

(No Model.)

3 Sheets—Sheet 1.

G. I. HOLDSHIP.

APPARATUS FOR BEADING AND CURLING SHEET METAL VESSELS.

No. 487,529.

Patented Dec. 6, 1892.

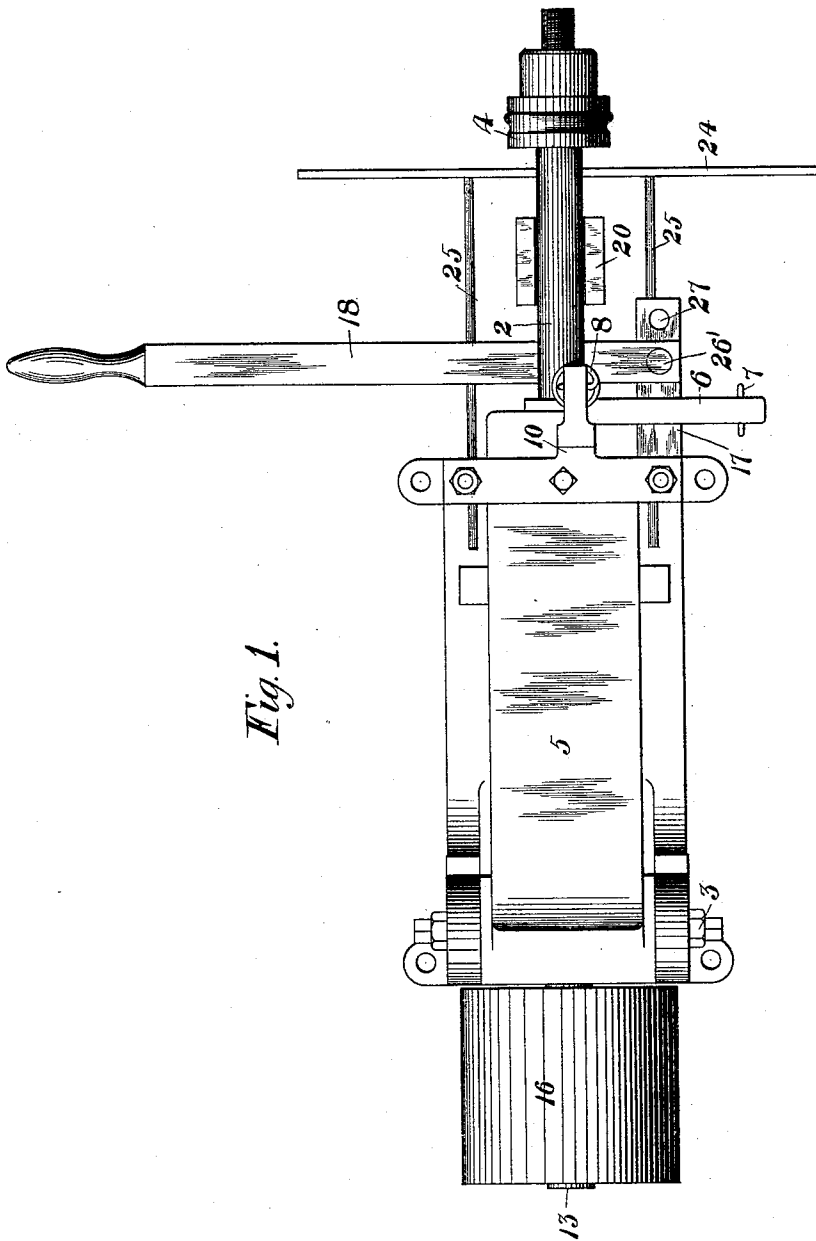


Fig. 1.

WITNESSES

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(No Model.)

