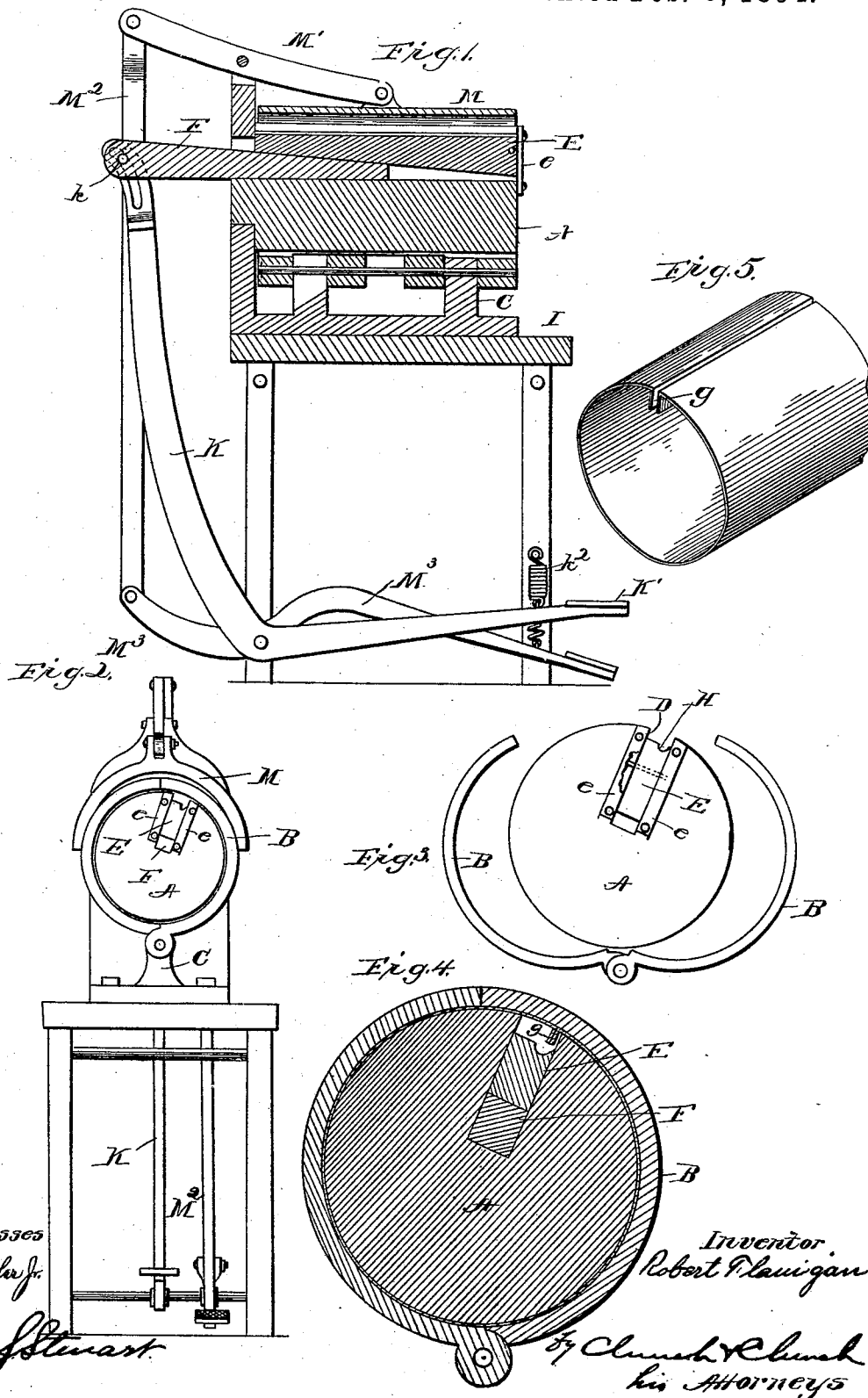


(No Model.)

R. FLANIGAN.
SEAMING MACHINE FOR SHEET METAL WARE.

No. 513,994.

Patented Feb. 6, 1894.



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ROBERT FLANIGAN, OF BALTIMORE, MARYLAND.

SEAMING-MACHINE FOR SHEET-METAL WARE.

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To all whom it may concern:

Be it known that I, ROBERT FLANIGAN, of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Seaming-Machines for Sheet-Metal Ware; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improved seaming machines for sheet metal ware, and more particularly to that class of machinery known as die seamers, the objects of the invention being to provide a machine of this class which will form the side seams in cylindrical ware, such as cans, on the inside leaving a smooth exterior, and preferably with a double fold, whereby the article is held in shape even without the use of solder.

The invention consists primarily in the employment of a former or cylinder around which the article is placed with a clamp for holding it in place, and a die working within the cylinder or former for turning the seam.

Further than this, the invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described and pointed out particularly in the appended claims.

Referring to the accompanying drawings: Figure 1 is a vertical section through an apparatus with which my invention may be carried into practice. Fig. 2 is a front elevation of the same. Fig. 3 is an enlarged front elevation of the former with the clamps open. Fig. 4 is a transverse section of the same with the blank in place, ready for the die to be forced out to form the seam. Fig. 5 is a perspective view of one of the blanks rolled into cylindrical form.

Similar letters of reference in the several figures indicate the same parts.

