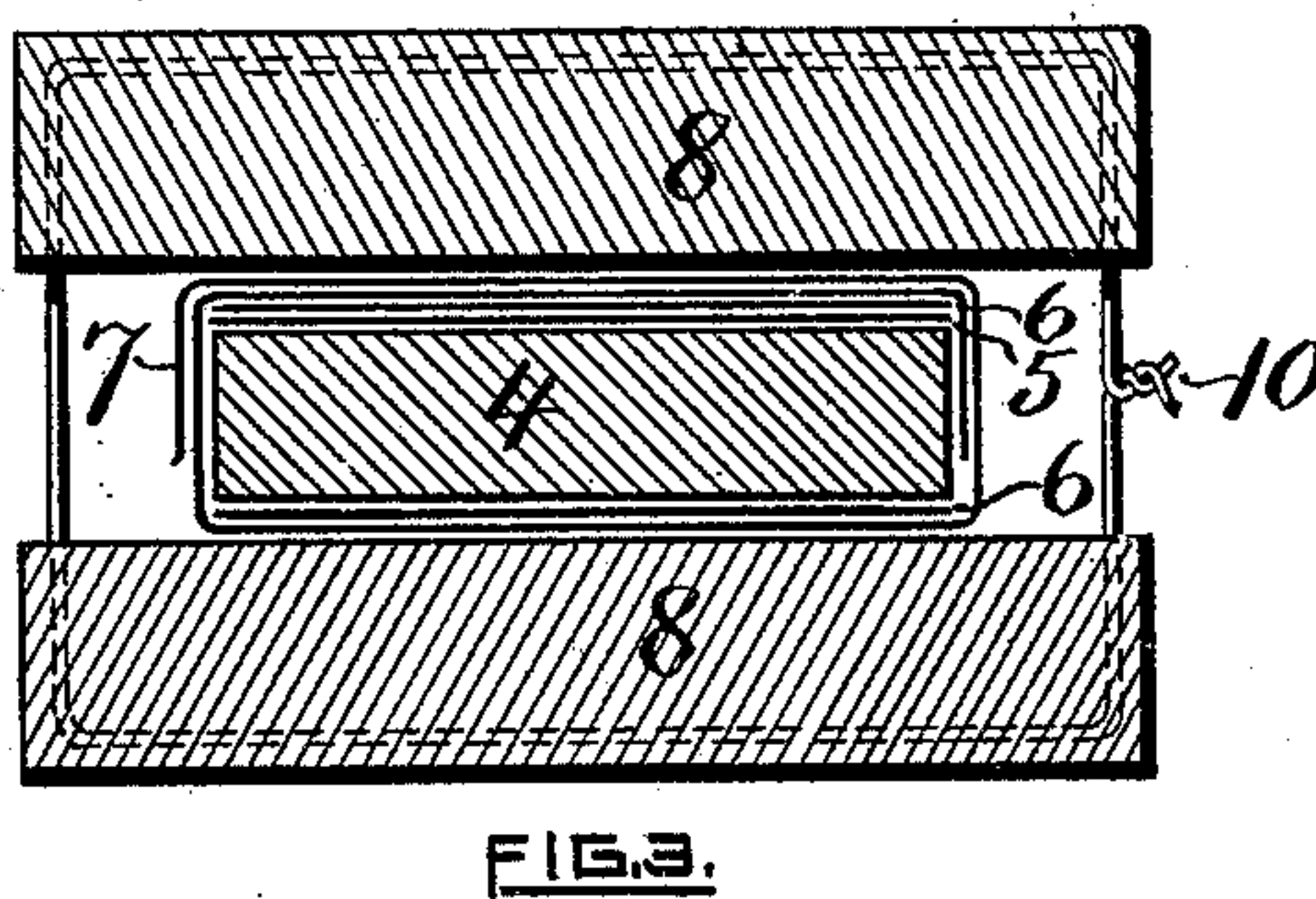
