

(No Model.)

J. E. SMILEY.  
MACHINE FOR FORMING STOVEPIPE JOINTS.

No. 535,735.

Patented Mar. 12, 1895.

Fig. 1.

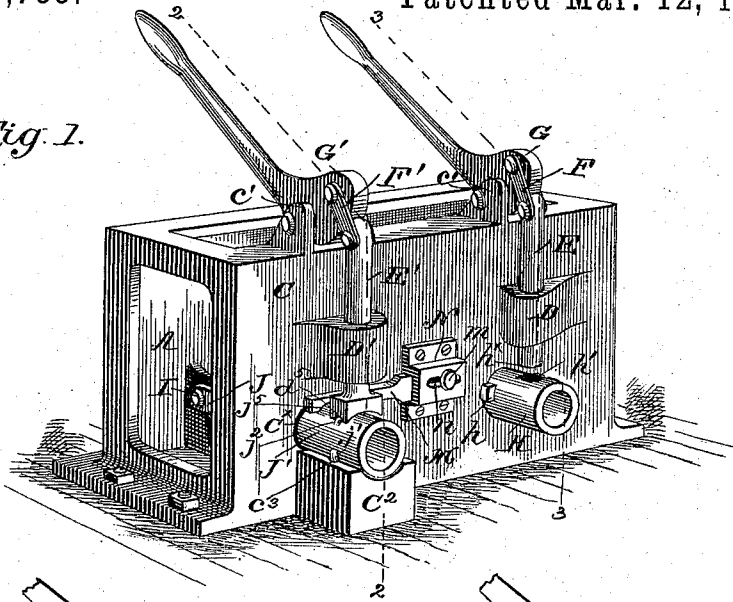


Fig. 2.

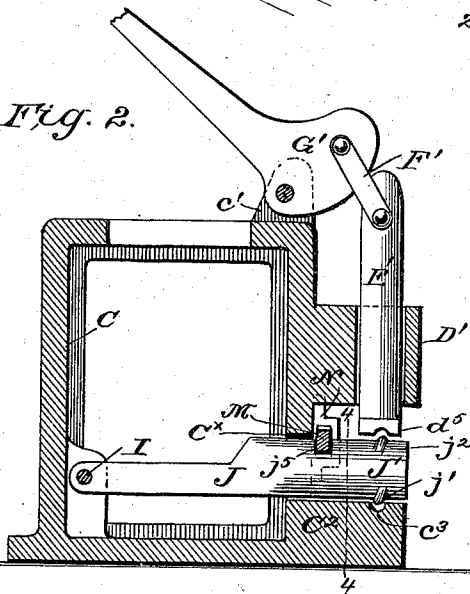


Fig. 3.

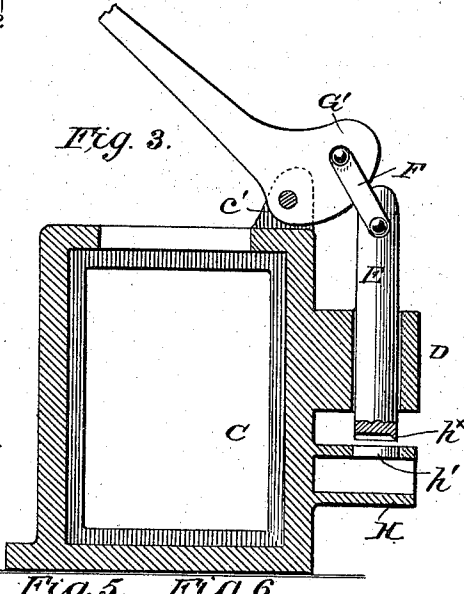


Fig. 4.

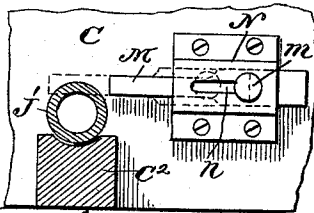
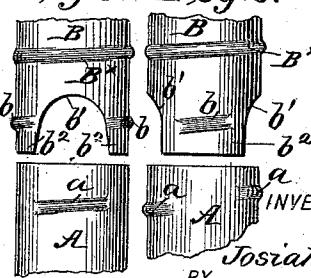


Fig. 5. Fig. 6.



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# UNITED STATES PATENT OFFICE.

JOSIAH E. SMILEY, OF SMILEY, OHIO.

## MACHINE FOR FORMING STOVEPIPE-JOINTS.

SPECIFICATION forming part of Letters Patent No. 535,735, dated March 12, 1895.

Application filed June 23, 1894. Serial No. 515,544. (No model.)

*To all whom it may concern:*

Be it known that I, JOSIAH E. SMILEY, residing at Smiley, in the county of Paulding and State of Ohio, have invented a new and Improved Machine for Forming Stovepipe-Joints, of which the following is a specification.

My invention relates to a machine for forming stove pipe joints, and more especially adapted for forming the stove pipe joint referred to in an application for a patent filed by me March 22, 1894, Serial No. 504,665, and it has for its object to provide a machine of a simple and economical construction which will serve to quickly and accurately form the joint sections referred to in the said application.

