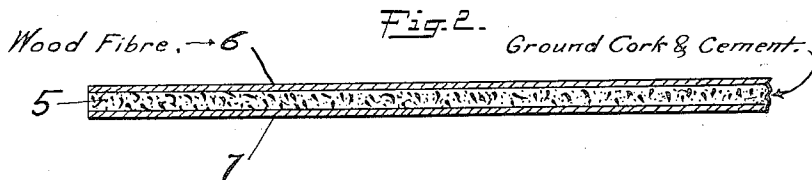
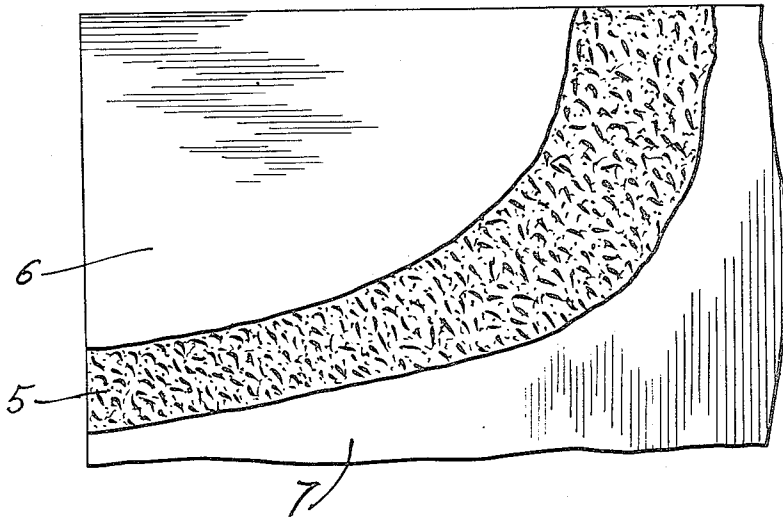


B. W. SIDWELL.
WALL BOARD.
APPLICATION FILED OCT. 20, 1917.

1,285,433.

Patented Nov. 19, 1918.

Fig. 1.



Inventor
Benjamin Wilson Sidwell
By his Attorneys
Pemie, Davis, Marvin & Edmonds

UNITED STATES PATENT OFFICE.

BENJAMIN WILSON SIDWELL, OF BUFFALO, NEW YORK, ASSIGNOR TO THE BEAVER COMPANY, OF BUFFALO, NEW YORK, A CORPORATION OF OHIO.

WALL-BOARD.

1,285,433.

Specification of Letters Patent. Patented Nov. 19, 1918.

Application filed October 20, 1917. Serial No. 197,557.

To all whom it may concern:

Be it known that I, BENJAMIN WILSON SIDWELL, a citizen of the United States, residing at Buffalo, in the county of Erie, State of New York, have invented certain new and useful Improvements in Wall-Boards; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to composite wall boards for use as a substitute for lath and plaster in building construction.

Some composite wall boards at present in use are made with a filling of plaster which gives to the boards many of the disadvantages of ordinary plaster construction besides adding to their weight and rendering them dirty to work with. In an attempt to overcome the disadvantages of plaster filling, various compositions have been suggested for use between the outer plies of a wall board but while these substances are cleaner and obviate many of the disadvantages of plaster fillings many of them impart to the resultant structure such characteristics as to make it unsuitable for use under ordinary conditions. This is especially the case with composite wall boards formed of dense plies which afford but poor heat insulation and have unnecessary weight.

The present invention aims to avoid the disadvantages of prior constructions of this nature. The board herein claimed is of considerable strength, while at the same time, is of light weight. It is cheap to manufacture, durable in service and neat in appearance. It may be conveniently worked with ordinary tools and is clean to use. It is relatively unaffected by atmospheric moisture or climatic changes, is a good heat and sound insulator, and, being to some extent fire resistant, it may be used in the vicinity of radiators, stoves and the like without danger of disintegration from the heat. It possesses the property of being proof against white ants and certain other insects, and thus is especially suitable for use in localities where these are troublesome.