In carrying this invention into practice, I provide first a former of proper shape and size to fit the inside of the article being made, preferably, to fill the same. Thus as shown, the device is adapted for forming tin cans and a cylindrical former A is provided of approximately the internal diameter of the can. This former may be mounted upon any suitable support or in a suitable machine; and

in position to co-operate with it and embrace the article being formed, is a clamp or, as shown, a pair of clamps B, B, preferably pivoted to a suitable rigid support such as C, and adapted when opened, as illustrated in Fig. 3, to permit the blank to be readily inserted by being slipped on from the front end of the former.

Within the former, the channel or chamber is cut for the reception of the seam folding mechanism. The channel or chamber is lettered D in the drawings and sliding within it and so as to move out flush or substantially flush with the face of the cylindrical surface of the former, is a die E held in place and guided by suitable plates *e* attached to the front of the former.

In order to raise the die and turn the seam, I make use of a sliding wedge F, which co-operates with the inclined under surface of the die and by being forced in between the die and bottom of the chamber or recess D forces the said die directly outward.

In operating the mechanism thus far described, a blank of proper size, which has had its abutting edges flanged inward as illustrated at *g*, Fig. 5, is slipped over the former or bent around the former, and the clamp forced into place to hold it in this position, with the flanges *g* projecting down into the recess D, and it is obvious, that if the die be then forced outward, the said flanges will be bent up against the body of the metal and in order to give the desired fold to said flanges, it is only necessary to form a proper groove, such as H, in the face of the die in position to co-operate with the edges of the flanges as the die moves outward and presses the metal against the exterior inclosing clamp.

Obviously, many forms of operating mechanism may be employed in connection with the essential parts of the mechanism, *i. e.*, the former with its internal die and mechanism for moving it radially and the external clamp and in the accompanying drawings, I have illustrated one such mechanism consisting essentially of a table or stand I upon which the former and clamps are mounted, with a bell crank lever K pivoted near the bottom of the stand for operating the sliding wedge to drive the radially movable die outward. The upwardly extending arm of the

bell crank lever K is connected through a slot and pin connection k with the rear end of the wedge F and the other member of said bell crank lever is provided with a foot piece k' by means of which it may be depressed and the wedge forced in, and a spring k^2 for moving it in the opposite direction.

To force the clamps together, a U or V-shaped yoke M is hung immediately above the clamps and former, preferably on the forward end of the lever M' , pivoted to the stand frame and connected by a link M^2 with the rearwardly projecting end of the foot lever M^3 , by means of which the said yoke may be depressed and thereby force the clamps tightly around the former and hold them rigidly in this position.

Where two clamps are employed as illustrated, it is desirable of course that the die should not operate at the point where they come together, and for this reason, the former is preferably turned into such position that the die will operate at a point slightly to one side of a vertical center as will be readily understood from Fig. 4.

In manipulating the device it will be seen that the operator is enabled to work the clamp and die seaming mechanism entirely with his feet, leaving his hands free to handle the blanks and remove the completed cylinders upon which the heads are subsequently fitted.

It will be particularly observed that the seam formed by this mechanism is entirely on the inside of the can. Thus the heads may be fitted accurately and all of the parts soldered at the same time, if so desired, the seam formed by the machine being such that the cylinder will be preserved in perfect shape before the application of the solder.

By clamping the article exteriorly, the perfect cylindrical exterior surface is preserved while the seaming is being done, and there is absolutely no chance for the blank or cylinder to get out of shape, and at the same time I am enabled to employ very simple mechanical devices which will not be easily broken or be injured by long continued or rough usage.

Having thus described my invention, what I claim as new is—

1. In a die seaming machine, the combination with the external clamp, of the internal former and the outwardly working die formed with a seaming groove in its face within said internal former; substantially as described.

2. In a die seaming machine, the combination with the internal former and outwardly movable die formed with a seaming groove in its face working within a recess or chamber within said former and the movable ex-

terior clamp fitting around said former and closing the recess or chamber in which the die works; substantially as described.

3. In a die seaming machine, the combination with the cylindrical former, the outwardly movable die working in a recess or chamber therein and the sliding wedge for moving said die, of the external clamp fitting around the former and closing the recess or chamber in which the die works; substantially as described.

4. In a die seaming machine, the combination with the rigid cylindrical former and the outwardly movable die working in a recess or chamber therein, of the pivoted external clamp fitting around said former and closing the recess or chamber in which the die works; substantially as described.

5. In a die seaming machine, the combination with the cylindrical former, the radially movable die working in a recess or chamber therein and having the groove in its outer face with means for moving said die radially, of the clamp fitting around the former and closing the recess or chamber in which the die works; substantially as described.

6. In a die seaming machine, the combination with the cylindrical former, the radially movable die working in a recess or chamber therein and the wedge for moving said die outward, of the pivoted clamps entirely inclosing the cylindrical face of said former with means for operating said clamp; substantially as described.

7. In a die seaming machine, the combination with the cylindrical former having the radial recess or chamber therein, the die working in said recess, the wedge for advancing said die and a foot lever for moving the wedge, of the inclosing clamps fitting around the former and closing the recess or chamber in which the die works with means for operating said clamps; substantially as described.

8. In a die seaming machine, the combination with the cylindrical former having the radial recess or chamber therein, the die working in said recess, the wedge for advancing said die and a foot lever for moving the wedge, of the inclosing operating clamps fitting around the former and closing the recess or chamber in which the die works, the yoke frame cooperating with the clamps to close the same and the foot lever for moving the yoke frame; substantially as described.

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Witnesses:

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