

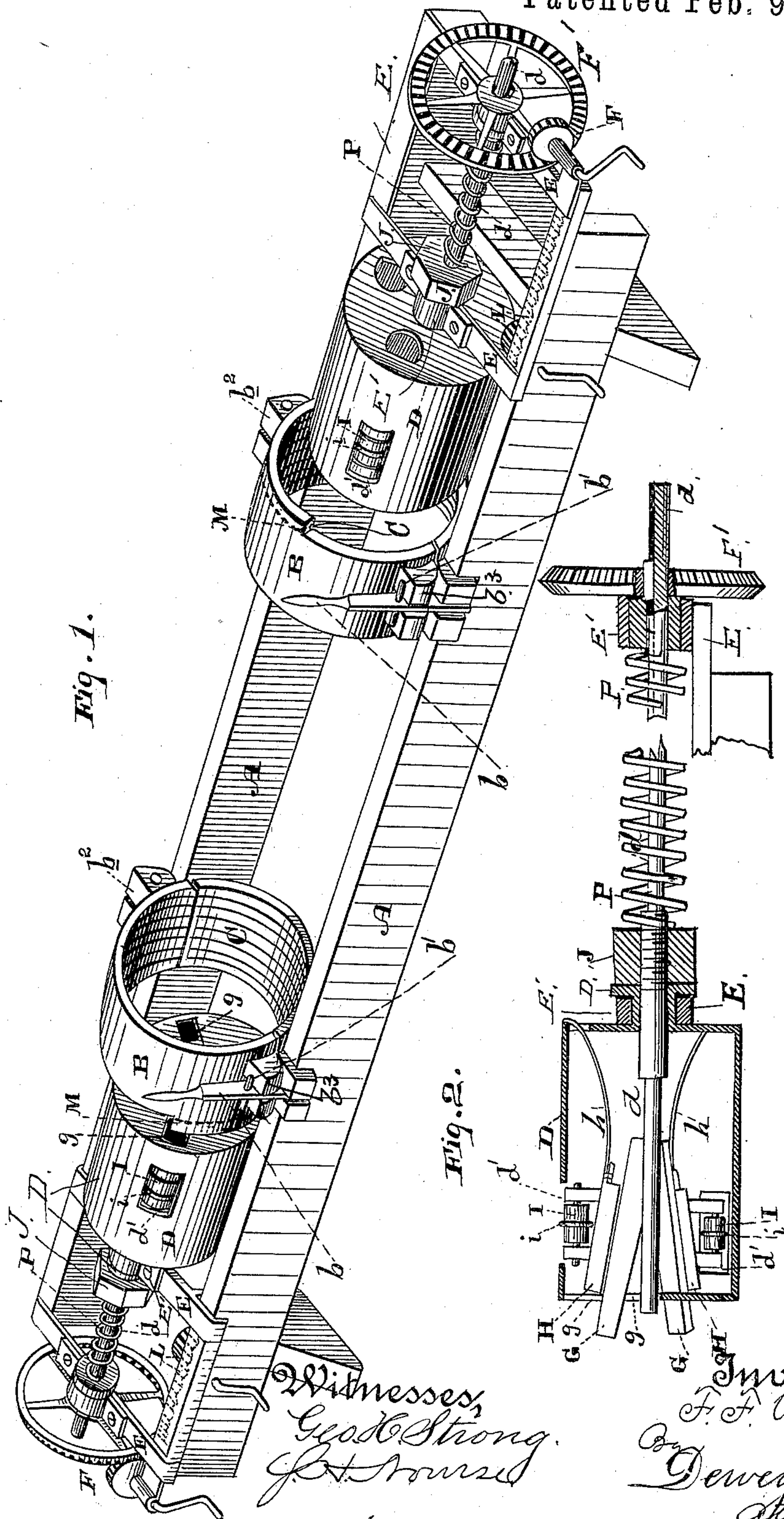
(No Model.)

F. F. VOIGT.

MACHINE FOR MAKING THREADS ON SHEET METAL PIPES.

No. 335,727.

Patented Feb. 9, 1886.



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UNITED STATES PATENT OFFICE.

FERDINAND F. VOIGT, OF WALLA WALLA, WASHINGTON TERRITORY.

MACHINE FOR MAKING THREADS ON SHEET-METAL PIPES.

SPECIFICATION forming part of Letters Patent No. 335,727, dated February 9, 1886.

Application filed September 9, 1885. Serial No. 176,641. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND F. VOIGT, of Walla Walla, county of Walla Walla, and Territory of Washington, have invented an Improvement in Machines for Making Threads Upon the Ends of Sheet-Metal Pipes; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a new and useful machine for making a spiral thread or bead on the ends of sheet-metal pipes and preparing them for jointing together; and my invention consists in the devices hereinafter described, and pointed out in the claims.

The object of my invention is to prepare for jointing such sheet-metal pipes as are made in sections, and are then put together to the required length, such as conducting water-pipes and common water-pipes, or such as are used in leading water and draining, and stove-pipes and smoke-stacks of smaller sizes.

By the use of my invention I render the putting together or jointing of such pipes more easy, and when so put together they will stay without being tied with wire, or being riveted together or otherwise secured, still being easy to separate the several sections and parts when necessary.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my machine. Fig. 2 is a longitudinal section of one of the followers D, showing the adjusting-nut J and the spring between the nut and hub of the gear-wheel.

