A. SYVERSEN.

MACHINES FOR BEADING STOVE-PIPE.

No. 180,440. Patented Aug. 1, 1876.

Fig. 1

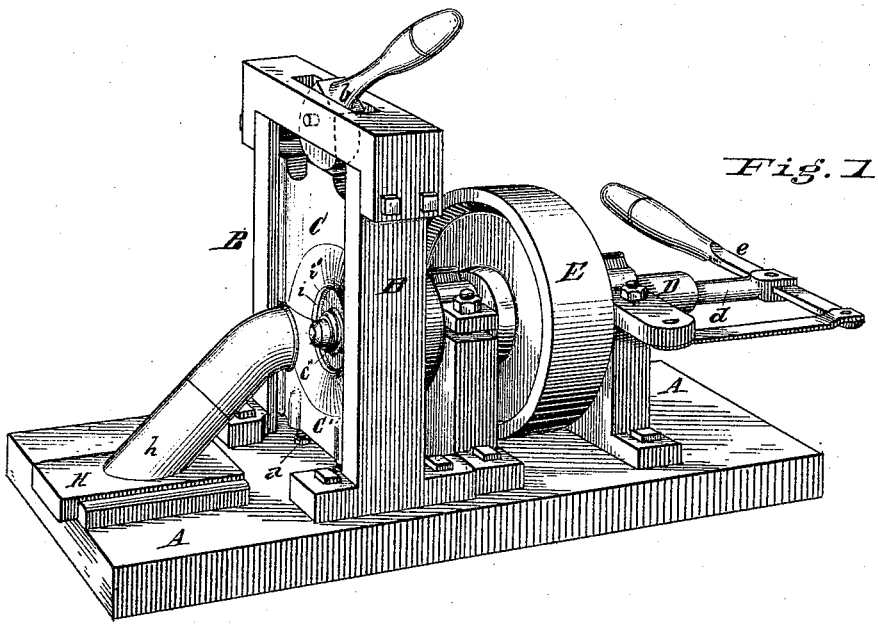



Fig. 2

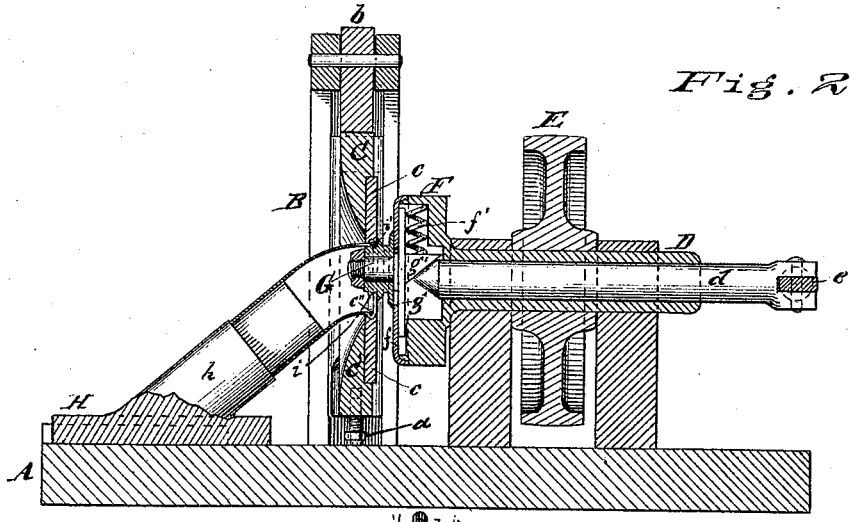
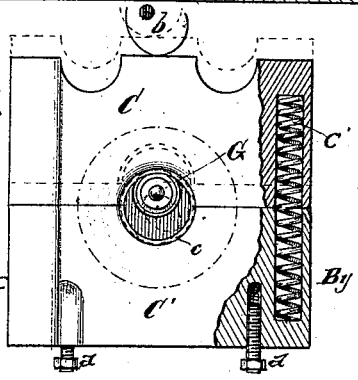



Fig. 3.




Attest

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# UNITED STATES PATENT OFFICE.

ANDREAS SYVERSEN, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN MACHINES FOR BEADING STOVE-PIPES.

Specification forming part of Letters Patent No. **180,440**, dated August 1, 1876; application filed March 13, 1876.

*To all whom it may concern:*

Be it known that I, ANDREAS SYVERSEN, of Chicago, county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for forming Beads on Stove-Pipes, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the machine. Fig. 2 represents a vertical longitudinal section of the same; and Fig. 3 a detailed view of the holding-plates which inclose the pipe and former.

The object of my invention is to provide a machine by which a bead may be formed on the ends of sheet-metal pipes, especially stove-pipe.

The invention consists in the construction of certain devices, and in various combinations of devices, as will be hereinafter fully described and set forth.

The machine is especially adapted to forming beads on the curved ends of pieces of stope-pipe, two of which are united by this beaded joint to form an adjustable curved elbow, for which I have already obtained a patent. The machine is not limited, however, to this special use, as it is applicable to the formation of beads upon ordinary pieces of stove-pipe, as well as sheet-metal pipes generally.

