

A. Johnson,

Corrugating Sheet Metal.

No. 105,805.

Patented July 26, 1870.

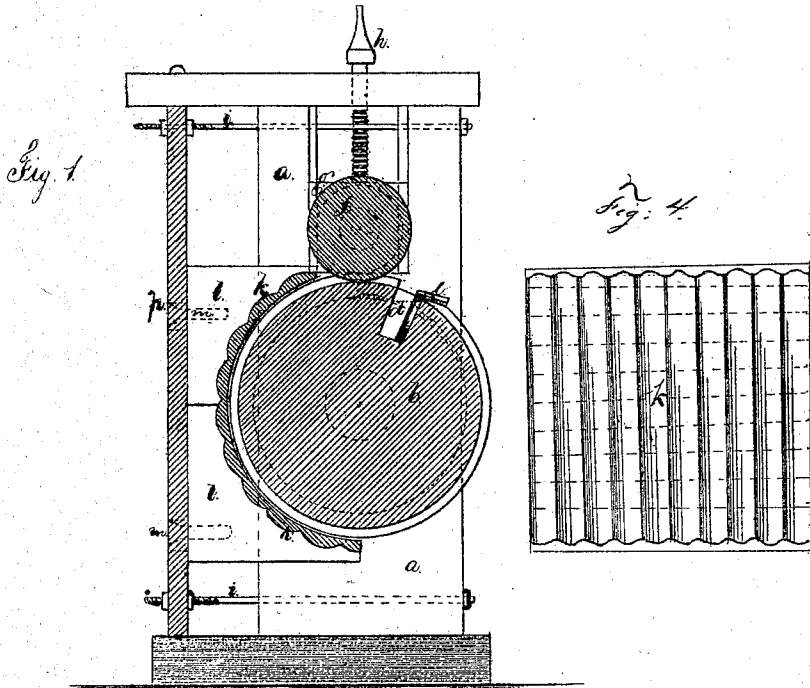


Fig. 1.

Fig. 4.

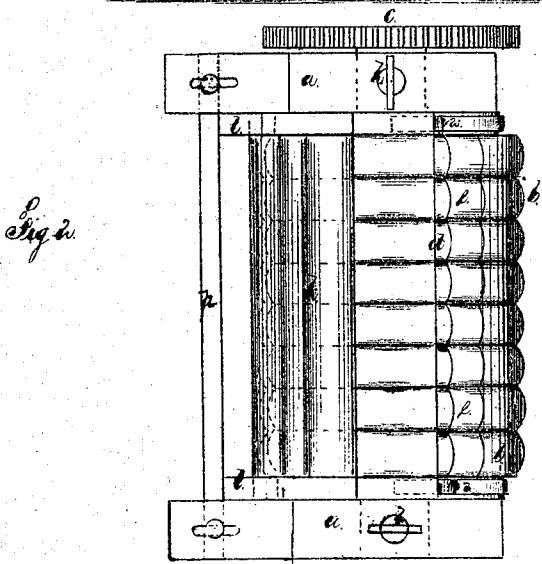
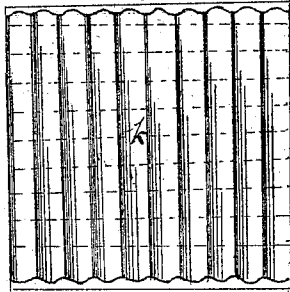


Fig. 2.

Fig. 3.
Witnesses
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per
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United States Patent Office.

ASA JOHNSON, OF BROOKLYN, NEW YORK.

Letters Patent No. 105,805, dated July 26, 1870.

IMPROVEMENT IN MACHINES FOR BENDING CORRUGATED-METAL PLATES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ASA JOHNSON, of Brooklyn, in the county of Kings and in the State of New York, have invented certain new and useful Improvements in Machines for Bending Corrugated Metal; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine for bending corrugated metal into arch-form, as will be hereinafter fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a transverse vertical section of the entire machine;

Figure 2 is a plan view of the same, with the top roller removed;

Figure 3 is a plan view of a clamp used to hold the corrugated metal on the bending-roller; and

Figure 4 is a view of a corrugated back used in the machine.

a a represent the sides of my machine, in which a roller, *b*, or rather the journals of a roller, *b*, have their bearings.

The roller *b* is corrugated circumferentially, as shown in fig. 2, and one of its journals is provided with a cog-wheel, *c*, outside of the side *a*.

