No. 818,690. PATENTED APR. 24, 1906.

G. C. HICKS.

STOVE LINING.

APPLICATION FILED JUNE 16, 1905.

Fig. 1.

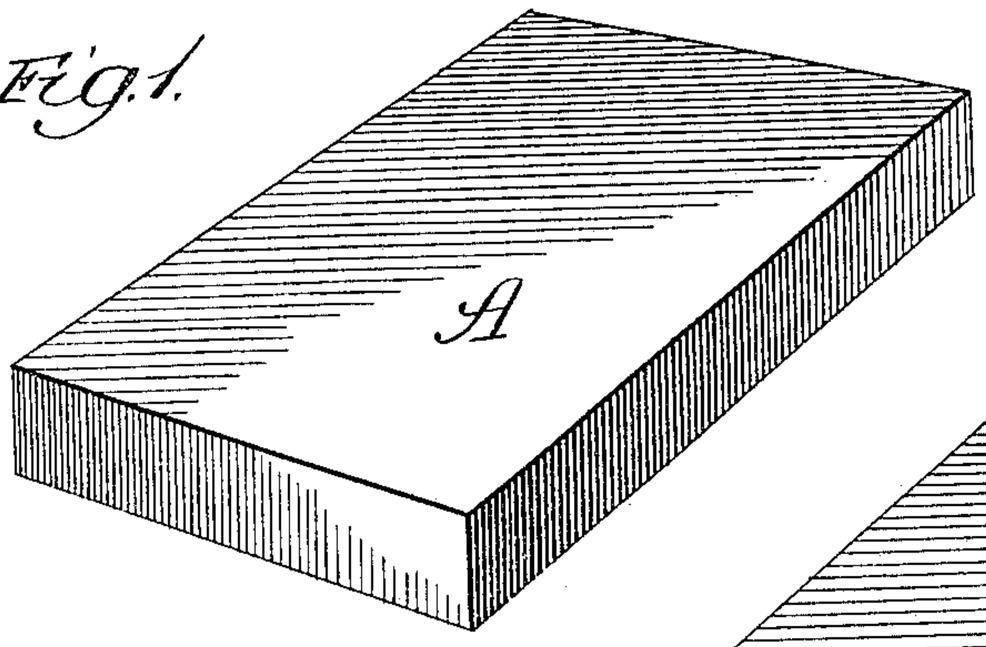


Fig. 2.

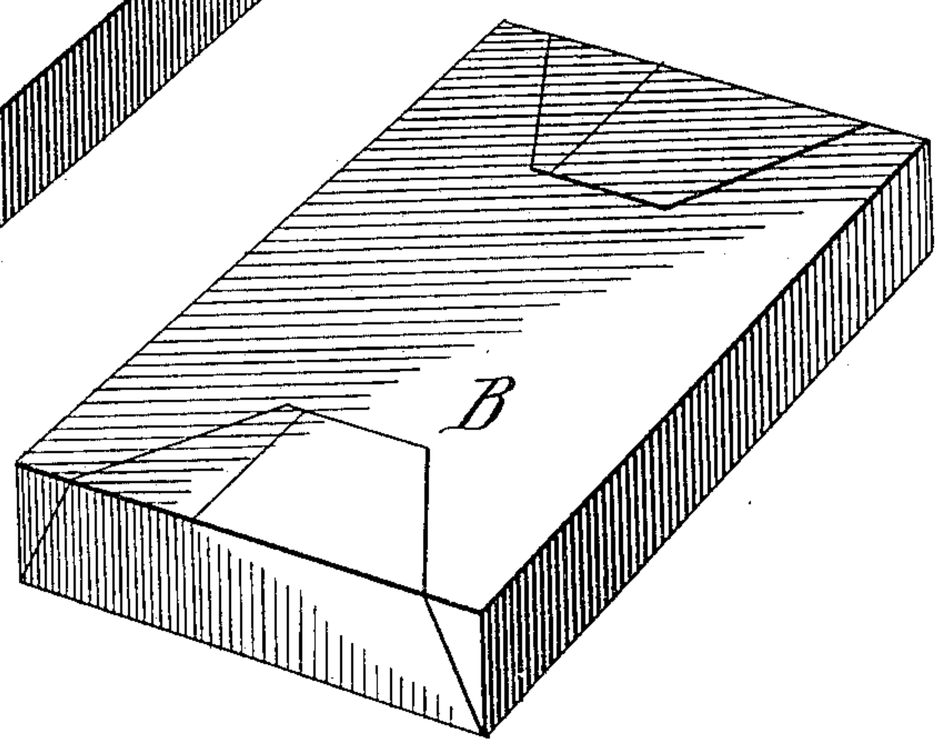


Fig. 3.

