(No Model.)

A. J. PARIS.

FIRE PROOF PLASTER CLOTH FOR CEILINGS AND WALLS.

No. 401,967. Patented Apr. 23, 1889.

Fig. I.

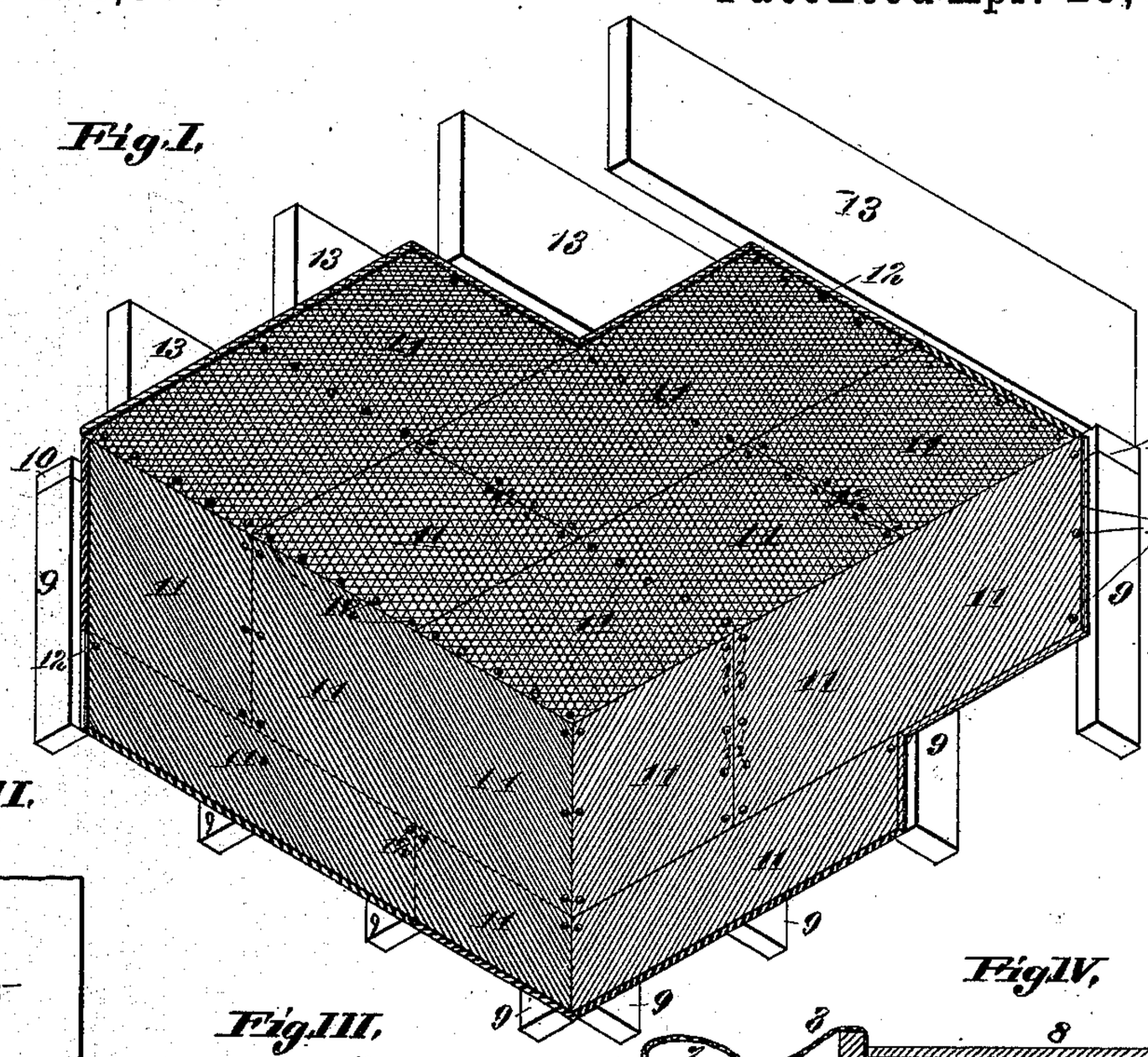


Fig. XIII.

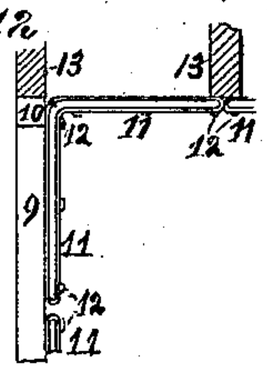


Fig. II.

