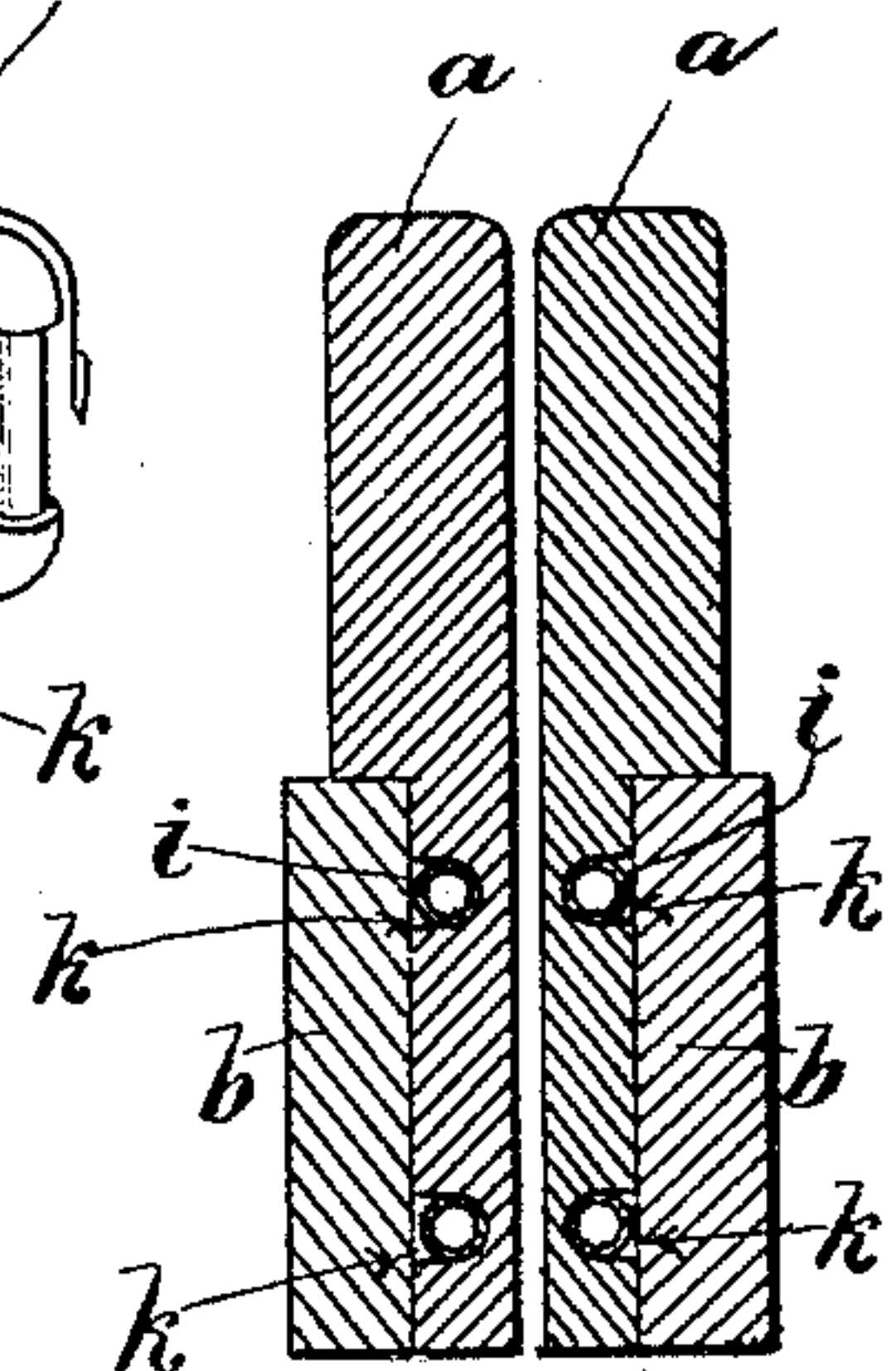