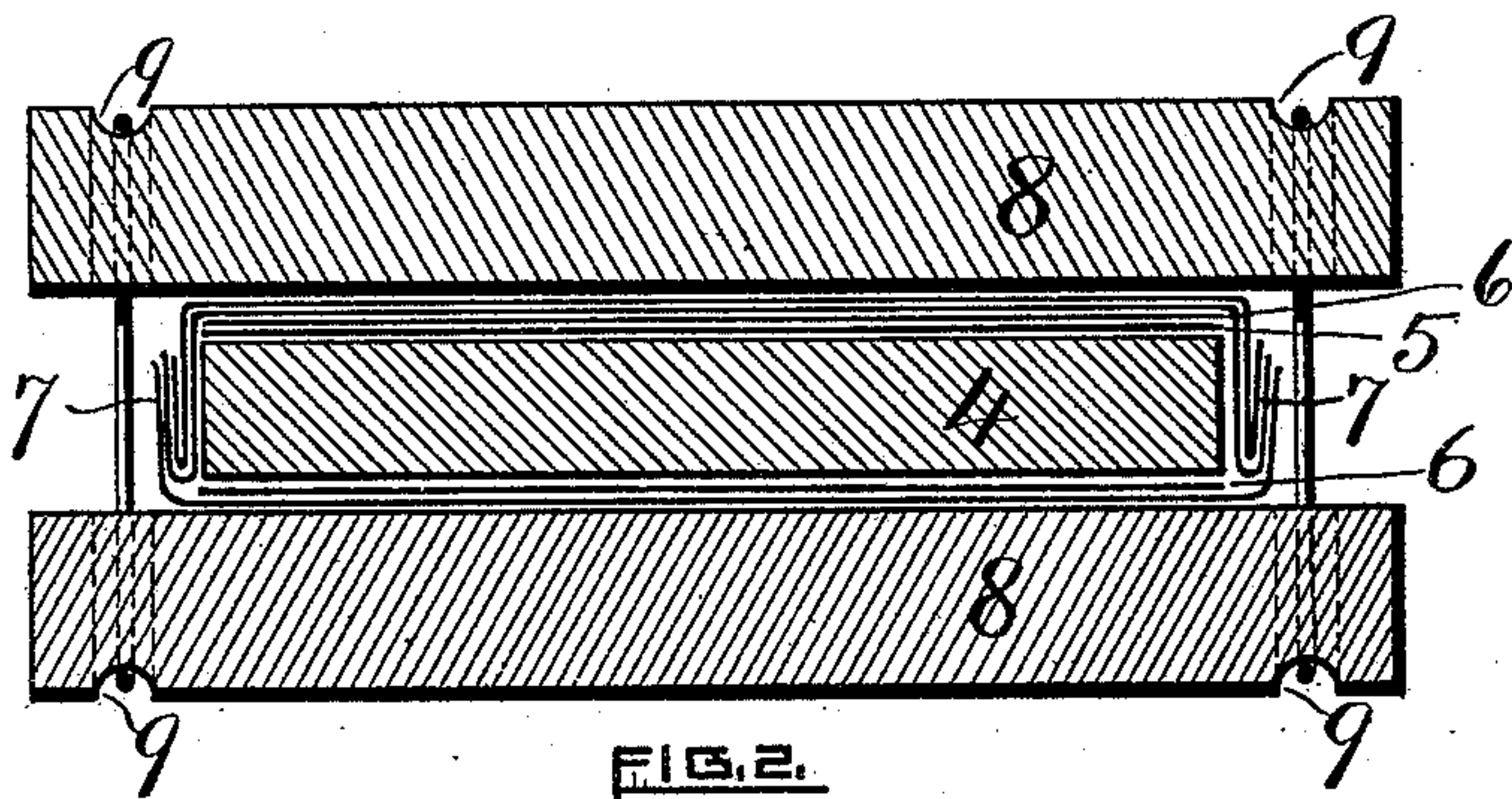
