F. E. MEDCOFF.

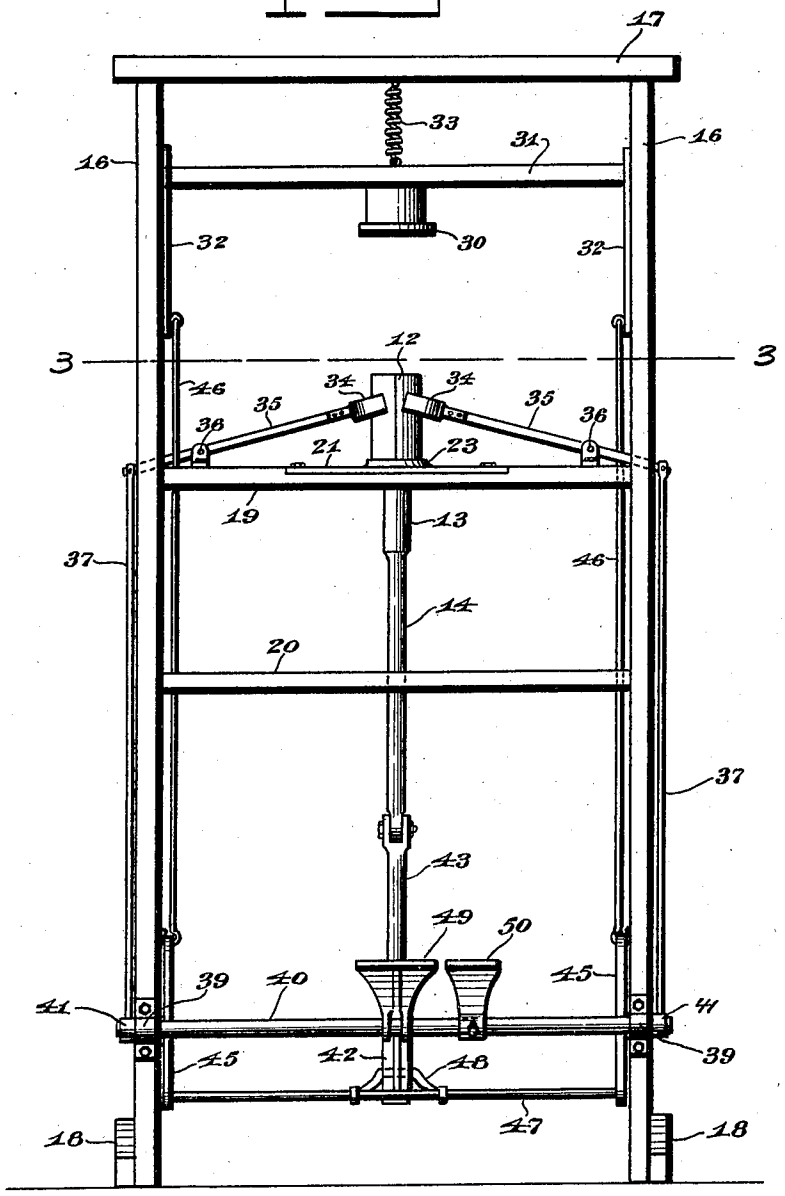
CAN STRAIGHTENING MACHINE.

APPLICATION FILED APR. 14, 1920.

1,386,942. Patented Aug. 9, 1921.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

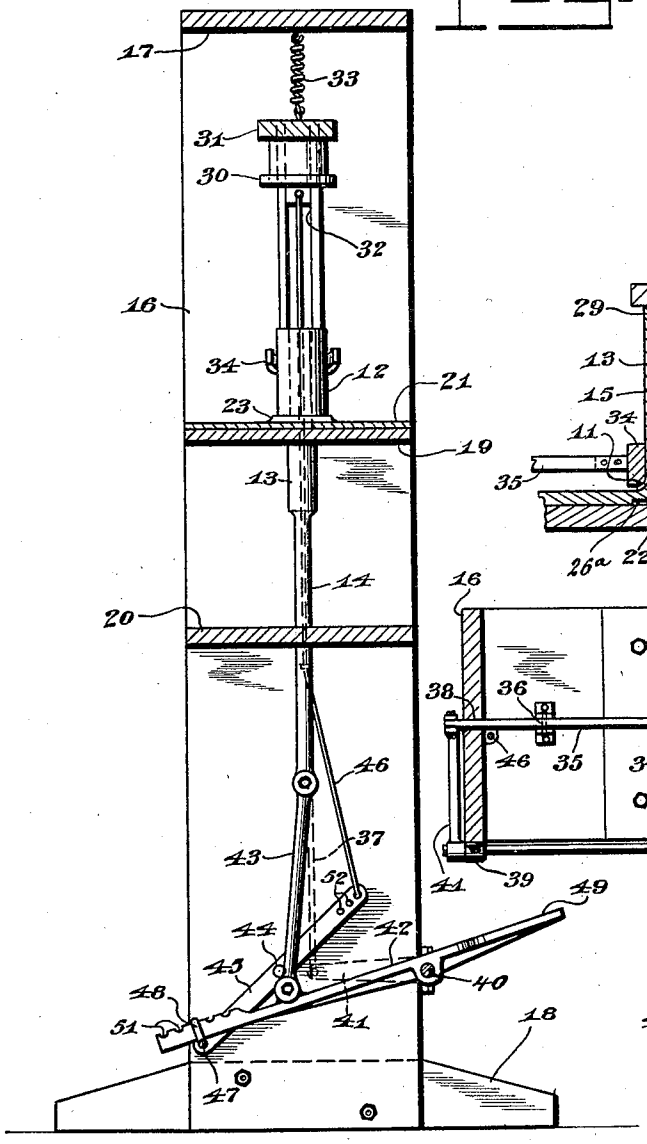
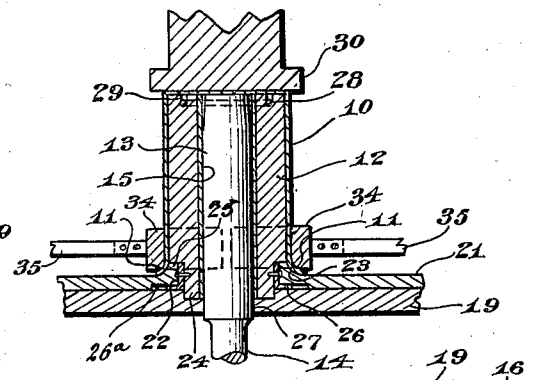


