April 9, 1929. W. L. BODMAN 1,708,464

HEAT INSULATING BLOCK

Filed July 28, 1926

Fig. 1.

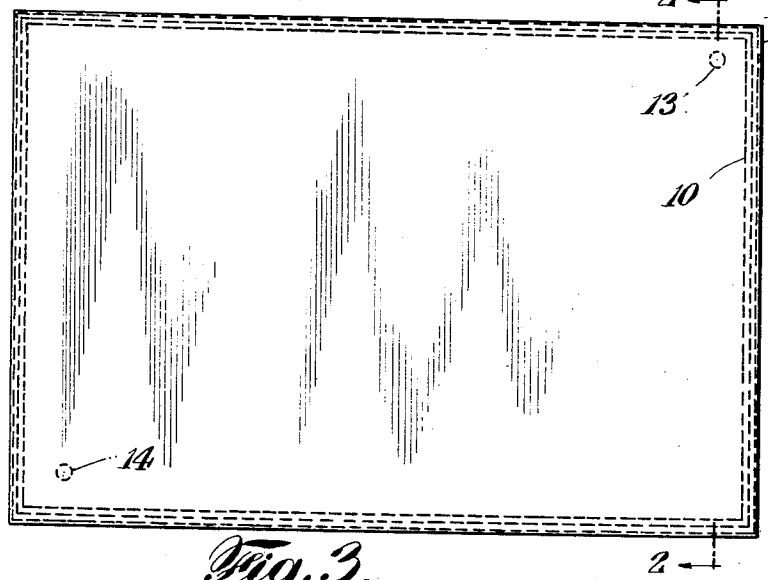


Fig. 2.

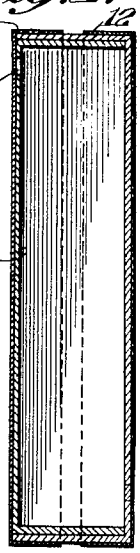


Fig. 3.

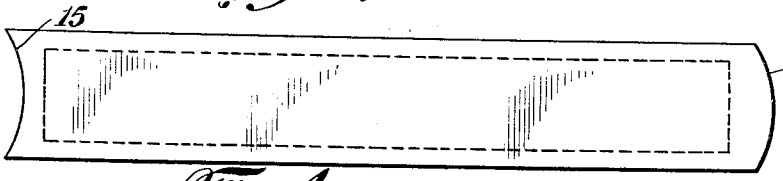


Fig. 4.

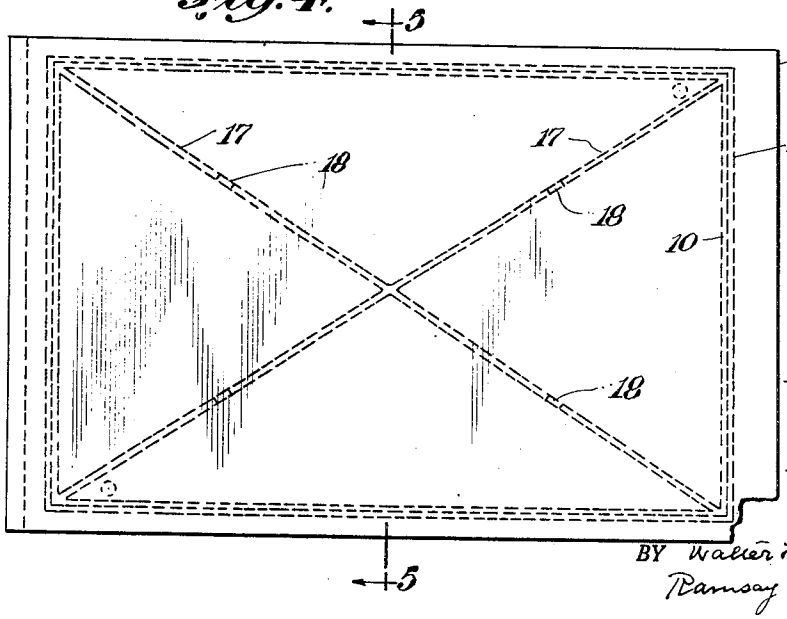
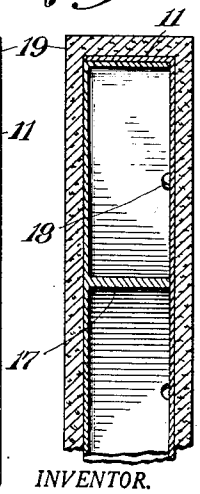


Fig. 5.