The invention consists in such novel combinations and peculiar arrangement of parts as will hereinafter be first described in detail and then specifically pointed out in the appended claims reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my pipe joint forming machine. Fig. 2 is a longitudinal section of the same on the line 2—2 Fig. 1. Fig. 3 is a similar view taken on the line 3—3 Fig. 1. Fig. 4 is a detail cross section taken on the line 4—4 Fig. 2, and Figs. 5 and 6 are front and side views of the meeting ends of a joint section formed by my improved machine.

Referring generally to the stove pipe sections shown in Figs. 5 and 6, the same comprise an entering end portion B and a receiving end portion A, the end portion B having spiral like ribs  $b\ b$ , arranged directly opposite each other, each rib extending about one-fourth around the body whereby practically one half of circumference of the end B is ribbed while the other is plain, such plain portion being provided with deep and approximately semi-circular notches  $b'$  whereby the end portions  $b^2$  are rendered elastic so that they will yield readily when they are inserted in the section A even with the ribs  $b\ b$ . The receiving end A, has spirally arranged grooves  $a\ a$  of approximately the length of the ribs  $b\ b$ , in which the said ribs  $b\ b$  are adapted to fit and become locked as the two sections are fitted together.

In the embodiment of my present invention

I employ a main frame or supporting member C formed substantially of the shape shown in Fig. 1, on the front face of which is formed a pair of apertured lugs or ears D D' in which are held to reciprocate plungers E E' the upper ends of which have each pivoted thereto a pair of link arms F F' which are also pivotally connected to cam levers G G' pivotally held in ears  $c' c'$  formed on the front top edge of the frame as most clearly shown in Fig. 1 of the drawings.

Projecting out from the face of the frame C at a point under the ear D is a fixed hub or mandrel H, having at its base stop lugs  $h$ , and at a point just in front of the lugs a socket or female die portion  $h'$  of a shape corresponding to the cut out portion of the pipe joint, in which is adapted to enter the cutter or male die  $h^x$  secured to or formed on the lower end of the plunger E.

At a point under the ear D' the front of the frame has an opening  $C^x$  through which passes a lever arm J, pivoted at I to a rear member of the frame, the front end terminating in a circular extension or mandrel J' of a slightly less diameter than the opening  $C^x$  whereby such end is adapted to swing vertically to a limited extent.

At a point under the mandrel J' the frame C has an extension  $C^2$  which forms a bed plate which has a groove  $c^3$  corresponding to a rib  $j'$  on the under side of the mandrel J', which mandrel has a similar rib  $j^2$  on its upper face (projected in practice in a diagonally opposite direction to the rib  $j'$ ) which is adapted to fit in a groove  $d^3$  in the lower end of the plunger E'.

At a point just in front of the opening  $C^x$  the mandrel J' has a transverse recess  $j^5$  in which is adapted to slide a gage arm M which is held to slide in a keeper or box N on the frame, said arm having a screw or stud  $m$  which projects through an elongated slot N in the box as shown.

The manner in which my machine operates is best explained as follows: To form the grooves  $a\ a$ , in the receiving end A, the arm M is slid back out of the recess in the mandrel J'. The end A is then slipped onto such mandrel until its end reaches the front wall of the frame C. The plunger E' is then swung forward, which forces the plunger down

and presses the mandrel J' against the bed plate C<sup>2</sup>, a continued pressure of the lever forcing the metal into the depressions on the bed plate and bottom of the plunger E' thereby forming the grooves *a*. When forming the ribs on the entering member B, it is necessary that they be uniformly spaced from the usual bead B<sup>x</sup> on such member which when the sections are fitted together is at the upper edge of the member A. For this purpose, I employ the slide arm M, which when slid into the recess in the mandrel forms a gage against which the end of the section B abuts when slid onto the mandrel, the ribs *b b* being formed thereon by depressing the plunger E'. After the ribs *b b* are formed on the member B it is fitted on the mandrel H with one of its non-ribbed faces uppermost, the lever G is then swung forward, which thereby causes the plunger E to cut out such face, the lever is then raised, the section B turned half way round, and the lever again manipulated as before, thereby making the other cut out portion. The lugs at the end of the mandrel H serve as gage members for the member B. Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for the purposes described, the combination with the main frame, a vertically movable plunger having a female die at the bottom said frame having a bed plate formed with a female die portion, said frame

having an aperture between the plunger and bed plate, of a pivoted member having its front end passed through the said opening between the plunger and bed plate said end having male die portions, and the lever mechanism connected with the plunger all arranged substantially as shown and described.

2. In a machine as described, the combination with the main frame, the plunger E', and the lever mechanism, said main frame having an opening C<sup>x</sup>, of the bed plate C<sup>2</sup>, the pivoted mandrel J, having its front end projected through the said opening and extended between the plunger E' and the plate C<sup>2</sup> said mandrel having a transverse recess, the boxing N and the arm M adjustably held therein and projected to engage the recess when moved outward all arranged substantially as shown and for the purposes described.

3. An improved machine for the purpose described, comprising a frame, a fixed mandrel having a female cutting die on its upper face, a vertically movable mandrel having male dies on its upper and lower faces, a bed plate having a female die on its upper face, plungers vertically movable over the mandrels having female die members, and lever mechanism for operating the plungers all arranged substantially as shown and described.

JOSIAH E. SMILEY.

Witnesses:

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