M. S. SANDERS.

PLASTER FABRIC.

APPLICATION FILED JULY 16, 1913.

1,158,861.

Patented Nov. 2, 1915.

2 SHEETS—SHEET 1.

Fig. 1

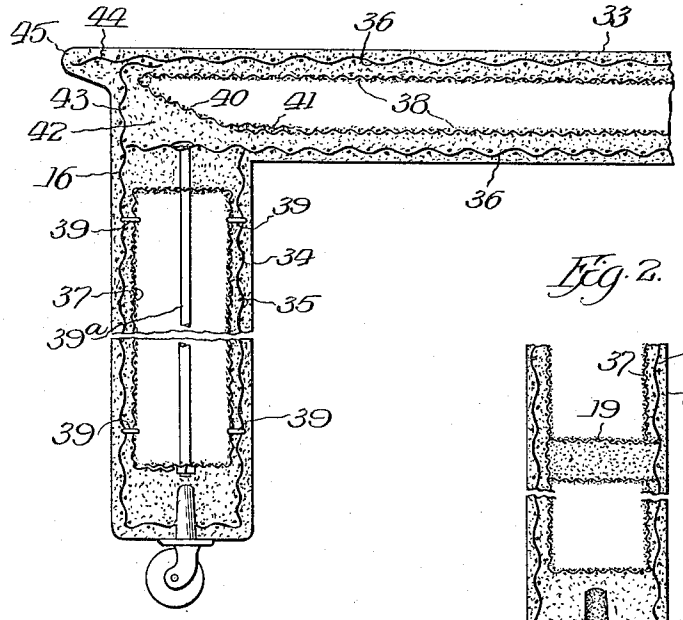


Fig. 2.

Fig. 3

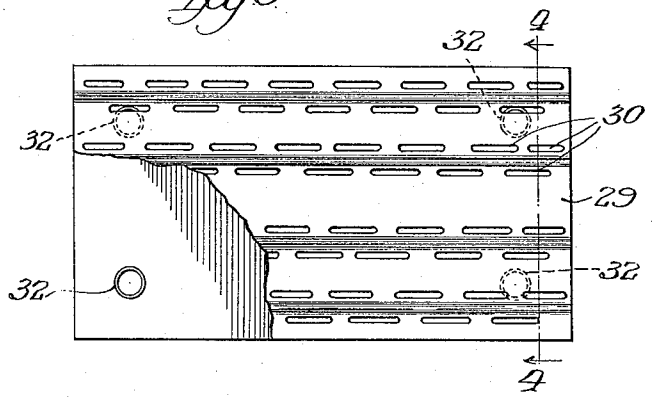
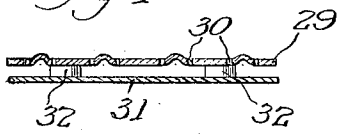


Fig. 4



Witnesses:
Geo. Gharrison
W. P. Kilroy

Inventor:
Milton S. Sanders,
By J. F. Jochum, Jr.
Atty.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 5.

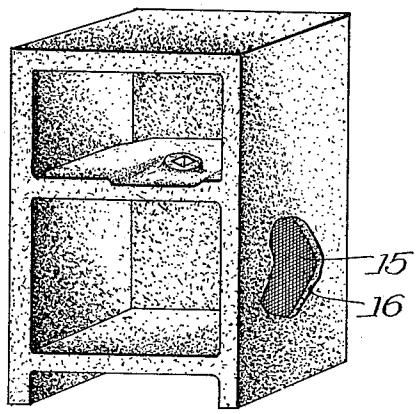


Fig. 6

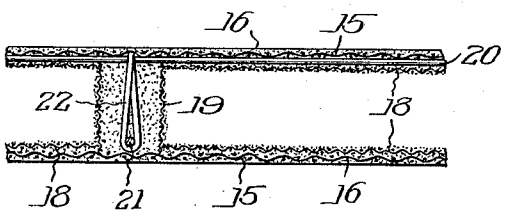


Fig. 7



Fig. 8

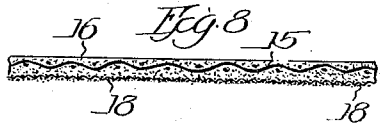


Fig. 9.

