

(No Model.)

E. W. TIMMIS.
APPARATUS FOR CASTING BATTERY PLATES.

No. 506,281.

Patented Oct. 10, 1893.

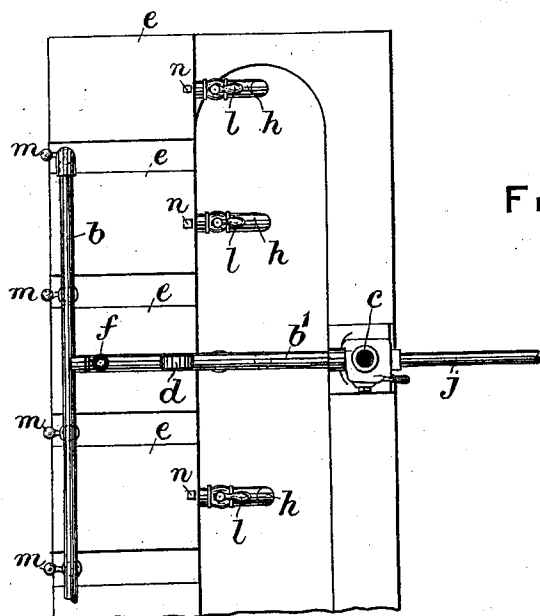
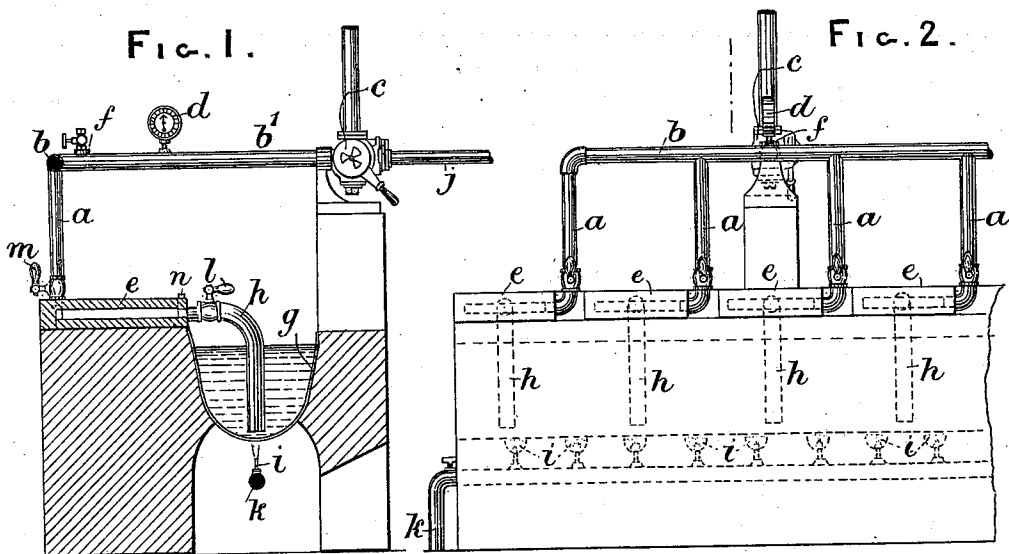


FIG. 3.

Witnesses

Arthur Woodman.

William B. Landy.

Inventor

Edgar William Timmis

per

John V. Donnell

Attorney.

UNITED STATES PATENT OFFICE.

EDGAR WILLIAM TIMMIS, OF LONDON, ENGLAND.

APPARATUS FOR CASTING BATTERY-PLATES.

SPECIFICATION forming part of Letters Patent No. 506,281, dated October 10, 1893.

Application filed January 23, 1893. Serial No. 459,357. (No model.)

To all whom it may concern:

Be it known that I, EDGAR WILLIAM TIMMIS, electrician, a subject of the Queen of Great Britain and Ireland, residing at Stone Hall, Oxted, London, in the county of Surrey, England, have invented a new and Improved Apparatus for Forming or Casting Plates, Supports, or Grids for Battery-Plates or Elements for Use in Voltaic Batteries, of which the following is a specification.

My invention consists of a new and improved apparatus for forming or casting plates, supports or grids for battery plates or elements for use in voltaic batteries.

I will proceed to describe my invention, reference being made to the accompanying drawings in which the same letters refer to the same parts or substitutes therefor in the several figures.

Figure 1 represents a side view partly in section. Fig. 2 represents a front view. Fig. 3 is a plan.

My invention relates to means for casting grids or supports of alloy or lead, the grids or supports being used as frames to support the active material for forming plates or elements for use in voltaic batteries. I provide a receptacle to contain the molten metal, the said metal being kept in a fluid state by any means, preferably, as shown in the drawings, by gas jets.

In carrying out my invention I arrange the said receptacle *g* to contain the fluid metal. The said receptacle may be of any convenient size or form and it is heated by suitable means, as illustrated, preferably by gas jets *i, i*, which gas is supplied from the gas pipe *k*. The fluid metal is drawn up from *g* by means of the pipes *h*. One end of each of the pipes *h* is fixed to the corresponding mold *e*, and the other end is dipped into the fluid metal. The mouths of the several pipes *h, h*, are below the surface of the fluid metal. The molds *e, e*, are rendered air-tight by means of covers *e'* secured by bolts *n*. To the opposite end of *e* to that in which the pipes *h, h*, are fixed, are attached pipes *a, a*, and in communication with the pipes *a, a*, is an exhaust pipe *b*, which is connected to all the pipes *a*, a leading from the various molds. To the pipe *b* is attached a pipe *b'* which is connected

to a device of any approved kind adapted to exhaust air from a receptacle and thereby form a partial vacuum in it, such as a steam ejector *c* of any well known kind, to which is fixed a steam pipe *j*. To the pipe *b'* in a convenient position is fixed the vacuum gage *d*.

The action of the apparatus is as follows:—The gas jets *i, i*, being lighted and a quantity of metal or alloy being placed in the receptacle *g*, the metal is melted. The cocks *l, l*, are closed to prevent metal entering the molds *e, e*; the air is then exhausted from the interior of *e, e*, by means of the ejector *c*, whereby a vacuum is created in pipes *b', b* and *a* and in the molds themselves, and the metal is sucked up the pipes *h, h*, and enters the molds. The vacuum in the tubes *a, a*, is regulated to the required extent by means of the ejector *c* and is registered on the gage *d* and the vacuum can be destroyed by opening the valve *f*. I also provide if necessary, cocks *m, m*, in the pipes *a, a*, for the purpose of preventing the fluid metal being sucked up beyond the molds. By this means I am enabled to cast plates or supports or grids in an economical and efficient manner, so that no dross or other impurities can be drawn into the molds *e, e*, and the air being eliminated from the molds at the moment that the fluid metal enters them, their surfaces are in perfect condition to receive and make contact with the active material.

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

The combination, with a receptacle for the metal, of the molds, the pipes *h* provided with valves *l* and connecting the molds with the lower part of the vessel, the pipes *a* provided with valves *m* and connected to the molds, a pipe *b* coupling the said pipes *a*, and means for exhausting air from the molds through the said pipes *a* and *b*, substantially as and for the purpose set forth.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

EDGAR WILLIAM TIMMIS.

Witnesses:

HENRY W. BRADDOCK,
C. BAINES BEGGS.