A. SYVERSON.

MACHINE FOR MAKING PIPE-ELBOWS.

No. 169,863. Patented Nov. 9, 1875.

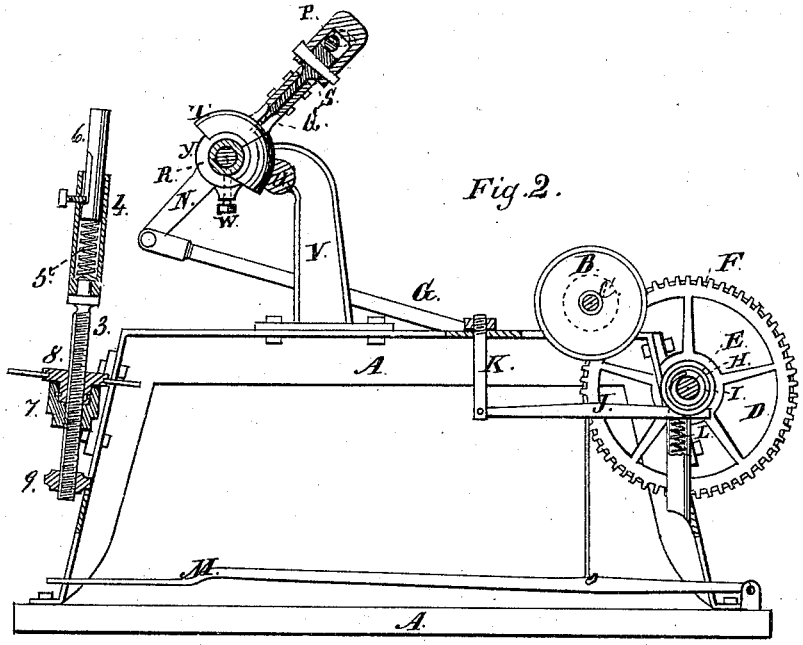

Fig. 2.

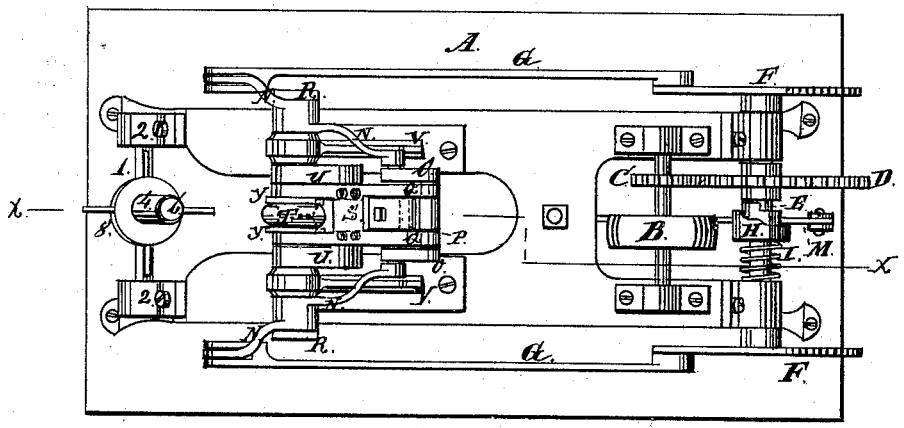

Fig. 1.

Witnesses:
Heinrich F. Brune
L. A. Cunting.

Inventor:
Andreas Syverson
by Lewis L. Coburn

UNITED STATES PATENT OFFICE.

ANDREAS SYVERSON, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN MACHINES FOR MAKING PIPE-ELBOWS.

Specification forming part of Letters Patent No. **169,863**, dated November 9, 1875; application filed April 21, 1875.

To all whom it may concern:

Be it known that I, ANDREAS SYVERSON, of Chicago, county of Cook and State of Illinois, have invented a Machine for Making Pipe-Elbows, reference being had to the accompanying drawings, which form a part hereof.

The object of my invention is to make a machine which will readily and accurately form an elbow from a straight sheet-iron pipe without crimping or breaking the iron, but leaving a smooth even surface.

The nature of my invention consists in the mechanisms, hereinafter fully described and shown.

In the accompanying drawings, Figure 1 represents a top or plan view of my machine; Fig. 2, a vertical section taken at the line *x x*, Fig. 1.