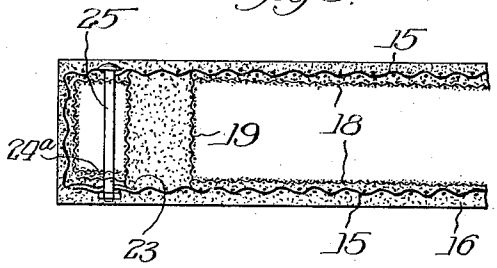
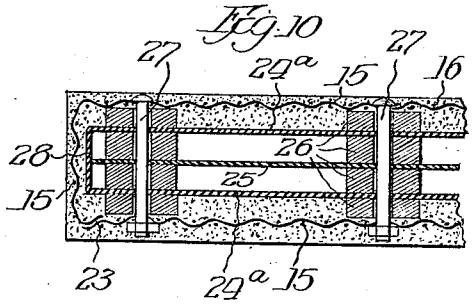


Fig. 10



Witnesses

Geo. C. Dyer

W. P. Kilroy

Inventor

Milton S. Sanders,

By J. F. Jochum, Jr.

Atty.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MILTON S. SANDERS, OF TRAVERSE CITY, MICHIGAN.

PLASTER FABRIC.

1,158,861. Specification of Letters Patent. Patented Nov. 2, 1915.

Application filed July 16, 1913. Serial No. 779,238.

To all whom it may concern:

Be it known that I, MILTON S. SANDERS, a citizen of the United States, residing at Traverse City, in the county of Grand Traverse and State of Michigan, have invented certain new and useful Improvements in Plaster Fabrics, of which the following is a specification.

This invention relates to improvements in what might be termed a plaster fabric, particularly adapted, though not necessarily limited in its use for the manufacture of furniture and the like, and which may be employed in place of wood, and which at the same time will be more durable than wood, and one of the objects of the present invention is to render it possible to use such fabric in the manufacture of such articles, without materially increasing the weight of the article, and at the same time give to the material of which the fabric is constructed, new functions and useful properties, resulting further in the production of a new and useful article of commerce.

To the attainment of these ends, and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty, in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating the invention and in which—

Figure 1 is a detail sectional view of a portion of an article of furniture formed of a fabric, constructed in accordance with the principles of this invention. Fig. 2 is a view similar to Fig. 1 showing another manner of using the fabric. Fig. 3 is a top plan view of one form of reinforcing element. Fig. 4 is a sectional view taken on line 4—4, Fig. 3, showing the backing coöperating with the element to regulate the length of key of the material. Fig. 5 is a perspective view partly broken away of another article of furniture formed of a fabric constructed in accordance with the principles of this invention. Fig. 6 is a view in section showing a manner in which this fabric is employed when constructing an article having hollow walls. Fig. 7 is a view in section of one form of the fabric. Fig. 8 is a view similar to Fig. 7 of another form of the fabric. Fig. 9 is a view similar to Fig. 6 showing another manner of employing the fabric in constructing hollow walls. Fig. 10 is a view similar to Fig. 9 showing still another manner of employing the fabric in the construction of hollow walls and also showing insulating elements used in connection with the fabric.

Referring more particularly to the drawings and in the present exemplifications of this invention, and referring more particularly to Figs. 7 and 8, the numeral 15 designates a reticulated fabric, which is not only flexible but is preferably elastic and the numeral 16 designates the body of the fabric, which is constructed of any suitable plastic material. This material is placed upon the face of the material 15 so as to form a coating for the face and is worked over the face so that portions of the material will pass into the apertures of the reticulated material to form keys for anchoring the body 16 and for securing the parts together.

It is sometimes desired to construct an article from this fabric and at the same time employ a minimum amount of the plastic material so as to insure lightness and at the same time cause the material and reinforcing element to be secured together. In order to accomplish this, and to provide a means whereby the size of the keys, and the portion of the material which projects through the aperture in the reinforcing element may be regulated, another element 17, in Fig. 7 is provided which may be imperforate, or the element 18, shown in Fig. 8, may be provided, which is itself reticulated. These respective elements 17 and 18 are connected with the reinforcing element 15, before the plastic material is applied to the latter, and are spaced from the element 15 the proper distance, according to the size of keys desired. The plastic material 16 is then applied to the element 15 and the portions of the plastic material which extend through the apertures, contact with the respective element 17 and 18, and thereby regulate the size of the keys. In the form shown in Fig. 8, portions of the material will also enter the apertures in the element 18, the apertures in which latter element are preferably of a size somewhat less than the apertures in the element 15.