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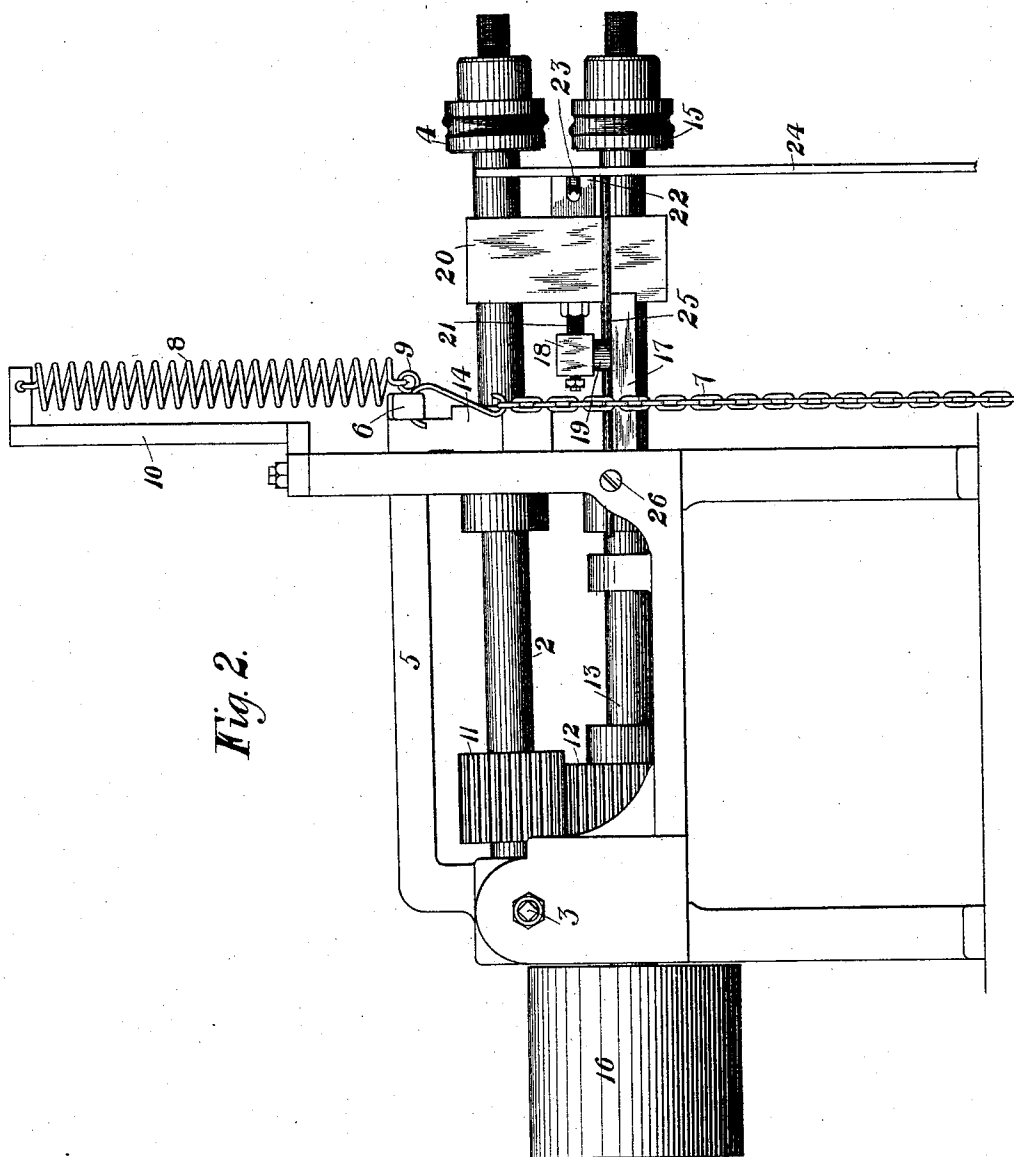


Fig. 2.

WITNESSES

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3 Sheets—Sheet 3.

G. I. HOLDSHIP.

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Fig. 3.

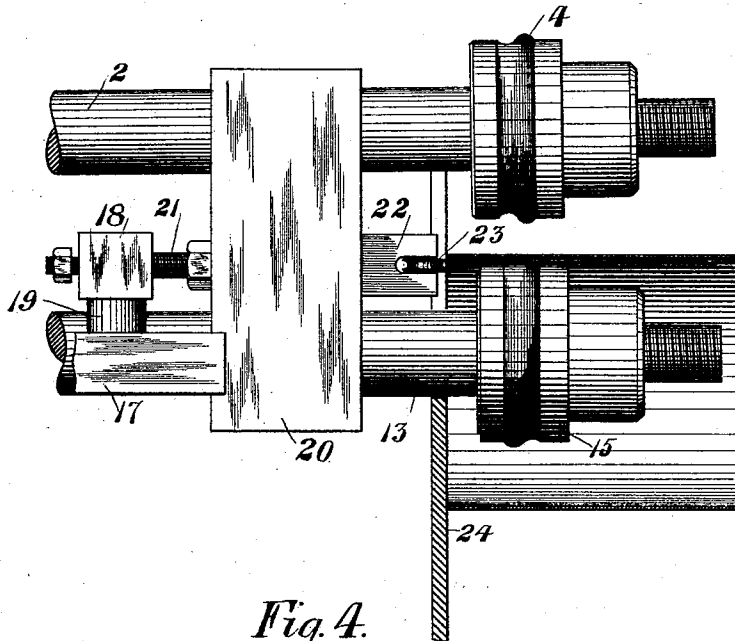
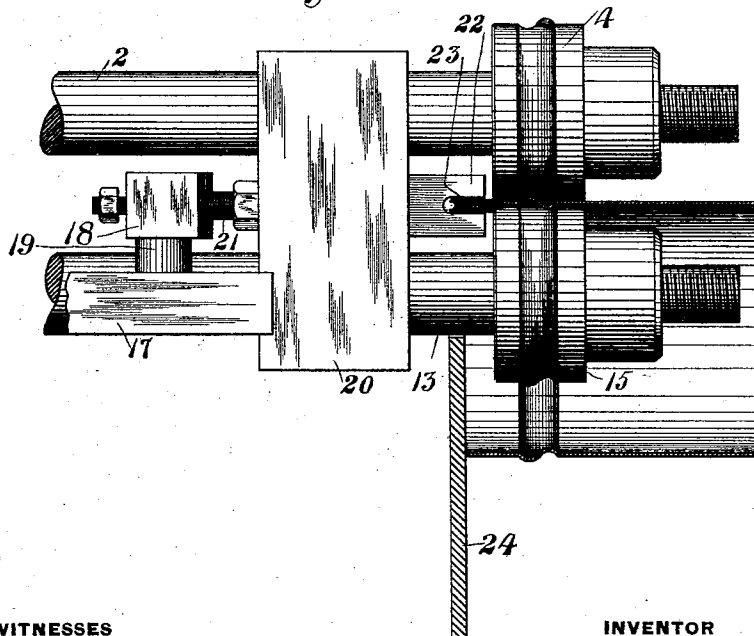