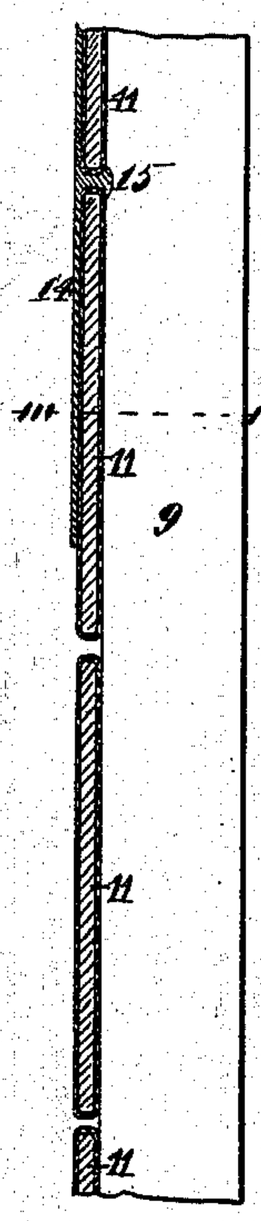


Fig. III.

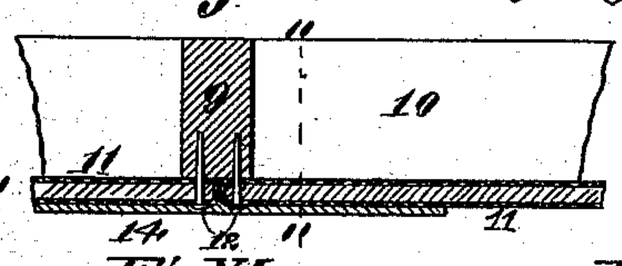


Fig. IV.

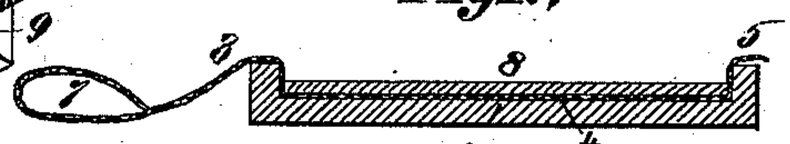


Fig. V.

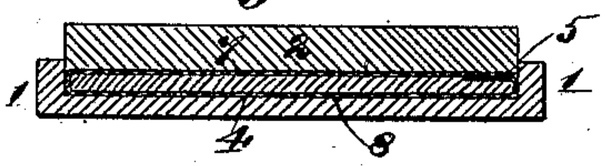


Fig. VI.

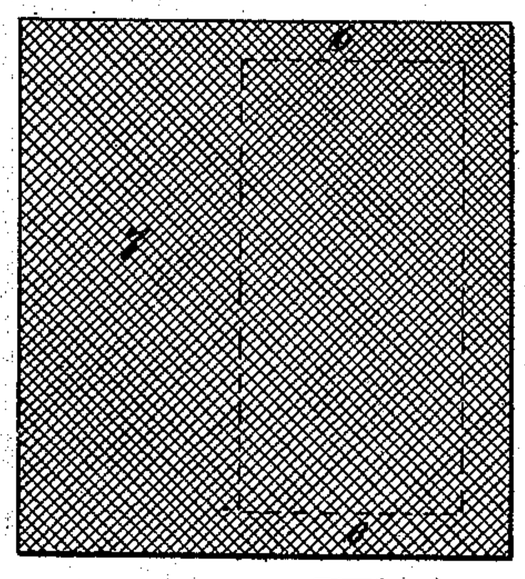


Fig. VII.

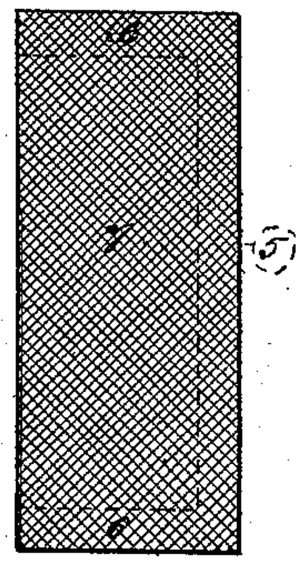


Fig. VIII.

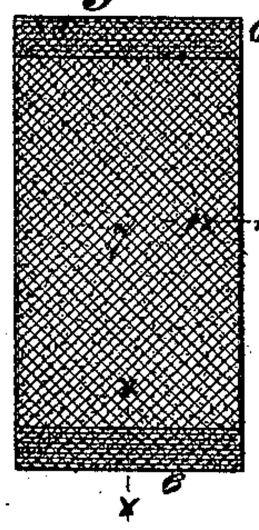


Fig. IX.

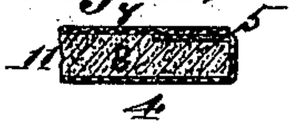


Fig. X.