In Figs. 6, 9 and 10, a fabric is shown as being employed in constructing articles having hollow walls, and each of the walls are constructed in the manner similar to the manner in which the fabric shown in Figs.

7 and 8 is constructed, but the two walls are held spaced from each other by means of a spacing element 19, which may be of any desired size and configuration and constructed of any suitable material, but is preferably constructed of retriculated material, and is tubular in cross-section. When these spacing elements 19 are employed, the elements 18 are apertured so as to receive the respective extremities of the spacing element 19, and these extremities contact with the respective elements 15, and may, if desired, be secured thereto, in any suitable manner, such as by tying or the like. The element 18 may also be held in position in any suitable manner such as by tying it to the element 19 or to the element 15. The plastic material 16 is then applied to the elements 15 and worked over the faces thereof, and as the spacing elements 19 are approached, the plastic material is forced into the elements by any suitable instrument, and may be forced thereinto through the apertures in the elements 15.

If desired and where the walls of the article are of some area, additional reinforcing elements 20, 21, preferably in the form of bars or rods, may be employed and these elements 20—21 are arranged between the respective elements 15 and 18. The bars of one of the walls extend preferably transversely with respect to the bars of the other wall. Tie wires 22 may be employed if desired, and if so employed are preferably arranged within the tubular elements 19, and they pass over the elements 20 and 21 for securing them together. When the tubular elements 19 are filled with the plastic material, the tie wires 22 will be embedded therein.

In Fig. 9, there is shown the manner in which the ends of the spaced walls are connected to form closures for the space therebetween. This is accomplished by extending one of the elements 15 across the space between the walls and then overlapping its extremity 23 with the adjacent extremity of the element 15 in the opposite wall. One extremity of the element 18 is extended in a similar manner and overlaps the opposite element 18 as at 24^a. A fastening device 25, such as a bolt or the like is provided for securing these overlapping extremities, and which fastening device is embedded in the material 16 when the latter is applied to the elements 15.

In Fig. 10 the ends of the elements 15 of the spaced walls are overlapped in a manner similar to that shown in Fig. 9 as at 23, and in the place of the elements 18, insulating material 24^a are employed, which latter form the backings for the elements 15, and serve an additional function of regulating the size of the key of the material 16. If desired, another insulating element 25 may be employed and if so, is arranged between the elements 24^a. All of these elements 24^a, 25 are spaced from each other by spacing devices 26, the end devices engaging the respective elements 15, and fastening devices 27 such as bolts or the like are provided for securing the parts together. These fastening devices pass through the spacing elements 26 as shown, and also preferably through the insulating material 24^a, 25. If desired one extremity of one of the insulating elements 24^a, may be extended as at 28 to overlap the ends of the other elements, so as to form a closure for the space therebetween and to also act as a backing for the adjacent portion of the element 15.

In Fig. 5 there is shown one article of furniture constructed of this fabric and in which article spaced walls are employed to form dead air spaces. The article is constructed by first forming a frame of the fabric, or rather of the elements 15, 18, 19, etc., and then the plastic material is applied.

In all of the forms of the invention thus far described, the element 15 is shown as being constructed of wire fabric, which is capable of being readily shaped, while at the same time it will be elastic to permit the surface to yield slightly.

In Figs. 3 and 4 another form of element is shown, which may be employed in place of the element 15. This element 29 comprises a sheet of elastic material such as metal or the like, which is provided with elongated apertures 30 and a backing 31 cooperates with the element 29 and is secured to and held spaced therefrom by means of suitable spacing elements 32.