Fig. 4.



WITNESSES

Thomas W. Baxendell
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INVENTOR

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UNITED STATES PATENT OFFICE.

GEORGE I. HOLDSHIP, OF ALLEGHENY, PENNSYLVANIA.

APPARATUS FOR BEADING AND CURLING SHEET-METAL VESSELS.

SPECIFICATION forming part of Letters Patent No. 487,529, dated December 6, 1892.

Application filed July 11, 1892. Serial No. 439,672. (No model.)

To all whom it may concern:

Be it known that I, GEORGE IRWIN HOLDSHIP, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Beading and Curling Sheet-Metal Vessels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of my improved machine. Fig. 2 is a side elevation thereof; and Figs. 3 and 4 are detail views illustrating the operation of the machine, the beading-rollers in Fig. 3 being shown separated and those in Fig. 4 brought together upon the periphery of an interposed can.

The steps in the manufacture of sheet-metal vessels—such as pails, cans, &c.—to which my invention relates are the operations of beading (forming an ornamental groove or bead around the periphery) and curling the edge, (an operation intended to stiffen the vessel and to render it more durable.)

The objects of my invention are, first, to provide a machine by which both these steps may be performed by simple and easily-operated mechanism at one operation to better advantage than has been possible with apparatus heretofore known, and, second, to provide improved curling mechanism which may be used with or without beading mechanism and the specific advantage of which is that it can be used in curling the edges of cans of various diameters. The beading mechanism which I am about to describe is of a type heretofore used. The curling mechanism is not only broadly new in its combination with beading-rollers, but in construction it is specifically new irrespective of such combination.

In the drawings, 2 indicates the swinging shaft, whose bearing is pivoted at 3 to the framework of the machine and which carries at its outer end the beading-roller 4. From the rear end of this shaft above the pivot extends the bar 5, which is parallel with the shaft and at its outer end is provided with a laterally-extending bar 6, connected to a foot-treadle by a chain 7. The shaft is held normally in remote position from the other shaft (hereinafter described) by a spring 8, secured

to a hook 9 at the end of the bar 5 and to a vertical extension 10 of the frame of the machine. To the shaft 2 is secured the gear-wheel 11, which meshes with a similar wheel 12 upon a horizontal shaft 13, the shaft 2 passing through the usual sliding bearing-block 14 in the frame of the machine. The shaft 13 has at its outer end a beading-roller 15, whose periphery is the counterpart of the periphery of the roller 4, and at its inner end projecting beyond the frame the shaft is provided with a driving-pulley 16. Upon a forwardly-projecting plate 17, secured to the frame at one side of the shafts, is pivoted a lever 18, having a short vertical post 19 near its fulcrum, to which a cross-head 20 is secured by a screw-threaded rod 21, which passes through the cross-head and terminates in a bearing-block 22, fitting in a recess in the front of the cross-head. The block 22 carries the curling-wheel 23, pivoted therein, and the cross-head is provided with a hole in its lower portion, through which the shaft 13 projects, and with a slot in its upper portion, through which the shaft 4 passes and within which it swings vertically. It is best to set the curling-roller block on these shafts, since they serve as guides therefor and cause the curling-groove to engage the can's edge precisely at the proper point.

A stop-plate 24 is held in the rear of the beading-rollers, this plate being slotted for the passage of the curling and beading wheels and being adjusted to any desired position by rods 25, passing through the frame and held by set-screws 26'. The lever 18 may be pivoted at either of the points 26 or 27 upon the plate 17, as desired.

