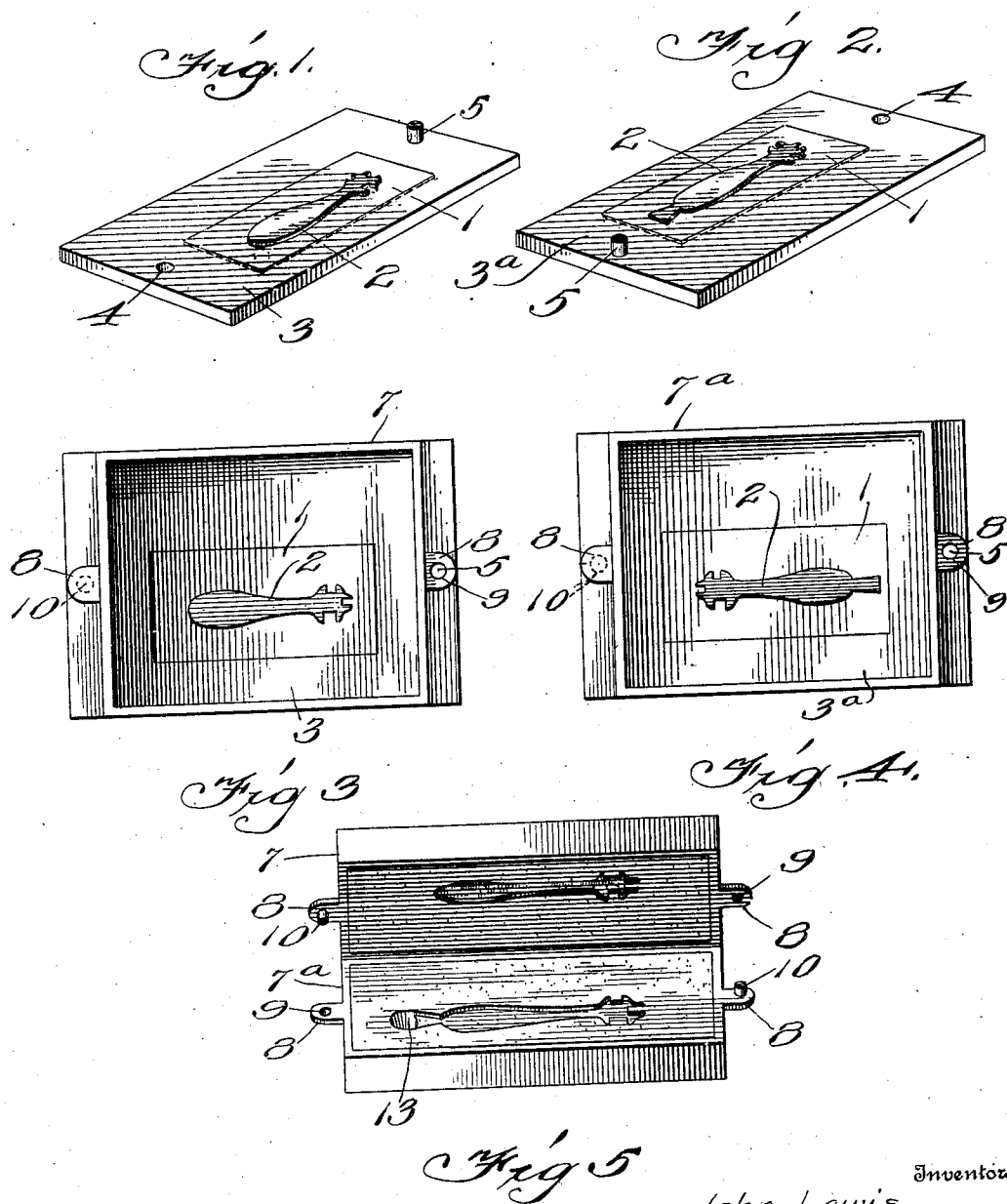


J. LEWIS, W. A. TENHAGEN & C. S. REED.
MATCH PLATE FOR SAND MOLDING.
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Witnesses
Harold B. Megraw
Harold B. Megraw.

Inventors:
John Lewis
Wm. A. Tenhagen.
C. S. Reed.
By *W. E. Tew* Attorney

UNITED STATES PATENT OFFICE.

JOHN LEWIS, WILLIAM A. TENHAGEN, AND CLARENCE S. REED, OF CLEVELAND, OHIO;
SAID LEWIS ASSIGNOR TO SAID TENHAGEN AND REED.

MATCH-PLATE FOR SAND-MOLDING.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JOHN LEWIS, WILLIAM A. TENHAGEN, and CLARENCE S. REED, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Match-Plates for Sand-Molding, of which the following is a specification.