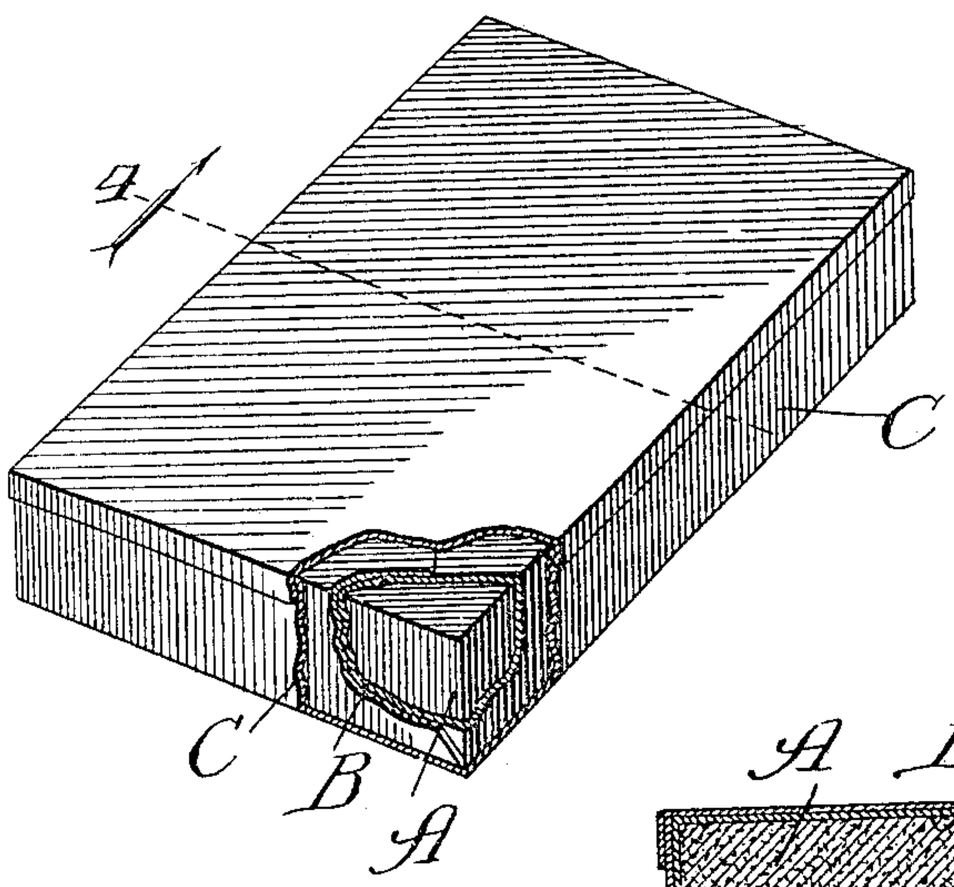


Fig. 2a.

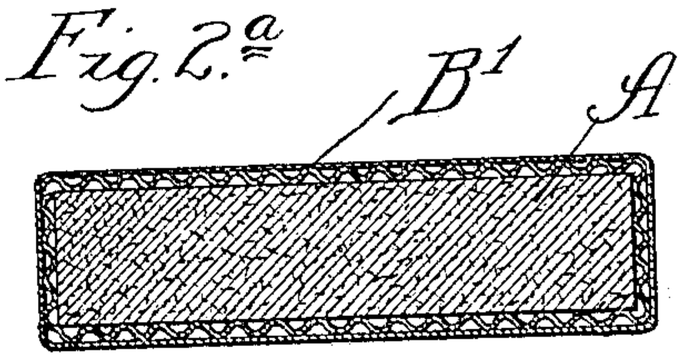
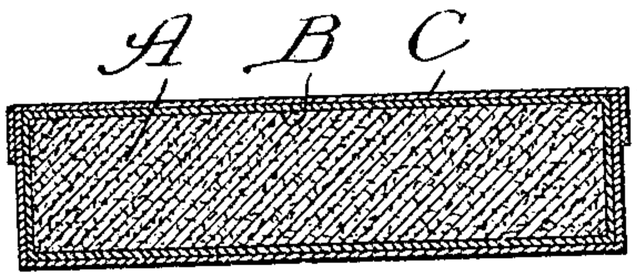


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE C. HICKS, OF CHICAGO, ILLINOIS.

STOVE-LINING.

No. 818,690. Specification of Letters Patent. Patented April 24, 1906.

Application filed June 16, 1905. Serial No. 265,497.

To all whom it may concern:

Be it known that I, GEORGE C. HICKS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Stove-Linings, of which the following is a specification.

My invention relates, primarily, to an improvement on the stove-lining composition for which Letters Patent No. 607,928 were granted to me July 26, 1898.

My more particular object is to provide a new and improved composition of materials adapted to be maintained in stock in a plastic condition to be applied as a lining by unskilled persons in the fire-chambers of stoves, ranges, furnaces, and the like, there to be reduced to a highly-refractory condition by baking it under subjection to the heat in such fire-chambers.

My further object is to supply to dealers as a new article of manufacture such a composition in brick or slab form ready to be applied to use by the customers, but enveloped in an air-excluding envelop forming a package and serving to maintain the composition in its required plastic condition until applied to its purpose.

