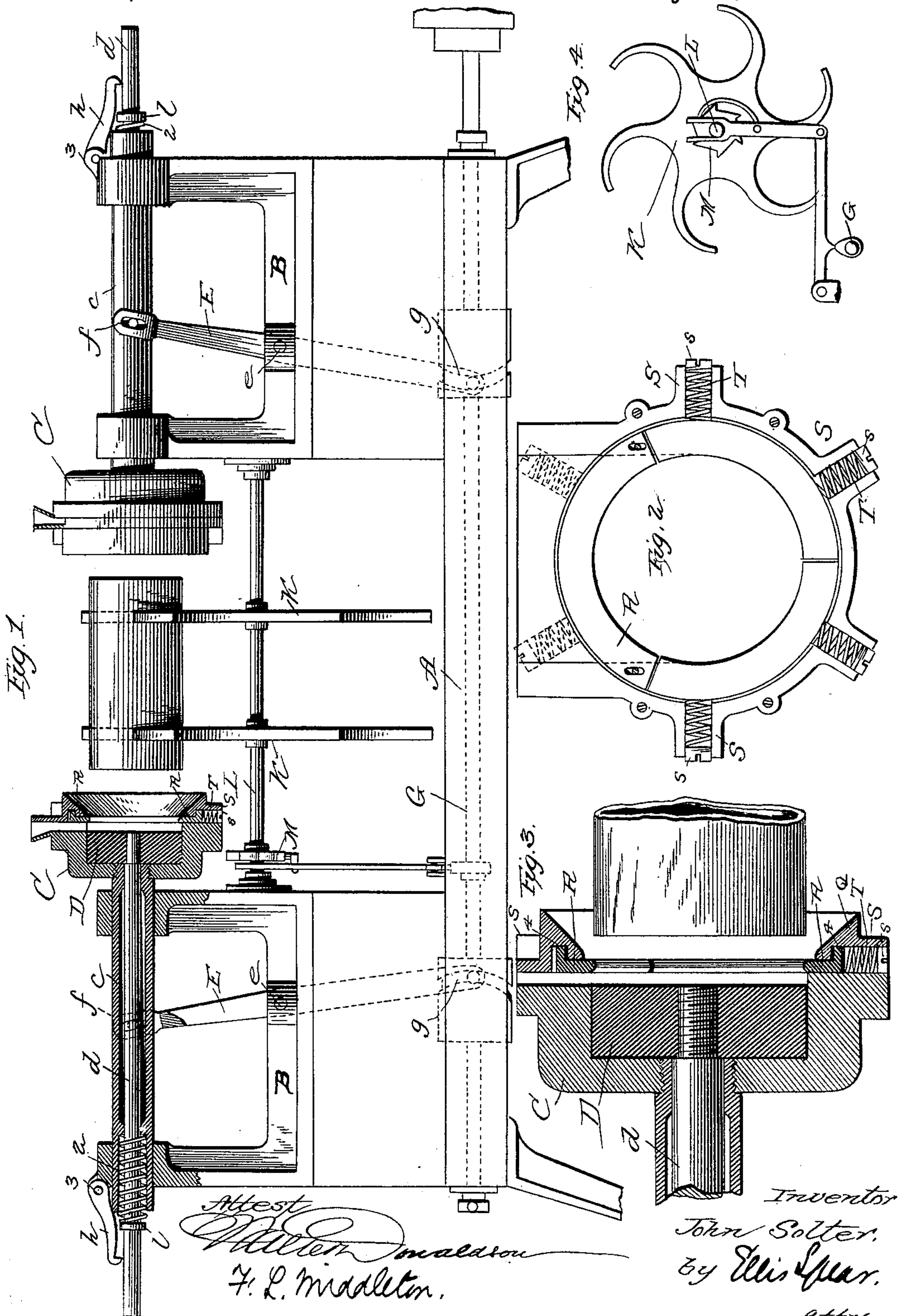


(No Model.)

J. SOLTER.
CAN HEADING MACHINE.

No. 386,760.

Patented July 24, 1888.



Attest
William Madison
W. L. Middleton.

Inventor
John Solter,
by *Ellis Spear*.
Atty.

UNITED STATES PATENT OFFICE.

JOHN SOLTER, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF TO
GEORGE L. KREBS, OF SAME PLACE.

CAN-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 386,760, dated July 24, 1888.

Application filed April 11, 1888. Serial No. 270,303. (No model.)

To all whom it may concern:

Be it known that I, JOHN SOLTER, of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Can-Heading Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improved machine for heading cans. It is designed particularly for putting the heads upon cans of that class technically called "outside head;" but the mechanism is not necessarily confined to the heading of that particular class of cans.

The object of my invention is to simplify the apparatus, whereby the ordinary cost of the machine is lessened and the effectiveness and durability increased.

In the accompanying drawings, Figure 1 shows the improved machine in side elevation, partly in section. Fig. 2 represents a front detail view of part of the die. Fig. 3 shows a central longitudinal section of the same. Fig. 4 shows the can-carrier and operating means therefor; Fig. 5, a transverse section on line *x x* of Fig. 1.

In the drawings, A represents a suitable table, provided with standards B, on which the working parts of the machine are supported. The upper part of the standards is bifurcated, and affords bearings for the die-shanks *c* of dies C. The dies are made with hollow faces, the cavities being cylindrical in form, and adapted to receive the head of the can and the end of the can-body, the particular construction of the cavities being explained hereinafter more fully.

