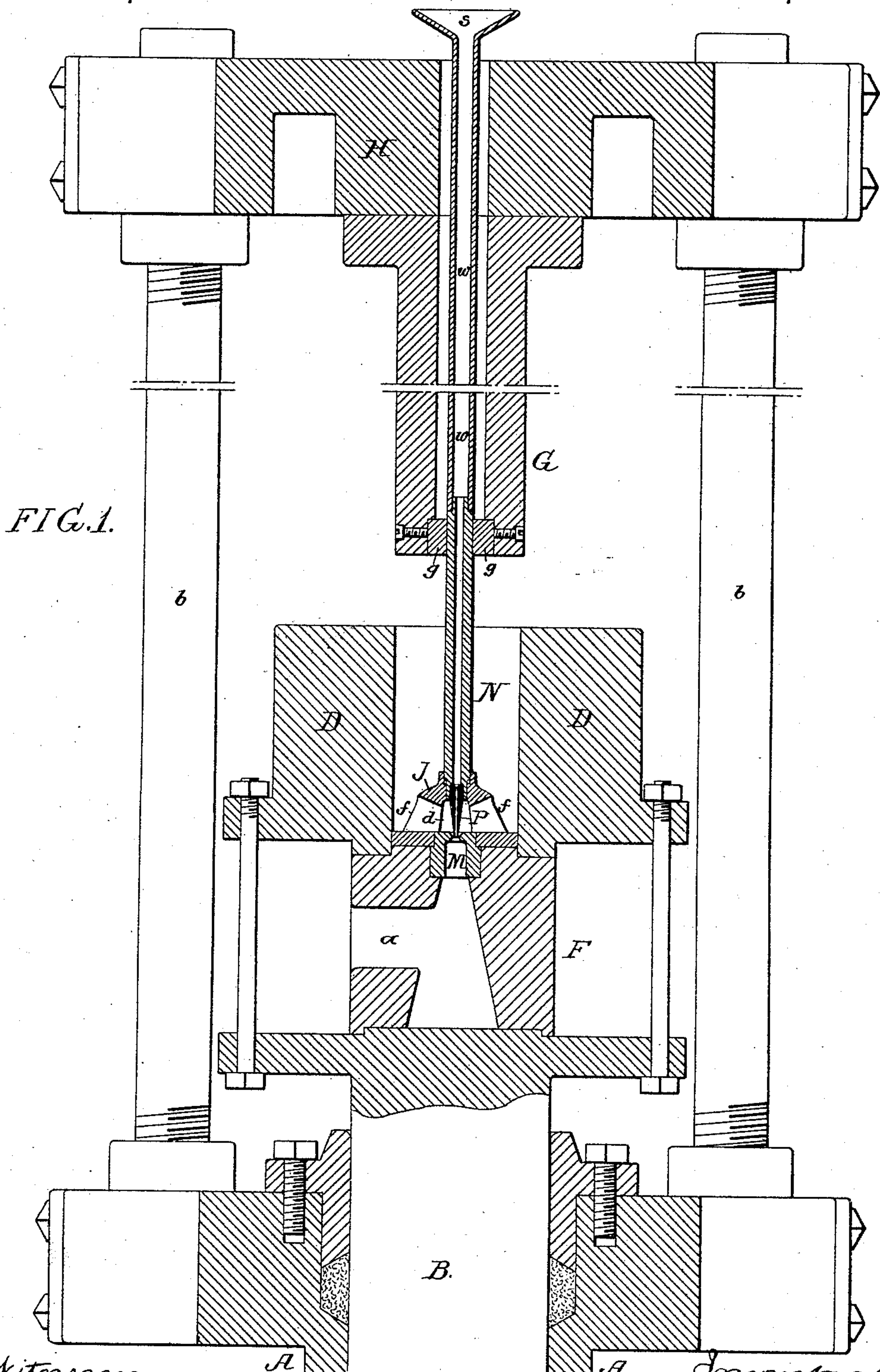


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MANUFACTURE OF SHEATHED AND INSULATED ELECTRICAL CONDUCTORS.

No. 327,971.