The foregoing advantages and others which will hereinafter appear, are attained by providing a filling or inner ply of porous material as hereinafter described, and securing or cementing it between ordinary

outer plies of wood pulp, news, or chip board. Ground cork, made into a plastic mass with a small quantity of binder, such as sodium silicate, is suitable for this filling or inner ply of the board, but in case it is desired to produce a somewhat cheaper board, a mixture of ground cork and certain other waste materials may be used.

The principal features of the present invention will appear more clearly from a detailed description of certain embodiments thereof as shown somewhat diagrammatically in the accompanying drawing in which Figure 1 is a face view of the article with the layers broken away to show the general construction and Fig. 2 is a section through the article.

In one embodiment of the invention, the filler 5 is composed of ground cork of for instance 8 to 20 mesh size. This is a cheap waste material. The particles of cork are cemented together with silicate of soda solution of approximately 40° Baumé. The cork contains a pitch or gum-like substance which prevents it from absorbing much of the silicate solution, and consequently the desired plasticity can be obtained at small cost for binder. A suitable proportion is 5 parts by weight of ground cork to 3 parts by weight of the silicate of soda. Each small piece of cork simply becomes coated on its surface, with very little absorption. A ply containing this low percentage of silicate can be conveniently worked with ordinary carpenters' tools and in this respect has many advantages over boards with a high silicate content or with a filling of plaster.

The filler described above is cemented between outer plies 6 and 7 of any suitable fiber such as wood pulp, news, or chip board, and in accordance with the usual practice, in the manufacture of wall board, the resulting rigid sheets may be from 4 to 16 feet long and from 2 to 6 feet wide and have a total thickness of about $\frac{1}{4}$ of an inch, the outer plies being each preferably of a thickness of about .035". Sodium silicate cement either with or without an admixture of clay, may be used for cementing the several plies together.

In case it is desired to produce a cheaper board than can be manufactured by using cork as the porous material for the filler, waste materials such as coarse saw-dust, rice

hulks, peanut shucks, ground cotton stalks and the like may be mixed with a certain amount of cork to produce a mixture which will possess most of the advantages of the cork filler, but at the same time be cheaper to manufacture. It has been found that waste materials, such as mentioned above, can be substituted up to 50 to 75 per cent, depending on the physical characteristics and moisture repelling qualities of the substituted material. The outer plies may be treated with any desired sizing or water proofing in known manner and the board will have smooth outer surfaces well adapted for ornamentation.

The composite sheets described above are light in weight, sound deadening and heat insulating because of their central filler of highly porous material and they are rigid, strong and resistant to puncture because of the outer plies of tough fibrous material. The silicate cement holds all of the layers together and increases the strength of the board, while at the same time preventing any danger of the plies separating under ordinary conditions of heat or moisture. It will be understood that the proportions and arrangements of the component parts of the board need not be exactly as illustrated in the drawing nor as described in the specification since variations in the material used for the filler, the size of its particles, the character of the binding solution and the di-

mensions of the sheets may be varied without departing from the principle of the invention.

I claim:

1. A rigid multi-ply wall board having dense tough outer plies of fiber board and an inner ply of coarsely ground cork rendered coherent by an admixture of less than its own weight of a binder of sodium silicate.

2. A rigid multi-ply wall board having dense tough outer plies of fiber board and an inner ply of coarsely ground cork rendered coherent by an admixture of sodium silicate in the approximate proportions by weight of five parts of cork to three parts of sodium silicate.

3. A multi-ply wall board having dense outer plies of wood fiber and an attached porous inner ply containing from 25 to 100 per cent. of coarsely ground cork and the remainder of coarsely ground waste material, the cork and waste material being held together by a relatively small quantity of sodium silicate; substantially as described.

4. A rigid multi-ply wall board having dense tough outer plies of wood fiber and a porous inner ply consisting substantially of ground cork of about 8 to 20 mesh held together by sodium silicate in the proportions by weight of five parts of cork to three parts of 40° Baumé sodium silicate.

In testimony whereof I affix my signature.
 BENJAMIN WILSON SIDWELL.