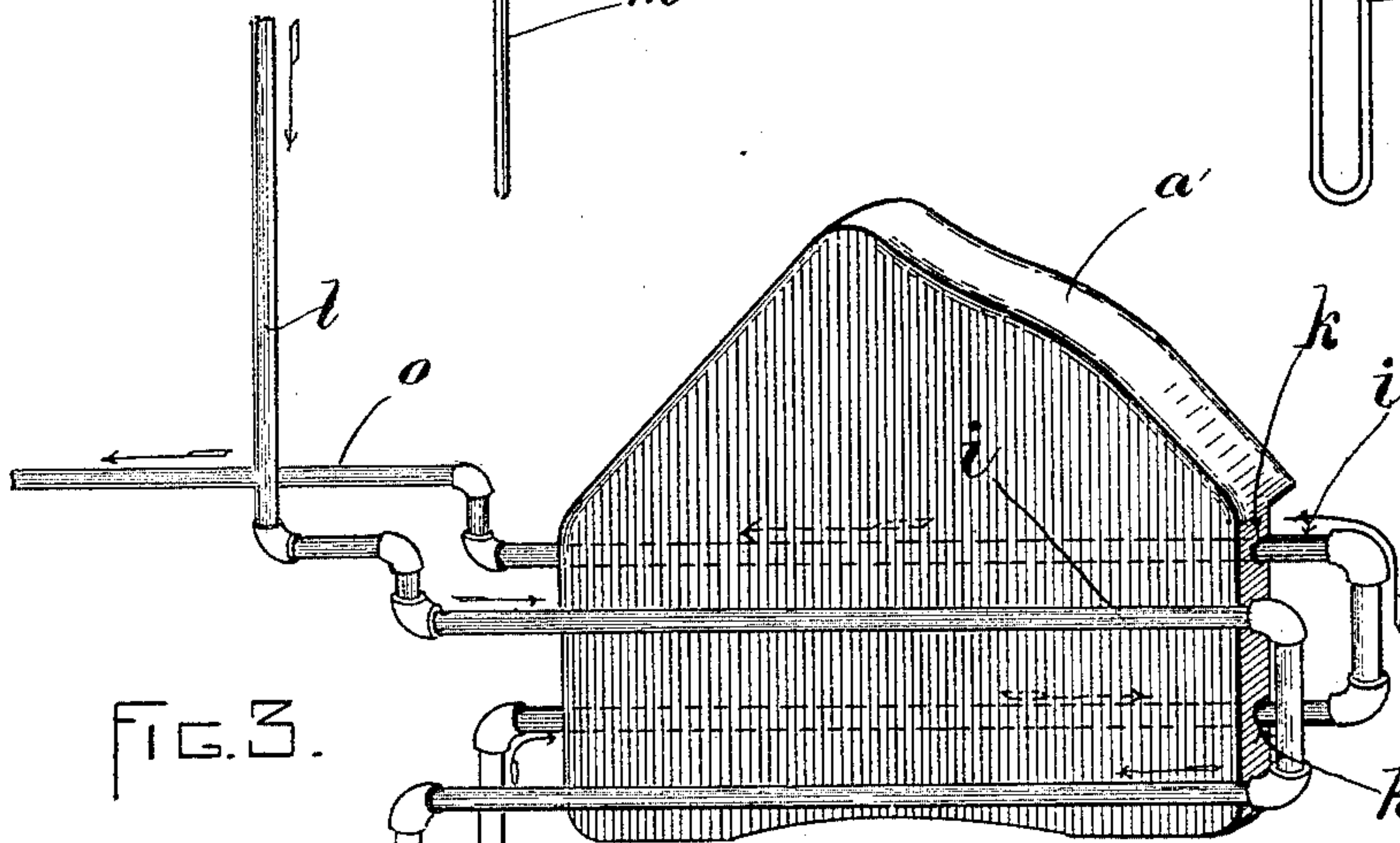
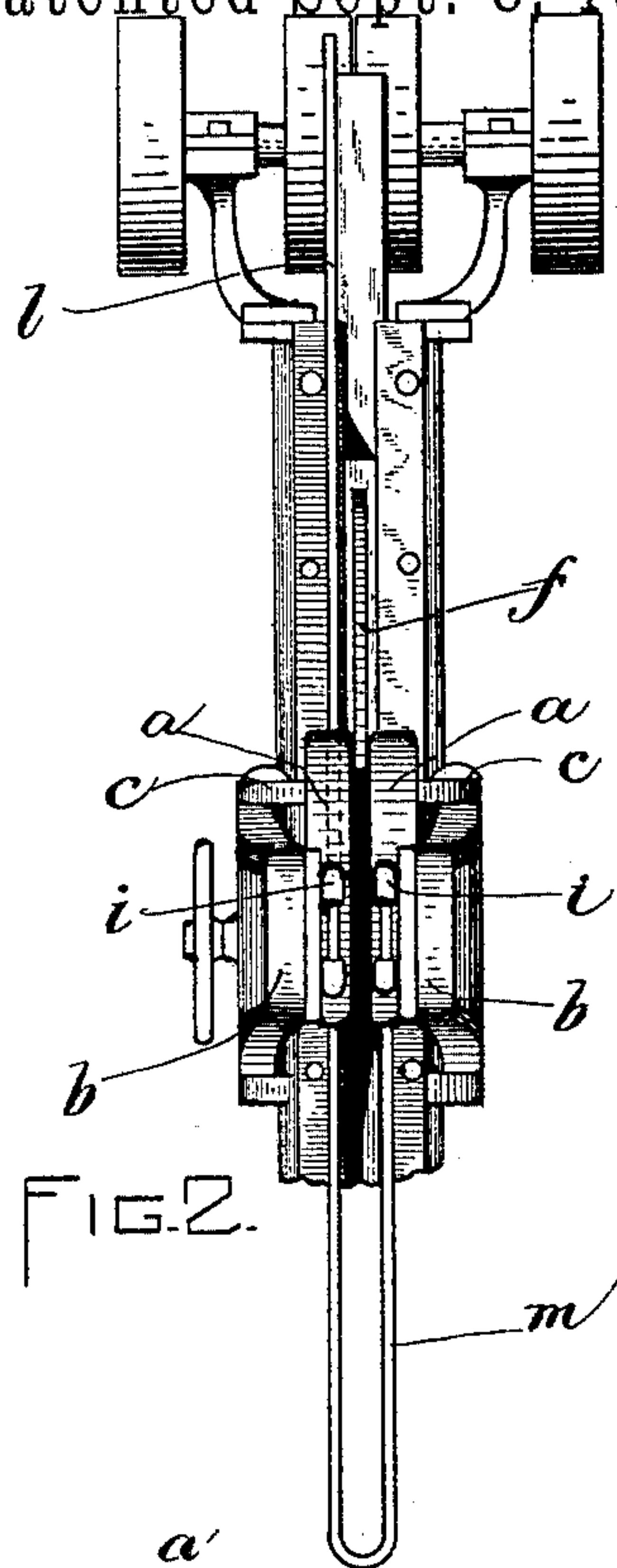