Within the cavity of each of the dies is a plunger, D, which is provided with a shank, *d*, extending through the shank of the die, which is made hollow to receive it. The dies are operated by means of levers E, which are pivoted at *e* on the standard and to the shank of the respective die at *f*. The lower ends of the levers are provided with friction-rollers, which work in cam-grooves *g* on a main shaft, G. The grooves and levers are so arranged and proportioned as to give the required amount of forward and backward movement to receive the can-bodies, to press the heads thereon, and to discharge the cans. The plungers D are moved forward with the dies when the shanks of the

dies slide in their bearings. The ends of the shanks *d* of the plungers project beyond the die-shanks, and each is provided with a collar, *h*, against which a spring, 2, bears, and tends to hold the die-plunger back in the bottom of the cavity of the die. The end of the die-shank is bored out to enlarge the hole in which the plunger-shank works sufficiently to receive the spring 2, which is placed around the plunger-shank. Upon the outer part of the standard is placed a catch, *h*, pivoted at 3, and having an outwardly-projecting hooked end arranged to fall outwardly over the end of the plunger-shank when the die is carried forward to the limit of its movement. This, as shown, is the same on both ends of the machine, and as the dies are thus carried forward toward each other to reach the inner limit of the movement the catches fall over the ends of the shanks of the plungers and hold them in place, while the dies are retracted by the further revolution of the cam-shaft. This causes the plungers, after they have conveyed the heads to the body, to hold them thereon, while the dies are withdrawn from the headed can. Then the ends of the die-shanks, which are formed for that purpose, lift the catches *h* and release the shanks of the plungers, allowing the springs to throw them back. Between the standards is a pair of ordinary disks, K, having arms, each pair of which is adapted to receive and hold a can. The disks K are on a shaft, L, which is provided with a pawl and ratchet, M, worked by an eccentric on the shaft G. The pawl and ratchet are arranged to move the disks an amount equal to the space between each successive pair of arms, the whole being arranged to bring a can exactly in line with the die-cavities at each movement of the disks, and the cams and eccentric are so arranged in relation to each other that the can is brought into line with the die-cavities just before the dies are caused to advance—that is to say, while the dies are for the instant at rest in their backward position, the dies advancing and retreating while the disks K K are at rest. After the dies have advanced and pressed the heads upon the can-bodies, the plungers, as before intimated, hold the can in its position in the arms of the disk until the dies have retreated to clear

the can. Then the last part of the rearward movement of the dies releases the catch *h* and the plungers retreat from the can. Then the disks advance one step, which removes the can already headed, and brings a can-body into its place, when again the dies advance, repeating the operation. The upper parts of the dies are provided with openings *p*, to receive the can-heads, and any suitable automatic apparatus may be provided for feeding the heads thereto.

Figs. 2 and 3 illustrate the improvement in the die-cavity. Where the can-bodies are formed with an inwardly-bent edge, the fitting of the head upon the body is a comparatively easy matter, as the end is reduced and there is less liability that the edge of the can will meet the edge of the head-flange.

The special construction shown in the drawings last referred to is designed to hold can-bodies with perfect accuracy, so that they may enter readily the head-flange without any collision with opposing edges. To this end I provide a segmental ring, *R*. Preferably it consists of three sections set in a cavity in the flange of the die. This flange has a recess for the flange 4 of the ring-segments, by means of which they are retained in place, and it also has hollow pieces *S*, the chamber in which extends through the ring *Q* to the ring segments *R*. Screw-studs *s* are set in these, which press springs *T* against the ring-segments, thus keeping the ring-segments constantly pressed forward. The inner faces of the ring-segments, when thus pressed forward, project slightly in advance of the inner face of the die flange and hold the can-body accurately centered. When the ring-segments are pressed forward on the can-body, the cavity is of slightly greater diameter behind the segment, and this is sufficient to contain the head of the can, it being understood that this is an outside head. When

the die advances, the head is forced onto the body thus centered and held, and when the dies retreat the plungers, held in an advanced position, as explained, force the can out, pushing the ring-segments back. The segments are beveled on their edges, so as to allow the thickness of the can-head flange to crowd past them and push them back. The flange of the die is beveled in the ordinary manner, as shown, to admit the end of the can-body. The pressure of the springs may be adjusted by means of the screw-studs *s*.

I claim as my invention—

1. In combination, in a can-heading machine, arms to move the can-body into line with the dies, a pair of reciprocating die-plungers in the die-cavities, and mechanism for holding the plungers forward while the dies retreat, substantially as described.

2. In a can-heading machine, a pair of dies with plungers in the die-cavities, the shanks of the plungers extending through the hollow die-shanks, levers for operating the dies forward and back, and a catch for holding the plungers in an advanced position when the dies are retracted, substantially as described.

3. In combination with the die, a segmental ring with springs for pressing the segments inward, said ring being located around the inner periphery of the die-cavity, the die having a space in the rear of the ring to receive the can-head, and a plunger for conveying the can-head onto the body and holding it thereon while the die is withdrawn from the headed can, substantially as described.

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

JOHN SOLTER.

Witnesses:

F. L. MIDDLETON,
CHAS. L. STURTEVANT.