Fig. 4.



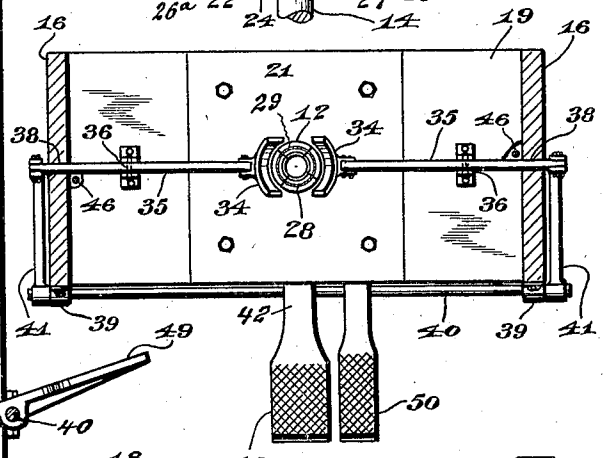


Fig. 3.

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FRANKLIN EARNEST MEDCOFF, OF COLOMA, MICHIGAN.

CAN-STRAIGHTENING MACHINE.

1,386,942. Specification of Letters Patent. Patented Aug. 9, 1921.

Application filed April 14, 1920. Serial No. 373,913.

To all whom it may concern:

Be it known that I, FRANKLIN E. MEDCOFF, a citizen of the United States, residing at Coloma, in the county of Berrien and State of Michigan, have invented new and useful Improvements in Can-Straightening Machines, of which the following is a specification.

The machine which is the subject matter of the present application for patent has been designed for straightening out sheet metal cans which have become dented or otherwise bent out of perfect shape, and its object is to provide a simple and efficient machine of this kind which is rapid in operation, and which also straightens out the rim of the can if the same has gotten out of shape.

The object stated is attained by means of a novel combination and arrangement of parts to be hereinafter described and claimed, and in order that the same may be better understood, reference is had to the accompanying drawings forming a part of this specification.

In the drawings,

Figure 1 is a front elevation of the machine;

Fig. 2 is a central vertical section thereof;

Fig. 3 is a horizontal section on the line 3—3 of Fig. 1, and

Fig. 4 is a vertical section of the expanding die member and side shapers, with a can in place and being operated on thereby.

Referring specifically to the drawings 10 denotes a sheet metal can which is assumed to have become dented or otherwise bent out of shape. In order to restore the can to its proper shape, it is placed in inverted position over an expanding die member, and said member is then expanded to restore the can to its original perfect shape. The can is also engageable by side shaper members to straighten out its rim 11.

The expanding die member is composed of a series of segmental blocks 12, which latter, when they are properly assembled, produce a hollow cylinder over which the can 10 is placed as shown in Fig. 4, and then by expanding the blocks, any dents or other irregularities in the side wall of the can are taken out. The cylinder is expanded by a mandrel 13 entering the same from the bottom, said mandrel being on the upper end of a stem 14 which is operated by a means to be presently described. The inside of the cylinder has a metal lining 15 to take the wear, said lining being metal strips which are secured to the inner faces of the blocks 12 in any suitable manner.

The supporting frame of the machine comprises two laterally spaced uprights 16, connected at the top by a cross-head 17, and each upright rising from a base 18. The uprights are also connected by a cross-piece 19, and beneath the latter, by a cross-piece 20.