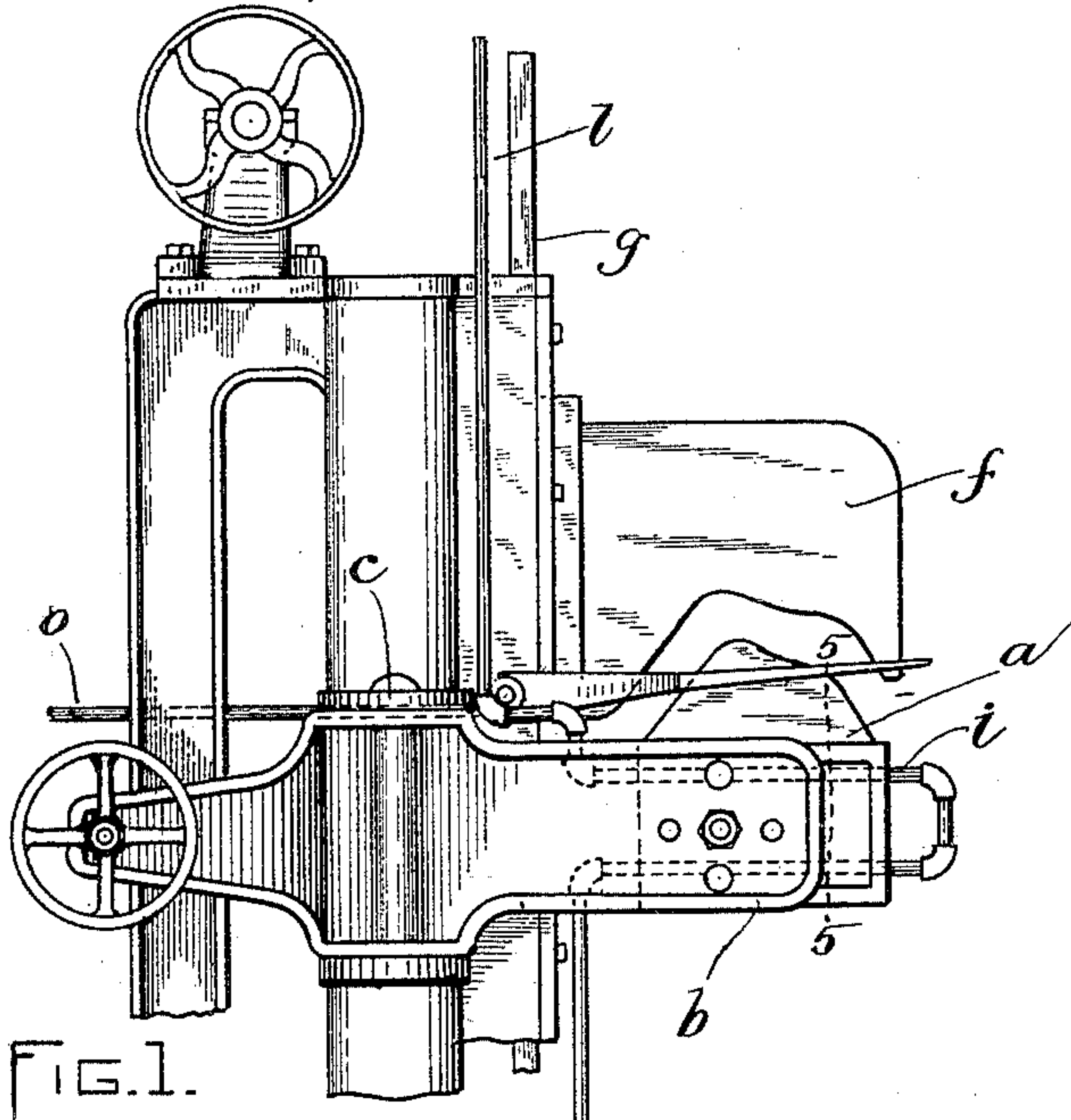