Patented Oct. 6, 1885.



Witnesses  
John E. Parker  
David S. Williams

Inventor  
James Tatham  
by his Attorneys  
Howson & Son

(No Model.)

2 Sheets—Sheet 2.

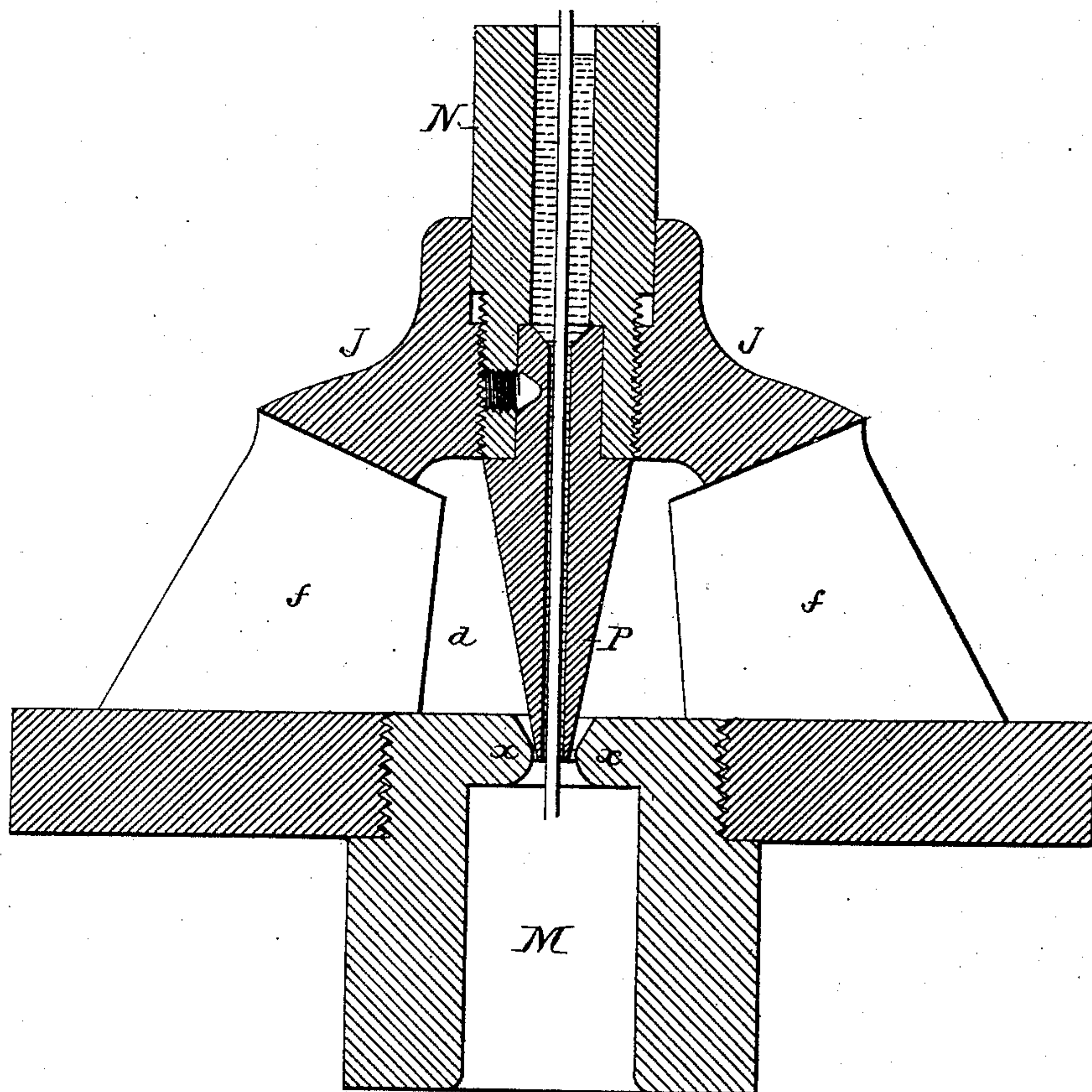
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FIG. 2.



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# UNITED STATES PATENT OFFICE.