In Fig. 1 there is shown a portion of another article formed of this fabric and this embodies a support 33 and a leg 34. The body of the support 33 is formed in a manner similar to that already described and the leg is also formed in a similar manner but in this instance the reinforcing element 35 is tubular and one end is connected to the adjacent element 36 in any suitable manner such as by tying, and arranged within the tubular element 35 and spaced therefrom is another tubular element 37, which is also preferably constructed of a reticulated material, of a finer mesh, or having smaller openings. This element 37 serves in the same capacity with respect to the element 35 as the element 38 serves with respect to the element 36, and the element 18 with respect to the element 15. Securing devices 39 such as tie wires or the like, may be provided for connecting the element 37 with the element 35 and for holding the former in position. In order to strengthen the portion of the article adjacent the edge, and also adjacent the point where the leg joins the support 33, one ex-

tremity of the element 38 is shaped as at 40 and the extremity of the portion 40 is arranged to overlap the element 38 of the other wall as at 41, thereby forming a space 42 of some size, adjacent the point where the leg joins the support and into which space the material 16 is forced.

One end of one of the elements 36 may be extended beyond the portion 43 of the other element 36 as at 44 and about which end the material is shaped to form the projecting ledge 45.

The manner of employing this improved fabric in the construction of an article, preferably portable articles and articles of furniture although the present invention is not to be limited in this respect, is as follows. The article to be constructed is shaped from a reinforcing element 15, 36 or 29, whichever form of element is to be employed, and the proper shape is given to the article in substantially all respects, to form a frame. The additional element, which for the want of a better term has been designated in this specification as a backing, if employed, is secured or connected with the reinforcing or main element, either before the latter is shaped to form the article, or at any stage in the process of shaping, which is convenient for the maker. If the frame is composed of several parts, the parts are then secured together. The plastic material is then applied to the frame thus formed by giving the frame a coating of the material and at the same time working the material over the face of the frame with any suitable instrument. This is done for two reasons, first to smooth the material and, secondly, to force some of the material through the apertures in the reticulated element to form keys, after which the material is allowed to set. When thoroughly set and dry, the article is then ready for use.

Any suitable plastic material may be employed, which is adapted for the purpose, and when the article is completed, it will be of a minimum weight, owing to the fact that by the employment of the frame work which forms a body for the coating of plastic material, the latter need not be applied thereto, very thickly. When the fabric is employed for the construction of articles having hollow walls, or where it is necessary to insulate the walls against heat, the usual packing, such as mineral wool is dispensed with, and with this fabric it is not even necessary in such instances to employ the insulation employed in Fig. 10, although the latter may be employed if desired.

In order to exclude moisture, the fabric is rendered impervious to moisture in any suitable manner such as by applying a coating of water proof material to the article when completed, or the plastic material may be rendered impervious to moisture before it is applied to the frame work.

While it is to be understood that this invention of fabric is not to be limited to the use of any particular material in this composition, it has been found in practical use that a composition known as "Kellastone" is very efficient in the construction of the fabric, which material is rendered impervious to moisture while in its plastic state.

It is also to be understood that while the preferred forms of constructions and arrangements have been herein shown and described, many changes may be made in the details of construction, and in the combination and arrangement of the several parts without departing from the spirit of this invention.

Obviously, with the form of the invention as shown in Fig. 8, the element 18 may be omitted and then when the plastic material is spread upon the face of the re-inforcing element 16, portions thereof will be forced through the reticulated element to form small keys or projections adjacent the other face of the element, resulting in a rough or undulated surface. To this surface after the material has become set, another thin surface of plastic material may be applied to form a single wall with two finished surfaces. Likewise when the element 18 is employed, the rough or undulated surface formed by portions of the plastic material projecting therethrough may have applied thereto a coating of plastic material to smooth and finish such surface.

What is claimed as new is:

As an article of manufacture, an article of furniture embodying a hollow frame shaped of flexible reticulated material and into substantially the form of a finished article, spacing means disposed between the adjacent walls of the frame for holding them apart, plastic material applied and anchored to the face of the frame, and means secured within the frame and in close proximity to each wall thereof and coöperating with the respective walls for regulating the sizes of the keys of the plastic material and defining the inner face of the wall.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 9th day of July A. D. 1913.

MILTON S. SANDERS.

Witnesses:

HARVEY MORRISON,

W. E. KEITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."