(No Model.)

G. H. & A. CUNNINGHAM.  
LEATHER CRIMPING MACHINE.

No. 459,192.

Patented Sept. 8, 1891.



WITNESSES:  
A. D. Harrison.  
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FIG. 4.

INVENTORS  
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Attorneys



# UNITED STATES PATENT OFFICE.

GEORGE H. CUNINGHAM AND ARTHUR CUNINGHAM, OF WEYMOUTH  
CENTRE, MASSACHUSETTS.

## LEATHER-CRIMPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 459,192, dated September 8, 1891.

Application filed March 31, 1891. Serial No. 387,185. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE H. CUNINGHAM and ARTHUR CUNINGHAM, of Weymouth Centre, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Leather-Crimping Machines, of which the following is a specification.

This invention relates to machines for crimping the uppers of boots and shoes, in which two laterally-movable jaws co-operate with a vertically-movable crimping-blade adapted to move between the jaws, the latter being pressed inwardly toward the plate by suitable spring-pressure.

Our invention has for its object to provide improved means for heating said jaws, so as to increase their efficiency and produce a desirable luster and finish upon the uppers crimped between them.

The invention consists in the improvements which we will now proceed to describe and claim.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side view of a portion of an organized crimping-machine provided with our improvements. Fig. 2 represents a front elevation of the same. Fig. 3 represents a perspective view of one of the crimping-jaws, the appliances for heating the same, and the appliances for heating the other jaw, the latter being removed for the sake of showing the heating appliances more clearly. Fig. 4 represents a side elevation of the outer side of one of the crimping-jaws and its heating appliances. Fig. 5 represents a section on line 5 5, Fig. 1.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a a* represent crimping-jaws of the general form now used in organized machines for crimping boot and shoe uppers.

The general construction of the machine and the general form of the jaws constitute no part of our invention, the same being confined entirely to the hereinafter-described means for heating the jaws.