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UNITED STATES PATENT OFFICE.

WALTER LIGHT BODMAN, OF NEW YORK, N. Y.

HEAT-INSULATING BLOCK.

Application filed July 28, 1926. Serial No. 125,468.

My invention relates to improvements in heat insulating blocks, and the object of my invention is to produce a very cheap, simple, and highly efficient block which can readily be built up into the form of a wall, and which will afford a substantially perfect insulation against heat. My invention comprises in its simplest form a box of cheap material which is rendered impervious to air, gas, and water, and which can be filled with a heavy insulating gas such for example as a carbon dioxide. It is known that this and some other gases are almost perfect insulators against heat transmission, but these gases have not generally been used because of the difficulty of confining them. I find, however, that I can take a simple box, for example of pasteboard or fibre board, in the form of a carton, and water-proof this in any usual way, and perfectly cover it with a metal foil, for example lead foil, which may be incorporated very firmly with the fibre box, after which the air may be forced out and the gas forced in and sealed, making a block which is preferably rectangular like a block or tile, which is very cheap, and which affords excellent insulation. Moreover such a block can be easily built up into the form of a wall, and the wall thus made can be covered on one or both sides to give it additional strength or for embellishment. Such a structure can be used to advantage in the manufacture of household refrigerators, light walls, and in fact in any wall which is intended to provide against the passage of heat through it. My idea can be carried out further in providing the simple box above referred to with braces to give it additional strength, and if desired the whole can be encased in gypsum or other cement or cementitious substance, making it substantially a tile or block with an internal container for the insulating medium. All this will be better understood from the description which follows.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a face view of an insulating block showing my invention in its simplest form.

Figure 2 is a cross section on the line 2—2 of Figure 1.

Figure 3 is a plan view or top edge view of the block with its cementitious encasement.

Figure 4 is a broken face view of the block provided with internal braces and with the cementitious cover or casing, and

Figure 5 is a cross section on the line 5—5 of Figure 4.

In carrying out my invention the form of box which forms the bases of the block is not material except that it is preferably rectangular, as this shape is more convenient for use, but it may be a plain carton comprising the members 10 and 11 (see Figure 2) which have their edge portions shaped to fit one over the other in a well known manner. The box can be paper board, fibre board, or any other suitable cellulosic material, which is preferaby treated to make it firm and water and air proof, but this is best accomplished by coating the outside of the box with a layer of lead foil 12, which is closely incorporated with the box material, covers the joints, and the two parts of which do not meet, thus providing for better insulation. The invention is not limited to this form of seal, however. The box can be provided with holes 13 and 14 for admitting the gas and excluding air. For example a heavy gas like carbon dioxide can be admitted through the opening 13, and as it is heavier than air, it will force the air out through the opening 14, and when the box is filled with gas, both openings can be plugged or closed in any convenient way, or the air can be exhausted through one of the openings and the gas admitted through the other.

The box can if desired, either in its simple form or in its encased form, have one end concave as at 15 and the other convex as at 16, so that the edge of one block will fit snugly into the edge of the next adjacent block when the blocks are laid in a wall. If additional strength is desired, the box can be internally braced, as for example by braces or partitions 17 running from corner to corner as in Figure 4, and the partitions shown have openings 18 therethrough so that the gas can flow from one chamber to the other.

Where a substantial wall is to be made, the box above described can be covered with a cementitious casing 19 of gypsum, cement, or the like, and when thus made it will be to all intents a tile.

It will be seen that in either form the block affords a tight container for the insulating gas and that it can be laid in wall form as readily as can the ordinary brick or tile. If desired the blocks can be laid in cement, or they can be held in any convenient way

between exterior wall coverings. In fact the block can be used precisely as ordinary tile or brick.

I claim:—

1. As an improved article of manufacture, a heat insulating block comprising a gas tight box composed of like cellulosic material, said box being formed of a pair of telescopic sections, a coating of metal foil on the outside of said box, a casing completely surrounding said block and foil, and a casing contained within said block.

2. A heat insulating block comprising a pair of telescopic sections, a layer of metal foil partially surrounding said box on one side thereof, a second layer of metal foil partially surrounding said box on the other side thereof, said layers being spaced, and a gas within said block.

In testimony whereof, I have signed my name to this specification this 27th day of July, 1926.

WALTER LIGHT BODMAN.