JAMES TATHAM, OF PHILADELPHIA, PENNSYLVANIA.

MANUFACTURE OF SHEATHED AND INSULATED ELECTRICAL CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 327,971, dated October 6, 1885.

Application filed June 17, 1885. Serial No. 168,955. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES TATHAM, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain  
5 Improvements in the Manufacture of Sheathed and Insulated Electrical Conductors, of which the following is a specification.

My invention consists of an improved process of covering insulated electrical conduct-  
10 ors with lead or other ductile metal while the latter is in a heated state, without burning or impairing by the heat the insulating-covering of the conductor.

In the accompanying drawings, Figure 1 is  
15 a sectional view of part of a lead-pipe press constructed for carrying out my improved process, and Fig. 2 an enlarged sectional view of part of the press.

The press is similar in general construction  
20 to that forming the subject of my application, No. 155,397, filed February 9, 1885, A representing part of the hydraulic cylinder; B, part of the plunger of the same; D, the lead-reservoir carried thereby; F, the interposed  
25 hollow column with lateral passage *a*, and G part of the fixed ram bolted to the cap H, which is secured to the cylinder A by means of posts or pillars *b*.

Upon the hollow column F is supported the  
30 block J, having a central chamber, *d*, and opposite lateral passages, *f f*, and into a threaded opening in the bottom of the block is screwed the die M, the projecting portion of the latter being contained in a recess in  
35 the column F; or the device M may be simply a die-holder for the reception of dies of different sizes.

There is a threaded opening in the top of the block J, and into this opening is screwed  
40 the hollow core N, the upper end of which fits snugly in a block, *g*, in the lower end of the hollow ram G, said core having a detachable lower end, P, which is tapered externally and projects into that portion *x* of the die  
45 which determines the external diameter of the pipe.

Secured to the upper end of the core is a pipe, *w*, which terminates in a receptacle, *s*,  
50 above the cap H of the press; or this pipe may, if desired, simply form a continuation of the hollow core.

Before starting the press the insulated wire is drawn down through the pipe *w*, through the hollow core N, and through the die, and carried out through the lateral opening *a* of  
55 the hollow column. The hollow core, pipe *w*, and reservoir *s* are then filled with oil or other liquid insulating material, and are kept full during the working of the press. Molten lead is deposited in the reservoir D, when  
60 the latter is depressed, and said reservoir is then raised so that the ram G acts upon the lead and forces the same around the lower end, P, of the hollow core and through the die, the lead pipe thus formed inclosing and  
65 carrying with it the insulated wire fed down through said hollow core. The insulated wire is surrounded by oil down to its point of exit from the end of the hollow core, and this oil serves to protect the insulating material  
70 on the wire from the destructive or deteriorating effects of the hot lead.

I am aware that insulating material has been fed through the hollow core of a lead-  
pipe press for the purpose of insulating the  
75 wire as it passes into the pipe; but my invention is distinct from this in that the wire is in the first instance provided with a permanent insulating-covering, and the oil or other liquid insulating material is used sim-  
80 ply to prevent the burning or impairing of the permanent insulating-covering of the wire by the heat of the lead.

More than one insulated wire may be fed through the core, or a number of wires may  
85 have a single insulating-covering, which is protected by the oil in the same manner as that of a single wire.

I am aware that it has been proposed to protect an insulated wire by enveloping the  
90 same in water up to the point of application of the hot coating or sheathing material thereto; but this plan is not effective, for the reason that the presence of water or vapor in contact with the insulating material in the  
95 finished conductor materially impairs the insulating quality of the covering of the wire—an objection which is entirely overcome by the use of oil or other liquid insulating material as the protecting medium.

I claim as my invention—

The within-described mode of preventing

the destruction or impairment of the insulating-covering of an electrical conductor while the latter is being coated or sheathed by forcing hot lead or other ductile metal around the  
5 same, said mode consisting in enveloping the insulated wire in oil or other liquid insulating material up to the point of application of the hot metal thereto, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES TATHAM.

Witnesses:

WILLIAM F. DAVIS,  
HARRY SMITH.