

## UNITED STATES PATENT OFFICE.

WALTER K. MARVIN, OF NEW YORK, N. Y.

## IMPROVEMENT IN FIRE-PROOF SAFES, &amp;c.

Specification forming part of Letters Patent No. 41,521, dated February 9, 1864.

*To all whom it may concern:*

Be it known that I, WALTER K. MARVIN, of New York, in the county and State of New York, have invented a new and useful Improvement in Filling for Fire-Proof Safes; and I hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to the production of a fire-proof filling for safes, which is designed to obviate some of the objections still entertained against those heretofore in use. I have recently obtained Letters Patent of the United States for the use of calcined or dry plaster-of-paris so combined with alum as that the changes effected by time and fire produce a cellular filling which is perfectly dry, fire-proof, and without corrosive action on the iron, while it possesses the requisite lightness and permanency of set.

The present invention is an improvement upon the invention last referred to, the object being the lessening of the cost in material and labor; and I have accomplished this in the manner as follows: I first produce balls or lumps of alum coated with calcined plaster. To this effect I use a large platform or tray suspended by means of ropes or chains tied to a ring, common to all, in a hook fast in the ceiling or other elevated point in the room in which the operation is to take place. This tray is provided with handles, so that the attendant can impart to it a swinging motion in any direction desirable—*i. e.*, back and forth, laterally and tipping, or any other movement of which the suspension-hook is the center of motion. Into this tray I place lumps of alum varying in size and weight from one grain to a half-ounce. The whole is then gently steamed by conducting a small steam-pipe over the surface of the lumps of alum, or by sprinkling water with an ordinary watering-pot, the nozzle of which emits very fine streams of water over the alum until the surfaces of the lumps become sufficiently damp to cause calcined plaster-of-paris powdered to adhere to them. I then throw the powdered plaster upon the lumps and then swing the tray to agitate the lumps in and among the plaster. This is continued until each lump of alum is coated with plaster-of-paris, which, in coming in contact

with the moist surface of the alum, becomes "set." When the first coating has been thus formed the same operation is repeated until the required thickness of shell or envelope is attained—*i. e.*, from one-eighth of an inch upward, according to the size of the lumps coated, a small piece not requiring as thick a coating as larger pieces. This operation of coating the lumps with plaster is very similar to that employed by manufacturers of sugar-candy in coating the pits of almonds with sugar; and I have found that a gentle or low heat will facilitate or hasten the process, particularly so in damp weather. This constitutes the first step of the process. I next take clay and calcine it sufficiently to drive off the water it contains, and then grind or pulverize the same. This constitutes the second step. I then intersperse the pieces of alum held within their plaster cells, prepared in the manner I have described, throughout the calcined clay and fill my safes with this compound; and this constitutes the third and last step of my improved mode of filling safes. The result of these operations is that a perfectly dry safe-lining is obtained, which, when subjected, by accident or otherwise, to the action of fire is not liable to shrink, as is the case in all alum and clay safes heretofore in use. This effect is due to the strength and porosity of the coating of the alum, which, when the alum is fused, permits the vapor and steam to pass out into the clay and act as a reducer of heat, and at the same time preserves the cellular structure of the whole filling. In this way clay may be substituted for the great bulk of plaster-of-paris used in my patented process hereinbefore referred to, and the consequence is that quite as good a safe may be made at a less cost of material and labor.

Having thus fully described my invention and the manner in which the same is or may be carried into effect, I claim—

1. As a new composition of matter for the fire-proof lining or filling of safes and other like fire-proof structures, alum, gypsum, and clay combined in the manner hereinbefore set forth.

2. The coating of lumps of alum with calcined and powdered gypsum, as described, in

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combination with incorporating such coated lumps in dry or calcined clay, substantially in the manner and for the purposes set forth.

3. As a new article of manufacture, safes or other fire-proof structures the filling of which is composed of alum, gypsum, and clay, under the arrangement or combination hereinbefore set forth.

In testimony whereof I have signed my name to this specification before three subscribing witnesses.

WALTER K. MARVIN.

Witnesses:

I. DAVENPORT,  
JAMES GREEN,  
EDWARD BISSELL.