The action is as follows: The can is placed upon the roller 15, as shown in Fig. 3, so that its periphery at the line to be beaded shall be between the two rollers. The roller 4 is then depressed, so as to engage the can, as shown in Fig. 4, whereupon the revolution of the rollers will rotate the can and will form a bead around its periphery in the usual manner. The edge of the can projects beyond the ends of the rollers at right angles thereto, being held in such position by the plain marginal rim on the rollers shown in the drawings. During this beading operation the edge of the can is curled by means of the

roller 23, which the workman brings into contact therewith by operation of the hand-lever and which is pressed against the edge in line with the projecting portion of the can's side.

5 (See Fig. 4.) The rotation of the can in contact with the curling-roller turns over or curls the can's edge, the beading-rollers meanwhile serving as a mandrel to hold the can against the action of the curling-roller.

10 The advantages of my invention will be appreciated by those skilled in the art.

The apparatus is simple in construction, durable, and does not require special skill for its operation.

15 By means of the machine constructed as above described the beading and curling are performed at once. This makes it possible to produce a can beaded and curled at no greater cost than that required in the manufacture of cans which are merely beaded. 20 Furthermore, the machine is adapted to be used without adjustment in the treatment of cans of any size within certain limits. This is due to the employment of a single-grooved curling-roller, and this I intend to claim, 25 broadly, in combination with rollers which grasp the can at a point opposite to the curling-roller, so as to hold the can with its edge projecting at right angles against the action 30 of the latter, whether these rollers be grooved so as to bead the can or not, since a machine with ungrooved holding-rollers, while not so desirable as the machine illustrated in respect of the simultaneous accomplishment of 35 the beading and curling, is better than curling-machines heretofore known in respect of its capacity for use without adjustment.

The direction in which the edge is curled, whether to the inside or outside of the can, is 40 determined by the part of the peripheral groove of the curling-roller which engages the can's edge. The roller is adjusted so that the edge of the can shall engage the groove at a point to one side of the middle of the 45 groove, and the edge is then curled toward the opposite side.

By forming the curling-roller with a peripheral groove substantially semicircular in cross-section the edge of the can is curled, 50 and by forming the groove with one side flat or open a flange may be produced on the can. Thus by varying the shape of the curling-roller the character of work done by the machine may be correspondingly varied, while 55 the size of the groove determines the size of the curl or flange produced thereby. By the word "curling" used in the specification and claims I intend to denote, also, the operation of flanging or otherwise shaping the edge of 60 the can by a grooved roller working on the edge of the can substantially in line with the projecting side thereof.

The beading-rollers and their auxiliary mechanism uncombined with the curling-roller are old, and therefore without departure from my invention these parts may be varied in construction and arrangement. One

or both of the beading-rollers may be driven. The mechanism for operating the curling-roller may also be modified, since

What I claim is—

1. The combination of rollers adapted to engage and hold the periphery of a can or vessel and to present the edge thereof projecting substantially at right angles and a curling-roller adapted to engage the extreme edge of the can or vessel opposite to the place of engagement of said rollers and to exert thereon pressure substantially in line with the can's side, substantially as and for the purposes described. 70 80

2. The combination of rollers adapted to engage and hold the periphery of a can or vessel and to present a projecting edge thereof and a grooved curling-roller adapted to engage the extreme edge of the can or vessel opposite to the place of engagement of said rollers, substantially as and for the purposes described. 85

3. The combination of grooved beading-rollers adapted to engage and hold the periphery of a can or vessel and to present a projecting edge thereof and a grooved curling-roller adapted to engage the extreme edge of the can or vessel, substantially as and for the purposes described. 90 95

4. A machine having beading-rollers set on shafts separable at their outer ends to permit setting of the can or vessel to be treated and a curling-roller set opposite to the inner ends of the rollers between the shafts thereof and movable to engage the projecting edge of the can or vessel, substantially as and for the purposes described. 100

5. A machine having beading-rollers and a curling-roller having a carrier set on at least one of the shafts of the beading-rollers, which serves as a guide therefor, and movable on said shaft to engage the can's edge, substantially as and for the purposes described. 105 110

6. A machine having beading-rollers and a curling-roller having a carrier set on the shafts of the beading rollers, which serve as a guide therefor, and movable on said shafts to engage the can's edge, substantially as and for the purposes described. 115

7. The combination of rollers adapted to engage and hold the periphery of a can or vessel and to present the edge thereof projecting substantially at right angles, a curling-roller adapted to engage the extreme edge of the can or vessel and to exert thereon pressure substantially in line with the can's side, and a stop by which the degree of projection of the can is limited, substantially as and for the purposes described. 120 125

In testimony whereof I have hereunto set my hand this 30th day of June, A. D. 1892.

GEORGE I. HOLDSHIP.

Witnesses:

THOMAS W. BAKEWELL,
GUY C. DOSCH,
A. D. WILSON.