On the cross-piece 19, midway between the uprights 16, seats a metal plate 21 which supports the blocks 12. The plate has a central opening 22 surrounded by an upstanding marginal flange 23. The lower ends of the blocks 12 are reduced, as shown at 24, to seat in the opening 22, and to form shoulders 25 to seat on the flange 23. On the reduced lower ends 24 of each block is fastened a hook 26 to prevent the block from rising, said hook extending under the plate 21, which latter has a bottom recess 26ª to accommodate the hook, as clearly shown in Fig. 4. The cross-piece 19 has an opening 27 registering with opening 22 to permit the mandrel 13 to enter. The blocks 12 are connected at the top by a spiral spring 28 bent into a ring and seating in a groove 29, said ring having a tendency to contract the blocks when the mandrel 13 is withdrawn.

The cam 10 is held down on the blocks 12 by a plunger head 30 carried by a vertically slidable cross head 31 seating at its ends in guides 32 on the inner faces of the uprights 16. The cross head 31 is held normally elevated by a spring 33 connected thereto and anchored to the cross head 17.

The device for shaping the rim 11 of the can 10 is composed of two segmental members 34 dimensioned to encircle the can above the rim and adapted to be forced down on the rim as shown in Fig. 4. Each member 34 is mounted on one end of a lever 35 pivoted at 36 on the cross-piece 19 and having connected to its opposite end an actuating rod 37. The uprights 16 having vertical slots 38 through which the last-mentioned ends of the levers pass.

In bearings 39 on the front edges of the uprights 16 is supported a horizontal rock-shaft 40 having crank arms 41 on its ends, to which latter the rods 37 are connected. On the rock shaft 40 is loosely mounted a foot lever 42, and a link 43 connects the foot lever to the mandrel stem 14. On the inner faces of the uprights 16 are fulcrumed, as

shown at 44, levers 45 which are connected at one end by rods 46 to the cross head 31. The other ends of the levers 45 are connected by a rod 47, carrying a yoke 48 which is hooked over the rear end of the foot lever 42, the forward end of the latter having a foot plate 49. On the rock shaft 40 is fastened a foot pedal 50 for operating the same.

When the foot plate 49 is pressed down, the rear end of the foot lever 42 rises, and through the link 43 pushes the stem 14 upwardly to insert the tapered mandrel 13 between the blocks 12 to expand the same, this action being due to the taper of the mandrel. The levers 45, through the connections 47 and 48 are also swung, and through their connections 46 with cross head 31, the latter is lowered to bring the plunger head 30 down on the can 10 to hold the same on the blocks 12, and also to eliminate any dents in the can bottom. If the rim 11 of the can requires shaping, the foot pedal 50 is depressed, which rocks the shaft 40, and through crank arms 41 and rods 37, the levers 35 are swung to bring the shaper members 34 down on the can rim as shown in Fig. 4. The rim is pressed against the side of the flange 23 which is curved to properly shape the rim.

After the can is properly shaped, the pedal 50 and the foot plate 49 are released, whereupon the parts are restored to their normal position, and after removal of the can, another can may be placed over the die blocks 12 for the next operation.

The connection between the yoke 48 and the foot lever 42 is an adjustable one, the latter having a plurality of top notches 51 into any one of which the yoke may be seated. The connection between the rods 46 and the levers 45 is also an adjustable one, the latter having a plurality of apertures 52 for this purpose. The cross pieces 19 and 20 are recessed at their ends to let the rods 46 pass.

The machine is adapted for operation on different sized cans by using different sized expanding die members.

I claim:

1. A can straightening machine comprising an expanding die member composed of a series of segmental blocks arranged to form a hollow cylinder, a mandrel insertible into the cylinder for expanding the same, a can rim shaping flange at the bottom of the die member, and a pair of pivoted segmental members engageable with the can rim for forcing the same against the aforesaid flange.

2. A can straightening machine comprising an expanding die member composed of a series of segmental blocks arranged to form a hollow cylinder, a mandrel insertible into the cylinder for expanding the same, a can rim shaping flange at the bottom of the die member, a pair of pivoted segmental members engageable with the can rim for forcing the same against the aforesaid flange, a rock shaft having an actuating connection with the segmental rim engaging members, and a lever fulcrumed on the rock shaft and operatively connected to the mandrel.

3. A can straightening machine comprising an expanding die member composed of a series of segmental blocks arranged to form a hollow cylinder, and adapted to support a can in inverted position thereover, a mandrel insertible into the cylinder for expanding the same, a presser engageable with the can bottom, a can rim shaping flange at the bottom of the die member, a pair of pivoted segmental members engageable with the can rim for forcing the same against the aforesaid flange, a rock shaft having an actuating connection with the segmental rim engaging members, a lever fulcrumed on the rock shaft and operatively connected to the mandrel, and an operative connection between the lever and the presser member.

In testimony whereof I affix my signature.

FRANKLIN EARNEST MEDCOFF.