In the drawings, A represents the bed-plate of the machine, upon which is placed an upright frame, B. Within the frame B two slides, C C′, are arranged to move vertically in grooves in the upright frame. The lower slide C′ is adjustable vertically by means of set-screws *a a*, so that it may be brought to fit exactly the pipe to be acted upon. Two metallic plates, *c*, are rigidly attached to the slides C C′, and arranged so that their edges will be brought together when the slides C C′ are in contact with each other. Coiled springs $c^1$ are inclosed in recesses near the outer edges of the slides, which operate to hold them apart. A cam-lever, *b*, is pivoted to the cross-bar at the top of the frame B, and is so arranged that the cam bears upon the upper edge of the slide C, so that when the lever is depressed the slide is forced downward until it meets the slide C′. A circular recess is cut partly in the lower edge of the slide C, and partly in the upper edge of the slide C′, and corresponding recesses in the plates *c*. The latter recesses are arranged to register exactly when the plates are brought together, thereby forming a circular opening of the exact size of the pipe, which is to be beaded.

To operate upon pipes of different sizes the clamping-plates must be changed, as the opening in them must fit exactly the pipe which is placed therein, so as to form a firm bearing-surface entirely around it.

A shallow groove, $c^2$, is formed in the edges of the plates *c* within the semicircular recesses, which corresponds in form and depth to the bead, which it is desired to strike up upon the outside of the pipe. A shaft, D, is mounted in suitable bearings supported upon the bed A, and to it is fixed a driving-pulley, E, by means of which the shaft is caused to revolve. Upon the inner end of this shaft is mounted a kind of chuck, F, which is recessed, as shown in Fig. 2. The face of the chuck is covered by a plate, *f*, which is slotted centrally. A former, G, is rigidly attached to a sliding plate, *g*, which is placed within the covering-plate *f*, and a stud thereon projects through a slot in the chuck F, to which the former G is attached.

The plate *g* slides in a guideway between the plate *f* and the face of the chuck, and upon its rear side a stop, *g′*, is placed. This stop has one face inclined, and between it and the rim of the chuck is placed a spring, *f′*, which operates to hold the stop *g′* at the center of the chuck, unless it is compressed. The shaft D is hollow, and within it is placed a movable pin, *d*. A lever, *e*, is pivoted to the outer end of this sliding pin, by means of which it may be forced in and out, and the inner end of the pin is pointed to correspond with the inclined face of the stop *g′*, as shown in Fig. 2. Whenever, therefore, the pin *d* is forced inward, it operates to press the stop *g′* outward, and thus moves the plate *g* and former G in the same direction. A block, H, is placed between guides upon the bed A, so that it may be moved back and forth, and is provided with an inclined post, *h*, upon the upper end of which is placed a piece of stove-pipe, I, one end of which has been curved, as shown in the drawings, and which represents one of

the two pieces which I unite to form my curved elbow.

The plates *c* are adjusted so that when the pipe is moved up to them the outer end will just enter the circular opening in the plates, and be firmly held therein when the upper slide C is forced down. The former G is then within the end of the pipe, and a projection, *i*, raised around its periphery, will exactly fit the groove in the surrounding edges of the plates when the former is forced out into contact with said plates. Just behind the projection *i* a cutting-flange, *i'*, is also raised upon the periphery of the former, and is arranged so that it passes just outside of the clamping-plates, against the face of which it fits, being somewhat wider than the forming flange *i*.

The operation is as follows: The pipe being placed in position as described, a rotary motion is communicated to the chuck and former by means of the pulley and shaft. The pin *d* is then forced inward, which causes the former to be forced outward against the inside of the pipe, around which it will pass, as the former is now eccentric to the axis of the chuck; and as the former is firmly pressed against the pipe it will force the latter out into the groove in the clamping-pieces, thus making a bead upon the outside thereof. At the same time the sharp-edged flange *i'*, acting against the edge of the holding-plates, will trim the edges off the end of the pipe, so that the operation of bending and trimming is performed by machinery simultaneously.

It is evident that by a very little change in the construction and arrangement of some of the parts of the machine it may be adapted to operate upon sheet-metal pipes of any description.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The former G, constructed with a forming-flange, *i*, and a trimming-flange, *i'*, raised upon its periphery, and parallel to each other, substantially as and for the purpose set forth.

2. The combination of the former G, the chuck F, and mechanism, substantially as described, for attaching the former to the chuck, so that the former may be moved back and forth on the chuck, as set forth.

3. The combination of the chuck F, having its face slotted, the sliding plate *g*, provided with a stop, *g'*, on one side, former G, attached to the opposite side of the plate, spring *f'*, and sliding pin *d*, substantially as described.

4. The combination of the sliding clamping-plates *c*, having grooved circular recesses, and the adjustable former G, provided with the flanges *i i'*, constructed and operating substantially as set forth.

5. The slides C C', the lower one adjustable vertically, and the upper one sliding freely, in combination with springs $c^1$, to hold the slides apart, substantially as set forth.

6. The sliding block H, provided with an inclined post, *h*, upon which to support the pipe, substantially as described.

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Witnesses:

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