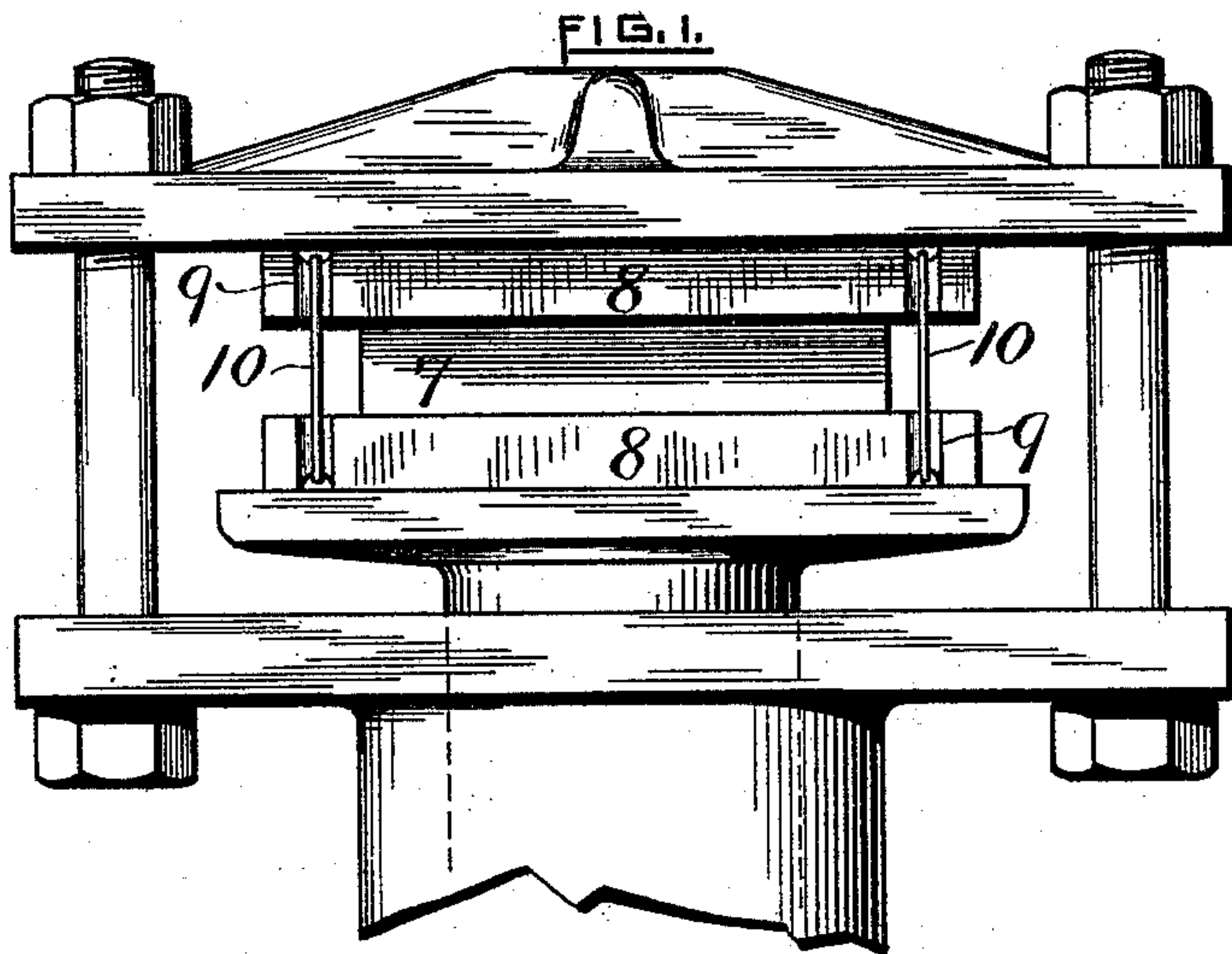