A represents a strong, substantial frame, which supports the operative parts of the machine. B is the drive-pulley, to which the power is applied by a belt to drive the machine. C is a cog-wheel secured to the same shaft with the pulley B, and engages with the cog-wheel D, which turns loosely upon the cross-shaft E. This shaft E has upon each end of it a disk, F, to which are connected the pitmen-rods G. H is a sliding clutch, which slides horizontally on the shaft E, but will not turn thereon. I is a spring, which forces this clutch to engage with the cog-wheel D, and thereby turn the shaft E. J is a pivoted lever, with one end pivoted to the rod K, and the other end held by the spring L against the clutch H. As the shaft E revolves, the lever J resting against the eccentric face of the clutch H, overcomes the tension of the springs I, and slides the clutch back on the shaft E, so that when the shaft E has made one revolution the clutch H is thrown back sufficiently far to allow the wheel D to turn loosely upon the shaft E, and continue so until the operator, by placing his foot upon the treadle M, removes the lever J, and allows the clutch H to again engage with the wheel D, and revolve the shaft E another revolution.

It will be observed that the connecting-rods G move forward and back, making one complete stroke at each revolution of the shaft E. These connecting-rods G are also pivoted to the vibrating levers N. These vibrating levers are pivoted at their upper ends to cranks O, which are connected by an eccentric shaft, P. This shaft has bearings in the piece Q, which vibrates on the shaft R. This piece Q also carries a sliding block, S, the lower end of which is brought down upon the outside of the pipe to form it over the former to give it the requisite curve. The eccentric on the shaft P throws the sliding die S down, when the parts are in the position shown in the drawings, so that it presses upon the pipe as the arms N vibrate, and throws the piece Q forward. This movement of the piece Q carries the die S over the curve of that part of the pipe which forms the elbow. T is a curved former held upon the former-holder U. This piece U has sleeves extending on the shaft R. V are standards, firmly secured to the frame A, and support the shaft R. The sleeve of the former-holder U passes through the bearings in the standards V, and is kept from turning by set-screws W. By loosening these set-screws the former T can be adjusted. Y Y are two dies, placed upon the shaft R, and together form a concave, in which the former T is held. 1 is a cross-shaft, having bearings 2 2. 3 is a screw-shaft. 4 is a case connected to the upper end of this screw-shaft 3. This case carries a spring, 5, and the pipe-holder 6. The screw-shaft 3 slides through a block, 7, in the cross-shaft 1. A hand-nut, 8, surrounds the sliding screw-shaft 3, which is used for the purpose of operating the sliding screw 3. 9 is a set-nut used to regulate the distance of the stroke given to the sliding shaft 3. The pipe which is to be formed into an elbow is placed upon the holder 6, with its end resting upon the case 4. The pipe is thrown down beneath the former T into the concave dies Y. The operator then turns the hand-nut 8, which raises the sliding shaft 3, and crowds the upper end of the pipe over the former T. The pipe-carrier 6 strikes against the former T, and is pushed back into the case 4 as the pipe is pressed over the former T. The distance which each pipe is carried up over the former T is regulated by the stop-nut 9. When the pipe is bent upon the former T the operator places his foot upon the treadle M, and removes the lever J from the clutch H, so that

it engages with the cog-wheel D, and allows the shaft E to be revolved one revolution. This vibrates the arms N, which throws the sliding die S down upon the outside of the pipe bent over the former T, and carries this over the outside of the bent portion of the pipe. When the die S has made its forward stroke the eccentric shaft P raises it, and it is carried back to the position shown in the drawings. When it is wrought back to that position the lever J throws the clutch H back, and the machine there remains until the operator removes the formed elbow, which he does by turning the hand-nut 8.

This machine forms a full elbow on the end of a joint of pipe without crimping or corrugating it.

It will be observed that the sliding screw-rod 3 may be operated in any of the well-known ways of applying to it power, instead of using the hand-nut 8.

I claim—

1. The former T, in combination with the presser-die S, for pressing the pipe upon the outer surface, as specified.

2. The combination of the concave dies Y, former T, and pipe-holder 6, for carrying the pipe and bending it, as specified.

3. The vibrating arms N, eccentric shaft P, and presser-die S, as and for the purposes specified.

4. The combination of the former T and former-carrier U, for adjusting the former relative to the shaft R, upon which the operative parts vibrate, as specified.

5. The sliding screw-rod 3, the case 4, and pipe-holder 6, and rocking shaft 1, as and for the purpose specified.

ANDREAS SYVERSON.

In the presence of—

HEINRICH F. BRUNS,

L. A. BUNTING.