10 This invention relates to match plates for sand molding, and has for its object to provide an improved plate by means of which sand molds can be more quickly made than heretofore, and with less cost for plates.

15 The invention embodies the idea of using an outer or main plate which may be made of cheap metal, and an inner or pattern plate which is cast in the outer plate and which is an electro-plate and which forms the appropriate half or part of the pattern. 20 The electro-type or pattern plate is made from a pattern in the manner hereinafter described.

25 The invention is illustrated in the accompanying drawings in which—

Figure 1 is a perspective view of one plate; Fig. 2 is a perspective of the other; Figs. 3 and 4 are top views of the two parts of the molding flask set on the corresponding plates, ready to receive the sand; Fig. 5 30 is a perspective of the two mold sections being put together.

Referring specifically to the drawings, 7 and 7^a are the two halves or parts of the molding flask. These have ears 8, and one ear of each part has a hole 9 and the other a pin 10 which fit together when the parts are assembled to form the complete mold.

40 The outer or main parts 3 and 3^a of the match plates are composed of any cheap and durable metal or alloy of metals, and these plates are of proper size to fit the flask parts, and have pins 5 and holes 4 to fit the corresponding pins and holes in the ears of the flask sections. Cast in each match plate is a pattern plate 1. This plate is an electro-plate, and the surface thereof requires no further finish. Each of the plates 1 has thereon a raised pattern 2 which is integral therewith. The pattern plates are set in proper position in the base or outer plate to match the pattern sections when the mold is completed, Fig. 5 showing the mold sections being put together, one being provided with a gate 13.

In the use of the device, the flask sections are set on the plates respectively, as shown in Figs. 3 and 4, and the sand is then pressed or pounded into the parts and against the pattern plates, and when suitably packed the flask sections are inverted and the plates taken off, and the two halves are then joined and are ready to receive the metal.

The method of making the plates is as follows: A sand mold is first made and then separated, and the original or complete pattern of the article to be made is placed in one-half of the sand mold. A frame is then placed around the exposed half of the pattern and filled with plaster paris, and when the plaster becomes set it is removed from the mold. The pattern is then placed in the opposite half of the mold and the same operation is repeated, the two halves then forming a complete plaster mold. A frame is placed on one-half of the plaster mold and the pattern is inserted and the frame is filled with a wax composition. When the composition becomes hard the same operation is repeated with the other half of the mold, said halves when finished forming a matrix, or duplicate of the pattern. The matrix then goes through the electro-plating process, and after the desired thickness of copper is deposited on the matrix the copper shell is removed from the matrix, each shell forming a perfect fac-simile of the half of the original pattern. The copper shell is then placed in the original plaster mold, and the outer edges of the plate are built up for the required thickness and dimensions. The pins are then located with a device designed for the purpose, and a flat sand cope, which contains a gate or channel to receive the molten metal, is placed on top of this raised edge and a non-shrinking white metal or alloy backing is then poured into the mold, filling the copper shells and the space around the same, and said shells are thereby securely soldered to the plate, forming a complete match plate with the pattern section thereon.

In cases where a number of castings are to be produced in one mold, sectional plaster molds are made for the number required, by the process just described, and these sections are then assembled in a flask in proper position and the joints filled with plaster to make a solid mold. A channel is cut with gates to each mold, the electro-plate shells

are then placed within the molds, and the finished multiple pattern is completed by the operation described.

By having the pattern plates cast in the
5 outer or base plates, a considerable saving of high priced metal is effected. The pattern plates are smoothly finished while the outer plates may be made of cheap metal with a rough finish. As stated, electro-
10 plates will be used for the pattern plates and the parts are made symmetrical so that they will always match and produce perfect castings.

We claim:

15 1. A match plate for molding, comprising a thin metallic pattern plate, and a base plate cast thereon and forming a backing therefor.

20 2. A match plate for molding having a thin metallic pattern-bearing section, and a metallic backing cast on the back thereof.

3. A match plate for molding comprising a base plate having registering devices to fit the flask section, and a pattern plate set in the base plate with its surface flush there- 25 with, the pattern plate having a projecting pattern thereon.

4. A match plate for molding comprising an electro-plate pattern section and a metal backing supporting the same. 30

5. A match plate for molding comprising an electro-plate pattern section, and a backing plate cast around and behind the same.

In testimony whereof, we affix our signatures in presence of two witnesses.

JOHN LEWIS.
WILLIAM A. TENHAGEN.
CLARENCE S. REED.

Witnesses:

MONROE E. MILLER,
JOHN A. BOMMARDT.