Above the roller *b*, in movable journal-boxes *g g*, is placed a roller, *f*, which is also corrugated circumferentially, and its corrugations should correspond with and fit into the corrugations on the roller *b*.

The journal-boxes *g g* are held down by means of the set-screws *h h*.

The cog-wheel *c*, upon one of the journals of the roller *b*, gears with a pinion or smaller cog-wheel on one of the journals of the roller *f*, so that the two rollers will revolve together.

The back *p* of the machine is adjustable by means of the screw-rods *i i*, and set-screws on top, as shown.

On the inner or front side of the back are placed the supporting-blocks *l l*, which are curved or semi-circular on their front edges, and have the corrugated arch *k* attached to them.

The pieces or blocks *l l* are adjustable up and down by means of the screws *m m*, moving in vertical slots on the back *p*, so that an arch of any desired curvature may be attached to them.

The arch *k* is composed of a curved piece of sheet metal, corrugated so as to correspond with and fit over the corrugations of the roller *b*. On the back of this

corrugated piece of sheet metal, is placed a piece of corrugated wire-cloth, and the two are soldered together so as to form, as it were, one solid piece. The corrugations of the wire-cloth run at right angles with the corrugations of the sheet metal, or longitudinally, as shown.

In the roller *b* is cut a groove, *d*, running longitudinally the entire length of the roller, in which groove the clamp *e* is inserted.

This clamp is made of a thin piece or strip of sheet metal, doubled lengthwise, and then corrugated to correspond with the corrugations on the roller. The corrugated strip is then opened, so as to stand at about right angles, and in the angle is soldered a rod, *r*, the ends of which are inserted in metal bars *n n*, at the ends of the roller *b*, thus hinging the clamp to the roller. One half of the clamp fits on the roller, while the other half projects downward in the groove *d*.

It will be noticed, from the construction of the clamp, that the concave portions of the corrugations of the inner half of the clamp are directly opposite the convex corrugations of the outer half, which latter fit over the corrugations on the roller *b*.

Over the edge of the clamp, within the groove *d*, is placed a bent strip, *s*, of metal, which, of course, only touches the centers of the corrugations.

This strip, being then firmly soldered to the clamp, prevents the corrugations of the clamp from spreading, as to do this the strip *s* must be stretched lengthwise, which is an impossibility.

By using the soldered strip *s* the clamp *e* may be made of very thin sheet metal, which would not be the case if the prevention of its spreading depended upon its own inherent strength.

The corrugated metal, which is to be bent into arch-form, is inserted with its edge under the outer end of the clamp *e*, which is held open at the desired point by the weight of the inner edge. The metal should, of course, be laid so as to fit the corrugations of the roller *b*.

When the machine is in operation, the roller *f* presses the clamp *e*, with the corrugated metal, down onto the roller *b*, until the metal passes between the arch *k* and the roller *b*, when the arch, of course, holds the clamp down, so as to make it retain the metal. As soon as the roller *b* has revolved far enough to bring the clamp on the front again, the clamp opens itself, from its own gravity, as its inner edge is heavier than the outer, from the addition of the strip *s*.

Although I deem it best to use both the arch *k* and roller *f*, still it is not absolutely necessary, as either one of them may be dispensed with, and still corrugated metal will be bent in proper shape.

If the arch *k* is dispensed with, and one or more

top rollers, *f*, used alone, then a slight variation of the clamp *e* will be necessary, namely, making it rigid instead of hinged.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The clamp *e*, constructed as described, of a doubled piece of sheet metal, corrugated and then opened, hinged in the groove *d* on the roller *b*, and its inner edge provided with the strip *s*, all substantially as and for the purposes herein set forth.

2. The arch *k*, formed as described, of a corrugated plate of sheet metal and corrugated sheet of wire-cloth soldered together in one piece, the corrugations of the one running at right angles to the corrugations of the other, substantially as and for the purposes herein set forth.

3. The combination of the corrugated roller *b*, with groove *d*, clamp *e*, and corrugated roller *f*, all substantially as and for the purposes herein set forth.

4. The combination of the corrugated roller *b*, with groove *d*, clamp *e*, corrugated roller *f*, and the arch *k*, all substantially as and for the purposes herein set forth.

5. The arrangement of the adjustable back *p*, adjustable supporting blocks *l l*, arch *k*, and roller *b*, substantially as herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand this 23d day of June, 1870.

ASA JOHNSON.

Witnesses:

C. L. EVERT,
A. N. MARR.