(No Model.)

L. A. LEVEZ.  
PROCESS OF PLATING METAL.

No. 470,623.

Patented Mar. 8, 1892.



WITNESSES.

Henry J. Miller  
Chas. H. Luther Jr.

INVENTOR.

Louis A. Levez  
by Joseph A. Miller & Co.



# UNITED STATES PATENT OFFICE.

LOUIS AUGUSTE LEVEZ, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF  
ONE-HALF TO ULYSSES RACINE, OF SAME PLACE.

## PROCESS OF PLATING METALS.

SPECIFICATION forming part of Letters Patent No. 470,623, dated March 8, 1892.

Application filed July 20, 1891. Serial No. 400,177. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS AUGUSTE LEVEZ, of Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Processes of Plating Metals; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in the processes of plating an ingot of metal on one side or the two opposite sides with other metal; and it consists in the peculiar steps more fully set forth hereinafter.

The object of this invention is to plate a block of metal on one side or the two opposite sides with sheet metal without the use of solder and without subjecting the plating-sheets to the oxidizing action of the gases of the heating-furnace.

Another object of the invention is to secure a more perfect union of the plating metal with the block or ingot.

In the production of what is known in the art as "stock-plate" or "rolled plate" a block of brass or other composition of inferior metal is provided. The side or sides of this block to be plated are thoroughly cleaned, the sheets of plating metal having the side to be secured thoroughly cleaned are placed on the cleaned face of the block, and a plating-iron is placed on each side of the so-covered block. The whole is now secured together by the plating-clamps and is inserted into a heating-furnace to be heated until the metals have reached the point of fusion, when the whole is removed and allowed to cool. This process is known in the art as the "sweating" process, and by the same the gold plate, which is usually alloyed with silver, is injuriously affected by the heat and the gases. In rolling out such an ingot into sheets of rolled plate the gold plating is liable to crack. I have found by practical tests that when the compound ingot is heated to a temperature much below the temperature used in the sweating process, and the heated pile—namely, the block of inferior metal, the plating sheet or sheets of precious metal, and the plating-

irons—is subjected to great pressure, the union of the plating metal with the block is more perfect, the two metals being welded together forming one homogeneous mass, and not, as is the case when the two metals are united by the sweating or soldering process, when two metals are united by a film of softer metal, and the gold is not so injuriously affected as in the sweating process. I also find that by protecting the block and the plating metal while in the furnace against the air and the gases of the furnace the plated ingot is more ductile and the union more perfect than when not so protected.

The invention consists in the improved method of uniting plating metal to a block of inferior metal without the use of solder or flux by heat and pressure, as will be more fully set forth hereinafter.

Figure 1 is an elevation of part of a hydraulic press, showing the pile under compression. Fig. 2 is a longitudinal vertical section through the pile, and Fig. 3 a vertical cross-section of the same.

The number 4 indicates the block of inferior metal, 5 the sheet of gold or other plating metal, and 6 sheets of sheet-iron. (Shown in broken lines.) The ingot shown in the drawings is to be plated on one side only.

7 indicates a sheet of any suitable material sufficiently pliable to bend readily around the prepared ingot and of a material that will not melt under the heat to which it is subjected. I have found a thin sheet of copper to answer these purposes. A sheet of soft iron will serve, and asbestos may be prepared to cover and protect the ingot.

The numbers 8 indicate the plating-irons provided near their ends with the grooves 9. The whole is secured together with the wires 10.

To enable others versed in the art to practice my invention, I will now proceed to describe the steps more fully.

The block 4, one side of which is to be plated with precious metal, which side has been newly cleaned, I place on the sheet-iron plate 6 with the cleaned side upward. On this I now place the cleaned sheet of gold or other plating metal 5, and on top of the same the sheet-iron plate 6. I now wrap the sheet 7



around the whole in the manner shown in Fig. 3, so that the ends will overlap. I now bend up and overlap the ends of the covering-sheet 7, as is shown in Fig. 2, so that the block 4 and the plating metal 5 are well covered and protected. The so-prepared block or ingot I now place between the two plating-irons 8 and secure the same together by means of the wires 10, embedded in the grooves 9. I now subject the whole pile to pressure in a vise or press and so tighten up the wires 10 that the plating-irons will be held in the compressed position. With any suitable tool the covering-sheet 7 may now be firmly pressed, so as to make a practically air-tight covering, by which the metals to be united are protected against oxidation. The so-prepared pile is now inserted into the usual heating-furnace, and is heated until red is just visible on the plating-irons, when the pile is withdrawn and quickly placed in a press, where the same is subjected to a gradually-increasing pressure until a pressure is reached under which the block will slightly yield. After a short rest under this pressure the pile is removed and the pile allowed to cool, when the ingot is ready to be rolled into the sheets and used for any of the purposes for which rolled plate is now used in the arts. The union of the plating metal with the block is much stronger and the metal more ductile than when the union is secured by the higher heat of the sweating process. The high pressure exerted on the metal when heated appears to produce a welding effect on the block and plating rather

than the soldering effect produced in the sweating process.

The portion of the process herein described of wrapping the block and plating metal in a practically air-tight sheet to protect the metal against the action of the heated gases may be used in connection with the old and well-known soldering as well as the sweating processes. While the step of subjecting the pile to compression when it is at the proper heat may be used in connection with the sweating process by providing suitable presses having grooves into which the clamped pile may be inserted and the pressure exerted on the plating-irons, these steps when so used will materially improve the quality of the plated metal.

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

The process herein described for plating metals, the same consisting in cleaning the surface to be plated, placing on the same the prepared plating metal, inclosing the same with a sheet of flexible material, securing the plating-irons to opposite sides as tightly as practicable, heating the prepared block and plating-sheet while held in contact, and subjecting the same to compression while heated before the envelope is removed, preferably in a hydraulic press, as described.

LOUIS AUGUSTE LEVEZ.

Witnesses:

JOSEPH A. MILLER, Jr.,  
HENRY J. MILLER.