The form in which I prefer to provide the plastic stove-lining composition is shown in the accompanying drawings, in which—

Figure 1 is a view in perspective of a slab of the plastic material; Fig. 2, a similar view showing an air-excluding covering enveloping the slab; Fig. 2ª, a transverse section through the covered slab, showing a modification of the covering; Fig. 3, a similar broken view showing the covered slab of Fig. 2 inclosed in a box, and Fig. 4 a section taken at the line 4 on Fig. 3 and viewed in the direction of the arrow.

My improved lining composition consists, preferably, of pulverized fire-clay, pulverized fire-brick, a suitable hygrometric material—such as glucose, glycerin, or the like—water, and chlorid of magnesium, the preferred proportions being as follows, by weight: fire-clay, fifty per cent.; fire-brick, thirty-four per cent.; glucose, two per cent.; water, ten per cent.; chlorid of magnesium, four per cent. This composition thus produced is in a plastic condition of about the consistency of putty. It is then subdivided into lumps, each lump containing a sufficient quantity for a stove-lining or the like. I prefer, however, to form the composition, as by molding, into slabs or bricks A, of which one is shown in the drawings, of a size and shape to adapt them to be quickly fitted while in a "green" or unbaked and plastic condition into any fire-box to be lined, the slab being readily cut with a knife to shape it and fit it into place. When the composition is furnished for use in bulk, it may be cut into sheets and spread over the surfaces to be lined, as described in the Letters Patent mentioned herein, and when baked by the fire in the stove it forms a highly-refractory and durable lining. By forming the composition into a slab or brick the user is furnished with a stove-lining having the desired flat or corrugated surfaces and requiring the mere fitting into place of the slabs to be baked as aforesaid, whereas where the composition is furnished to him in bulk he is obliged not only to spread the mass upon the surfaces to be lined, but must also smooth the outer surface of the lining, which is a more or less difficult operation for an unskilled person, particularly in attaining the desirable degree of smoothness of the surface.

To maintain the composition in the bulk or slab form in the required plastic condition for its application to use, I envelop it in a covering of air-excluding material B, such as a sheet of paper or strawboard, preferably saturated with a solution of chlorid of magnesium, the whole being then preferably inclosed, as represented in Fig. 3, in a box C, of wood or sheet metal. By adding chlorid of magnesium to the other ingredients of the composition the mass retains its moisture much longer than where such addition is omitted, as chlorid of magnesium has hygrometric properties in a high degree. Moreover, chlorid of magnesium is highly refractory when reduced to the form of magnesia, which reduction results from subjecting the mixture to the first high heating in the fire-box of which it forms the lining, the hydrochloric acid being driven off, leaving the pure magnesia remaining in combination with the other ingredients and forming therewith a highly effective and desirable refractory lining.

Should the mass of stove-lining composition dry out before being used, it may be readily rendered plastic by adding water and kneading the mass, or if it be in the form of a slab it may be dipped into water, which it

readily absorbs, rendering the slab soft and easy to cut and apply to the surfaces to be lined.

I do not wish to limit myself to a composition including fire-brick, as a very useful composition may be provided without this ingredient.

Owing to the hygrometric property of chlorid of magnesium, it is not indispensably necessary that any other hygrometric material, such as glycerin or glucose, be used with it in connection with the other ingredients. When glucose or glycerin is omitted from the combination, the preferred proportions are as follows, by weight: fire-clay, fifty per cent.; fire-brick, thirty-four per cent.; saturated solution of chlorid of magnesium, four per cent.; water, twelve per cent.

The preferred construction of the envelop for the plastic slab or brick is that shown at B′ in Fig. 2ª, consisting of strawboard corrugated on its inner side, as represented, and preferably saturated with the chlorid-of-magnesium solution. This construction of the envelop is preferred, because it retards evaporation of the moisture contained in the slab by reason of its being a poor conductor of heat owing to the air-spaces it provides about the slab.

What I claim as new, and desire to secure by Letters Patent, is—

1. As an improved article of manufacture, a mass of plastic stove-lining composition comprising ground refractory material, chlorid of magnesium and water.

2. The improved plastic stove-lining composition, comprising fire-clay, fire-brick, chlorid of magnesium and water.

3. An improved plastic stove-lining composition, comprising fire-clay, fire-brick, glucose, chlorid of magnesium and water.

4. As an improved article of manufacture, a mass of plastic stove-lining composition, comprising ground refractory material, chlorid of magnesium and water, and an envelop of air-excluding material inclosing said mass.

5. As an improved article of manufacture, a mass of plastic stove-lining composition comprising ground refractory material, glucose, chlorid of magnesium and water, and an envelop of corrugated paper inclosing said mass and saturated with a solution of chlorid of magnesium.

6. As an improved article of manufacture, a mass of plastic stove-lining composition, comprising ground refractory material, a hygrometric material and water, and an air-excluding envelop of corrugated paper inclosing said mass and saturated with a solution of chlorid of magnesium.

7. As an improved article of manufacture, a slab or brick forming a stove-lining, composed of ground refractory material, chlorid of magnesium and water, and an air-excluding envelop of corrugated paper inclosing said slab or brick.

GEORGE C. HICKS.

In presence of—
W. B. DAVIES,
J. H. LANDES.