We have shown, for the purpose of illustrating our invention, portions of a well-

known crimping-machine, in which the jaws *a a* are attached to levers *b b*, which are mounted to swing on vertical pivots *c c* on a supporting-frame, and are pressed inwardly or toward each other with a yielding pressure by means of a spring or springs (not shown) interposed between the rear ends of the levers *b*. Said machine is also provided with a crimping-blade *f*, which is attached to a vertically-movable slide or carrier *g*, the latter being fitted to move in a guide or way in the supporting-frame and reciprocated vertically by the power of the machine. The said blade, when raised to its highest point, stands above said jaws *a a*, as shown in Fig. 1, and is adapted when depressed to pass between said jaws, which yield or separate sufficiently to permit the entrance of the blade and the piece of upper leather carried by it between the acting inner surfaces of the jaws.

In a machine organized as above described it is very important that the jaws be free to move laterally, so as to exert the necessary yielding pressure on the leather, which is folded upon the crimping-blade by the descent of the latter between the jaws, and to conform to the varying thicknesses of different pieces of leather.

In carrying out our invention, which, as already stated, relates to means for heating the jaws, we provide each jaw with a conduit *i* for the heating medium, said conduit extending from one end of each jaw to the other and then back in two lengths, one located above the other. Each conduit is preferably composed of metallic tubing connected in the form of loops or return-bends by suitable elbows, as shown in the drawings, the outer sides of the jaws being provided with grooves *k k* to receive the horizontal portions of said pipes or conduits.

To give the jaws the necessary freedom of lateral movement, we connect with each conduit flexible or elastic pipes arranged to conduct steam into and out of the said conduits.

We prefer the arrangement shown in Figs. 1 and 3, in which *l* represents the steam-supply pipe, which extends from a boiler or other source of steam-supply and is connected to one end of the conduit of one of the jaws, said pipe being of sufficient length to enable it to



swing or yield freely to the desired movements of the jaw, with which the conduit it supplies is connected.

*m* represents a U-shaped pipe connecting the delivering end of the conduit, to which the supply-pipe *l* is connected, with the receiving end of the conduit in the other jaw, said pipe *m* being sufficiently elongated to permit it to open and close, as required, by the lateral movements of the jaws.

*o* represents a waste or outlet pipe which is connected with the delivering or outlet end of the conduit in the jaw opposite the one whose conduit is connected with the supply-pipe *l*. Said waste-pipe is also sufficiently elongated to give it the required flexibility, so that it does not interfere with the movements of the jaw to which it is connected.

It will be seen that the pipes *l*, *m*, and *o* and the conduits *i i*, to which they are connected, form a single continuous conduit, so that the same supply of steam passes through and heats both jaws. We do not limit ourselves to this arrangement, however, but may supply each jaw with a flexible supply-pipe *l'* and flexible waste-pipe *o'*, as indicated in dotted lines in Fig. 4, in which case the U-shaped pipe *m* will be omitted, the conduit of each jaw receiving steam directly from the boiler through an independent supply-pipe and discharging it through an independent waste-pipe, said supply and waste pipes being sufficiently flexible to permit the lateral movements of the jaws.

We have found that by heating the jaws by the means described their effectiveness is much increased and that the leather crimped by their aid receives a very desirable gloss or finish, which is due to the heating of the jaws and is much superior to any result that can be produced by cold jaws.

We claim—

1. In a leather-crimping machine, the laterally-movable jaws, each having a pipe or conduit arranged to conduct a heating medium in suitable proximity to its acting face, combined with flexible or elastic connections between said conduits and with a source of supply, the said conduits and connections forming a single circulating-passage from the source of supply and from one jaw to the other, substantially as described.

2. In a leather-crimping machine, the laterally-movable jaws, each having grooves in its outer sides, steam pipes or conduits located in said groove, the conduit of each jaw extending from one end of the jaw to the other and back, and an elongated U-shaped pipe or conduit connecting the outlet end of the conduit of one jaw with the inlet end of the conduit of the other jaw, as set forth.

3. In a leather-crimping machine, the combination of the laterally-movable jaws, each having a steam pipe or conduit arranged to conduct steam in suitable proximity to its acting face, a flexible supply-pipe connected with the receiving end of the conduit of one jaw, a flexible waste or outlet pipe connected with the delivering end of the conduit of the other jaw, and an elongated U-shaped pipe connection between the delivering end of the conduit of one jaw and the receiving end of the conduit of the other jaw, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 21st day of March, A. D. 1891.

GEORGE H. CUNINGHAM.  
ARTHUR CUNINGHAM.

Witnesses:

NATHAN H. PRATT,  
MARY H. BASS.