A is the frame, upon which are mounted the matrix-clamps B. These consist of annular bands divided into semicircular halves, the upper half being hinged at one side, as at b^2 , and secured at the other side to the lower half by means of a swinging lever, b , which is adapted to fit its cross-pin b' over an ear or lug, b^2 , on the said upper half. The interior surface of the matrix-clamps is provided with a spiral groove, C, of the pitch desired to be formed upon the pipe.

D are the followers, consisting of hollow cylindrical cases provided with stems or shafts d , journaled in boxes E' on frames E, mounted upon the main frame at each end and adapted to slide longitudinally thereon, whereby the followers may be moved back and forth to be

inserted within the pipe and to be withdrawn therefrom. Revolution is imparted to the said followers by means of suitable gears, F and F', the latter being splined upon the stems by which the stems d are rotated. The inner ends of the stems d project through the center of the followers, and are provided with inclined tangential planes G, which project through radial slots g , made in the inner ends of the followers. The stems d pass loosely through the followers, whereby they may have an independent longitudinal movement, and yet by reason of their inclined planes projecting through slots g they are enabled to rotate the followers in the same manner as if feathered therein.

H are die-frames, which are secured inside of the followers in a suitable manner—as by means of the springs h —and said frames rest on the inclined planes G of the stems of the followers. Journaled in the tops of the frames are the die-rollers I, provided with one or more beads or ridges, i , which are adapted to project through the periphery of the cylindrical followers in suitable slots or openings, d' , made therein. Upon the stems d of the followers are adjusting-nuts J, which are adapted to be turned on the stems, to adjust the same in and out of the followers, and after such adjustment the nuts are held in a fixed position against the frame E or end of the follower by suitable springs, P, placed around the stems, between the nuts and hub or bearing of the gear-wheel F'. It will thus be seen that when the stems are drawn back the inclined planes are forced against the frames of the roller-dies H, whereby said dies are expanded or forced outward radially, and when said stems are moved forward their inclined planes release the die-frames, and the springs thereof withdraw the die-rollers from the periphery of the followers.

The sliding movement of the follower-carrying frames E may be accomplished in any suitable manner—as by the rack and pinion L—and may be fixed at any desired point by means of suitable stops and levers. (Not shown.)

The operation of the machine is as follows: A section of pipe is placed in the machine, with its ends resting in the matrix-clamp and flush with the offset M. The matrix-clamp is

then secured by the clamp-levers, and the follower run inward until the bead of the roller strikes the wall of the offset M. The adjusting-nuts are now turned to draw back the shaft *d* and force the beaded roller-dies outward against the pipe. The follower is then rotated and the roller passes into the end of the thread, in which it advances until it meets and crosses the end of the pipe, which it indents. After the screw-thread is completed the nuts J are turned in reverse direction, and, as they are held from moving away from the followers by the springs P, they force the shaft *d* outward, and thus permit the beaded die-rollers to be drawn inward by the springs *h*. The followers may then be withdrawn from the pipe.

In order to accurately fix the beading-rollers to the pitch of the groove in the interior of the matrix-clamps, I have an offset, M, made upon the edge of the matrix-clamps, which is on the same inclination as the pitch of the matrix-groove and joins therewith, so that the follower can be introduced to such an extent as to carry the bead of its die-roller to this offset, where it can be seen that it is in line with and will follow the matrix-groove when the follower is rotated. The followers are then rotated for the purpose of making the bead in the pipe. This operation should be carried on with some degree of care, in order to accurately fit all the parts and to get a proper start.

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

1. The annular matrix-clamps B, having the spiral groove C on their inner surfaces, in combination with the followers D, the expanding beaded die-rollers mounted therein, the inclined planes and roller-frames, and the means described for giving longitudinal and rotary movement to the followers, substantially as herein described.

2. The hollow cylindrical casings or followers D, having radial slots *g* in their inner ends, and the spring-frames H, within said followers, carrying the beaded die-rollers I, projecting through openings in the periphery of the fol-

lowers, in combination with the rotating axial stems *d*, extending through the followers, and having radial-inclined planes G on their inner ends bearing against the roller-frames H, and the nuts J, mounted upon said stems and adapted to move them longitudinally to expand the beaded die-rollers, substantially as herein described.

3. The hollow cylindrical casings or followers D, having radial slots *g* in their inner ends, and the spring-frames H, within said followers, carrying the beaded die-rollers I, projecting through openings in the periphery of the followers, in combination with the axial stems *d*, extending through the followers, and having radial-inclined planes G on their inner ends bearing against the roller-frames H, the nuts J, by which said stems are moved longitudinally, the springs P, and the gears F, by which the stems and followers are rotated, substantially as herein described.

4. The annular matrix-clamps B, having internal spiral groove, C, of the desired pitch, said clamp having an offset, M, on its side, having the inclination or pitch of the groove C, and joining therewith, in combination with the longitudinally-adjustable rotating followers D, having the expanding beaded die-rollers I, substantially as and for the purpose herein described.

5. The frame A and the two-part annular matrix-clamps B, having internal spiral groove, C, in combination with the sliding frames E, the followers D, having the spring-frames H, with beaded die-rollers I, the rotating axial stems *d*, carrying said followers and mounted in the sliding frames, said stems having the radial-inclined planes G, adapted to expand the spring-frames H and the die-roller, and the nuts J, by which the stems are adjusted, all arranged to operate substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand.

FERDINAND F. VOIGT.

Witnesses:

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F. W. GOODHUE.