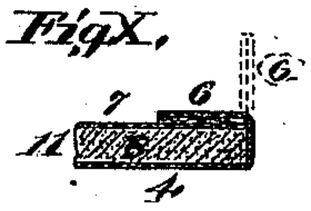


Fig. XI.

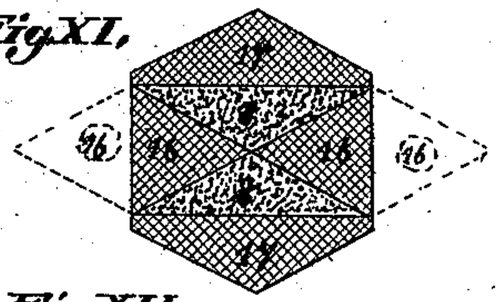
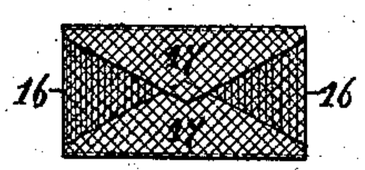


Fig. XII.



Attest;
G. N. Hinchman Jr
E. Arthur.

Inventor;
Alfred J. Paris.

By Knights Bro's.

Atty's.

UNITED STATES PATENT OFFICE.

ALFRED J. PARIS, OF ST. LOUIS, MISSOURI.

FIRE-PROOF PLASTER-CLOTH FOR CEILINGS AND WALLS.

SPECIFICATION forming part of Letters Patent No. 401,967, dated April 23, 1889.

Application filed February 27, 1889. Serial No. 301,379. (No specimens.)

To all whom it may concern:

Be it known that I, ALFRED J. PARIS, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Fire-Proof Plaster-Cloths for Ceilings and Walls, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention is an improvement on an application that I have now pending before the Patent Office, Serial No. 293,233, and it relates to a fire-proof plaster-cloth molded in sections, in which the plaster is completely inclosed within burlap or other fibrous material, except such portion as oozes through said burlap, and thus helps to protect the cloth which incloses the plaster; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a detail perspective under view of the ceiling and face view of the walls of a room with its studs and joists to which my plaster-cloth blocks have been secured. Fig. II is a detail vertical section taken on line II II, Fig. III, and shows one of the studs of the wall with an edge view of my plaster-cloth blocks secured to it and a section of the finishing coat applied, with the clinch between the blocks. Fig. III is a detail horizontal section taken on line III III, Fig. II, and shows a stud of the wall with an edge view of my plaster-cloth blocks secured to said joists and a section of the finishing coat applied, the stud being surmounted by the usual stringer that supports the joists. Fig. IV is a vertical section of the mold in which the block is formed, and shows the burlap laid within the same and the intermediate layer of plaster laid thereon. Fig. V is a vertical section of the mold with the cloth plaster-block inclosed therein, and shows the burlap folded around the plaster and the compressor aced thereon. Fig. VI is a top view of a section of the burlap as it is placed in position on the mold, the said mold beneath being shown in broken lines. Fig. VII is a like view with the upper flap of the burlap folded over the plaster. Fig. VIII is a top view of one of the blocks with the margins of burlap that extend along the open side and ends beyond the mold turned inward and folded over the block, so that the plaster may be firmly held on all sides by the folded burlap. Fig. IX is a detail transverse section taken on line IX IX, Fig. VIII, and shows the marginal side edge of burlap folded inward on the block and the main lap of the burlap folded over it, the double lap being brought into level outline by the pressure of the follower in the mold, as shown in Fig. V; and Fig. X is a like view of the end of the block, taken on line X X, Fig. VIII, the marginal end fold being turned inward over the main fold previous to its pressure into uniform outline by the follower in the mold. Fig. XI is a top view of one of the blocks in the process of formation, the burlap (instead of being in the previously-described rectangular form) being cut in an irregular angular shape approximating the form of a letter-envelope blank, the end overlaps alone folded. Fig. XII is a like view, the overlaps being all folded. Fig. XIII is a vertical detail section of a joint corner of the ceiling-wall, showing my device when I break joints at said corner turns by bending alternate plaster-blocks around said corner.

Referring to the drawings, 1 represents the mold in which the plaster-blocks are formed, and 2 is the follower that compresses and equalizes the upper outline of the block, and which may be operated by any suitable screw or lever press frame.

3 represents the burlap or other suitable fibrous or other material in which the plaster of the block is inclosed, which material, as shown in Figs. IV and VI, is first laid in and around the mold, having a bottom layer, 4, a marginal extension, 5, on one side of the mold, like extensions, 6, at its ends, and a sufficiently wide extension, 7, of said material on the remaining side to fold over and cover the layer of plaster, 8, that is placed on the burlap or other fibrous material within the mold.

I prefer to construct the plaster in accordance with the following formula, although the proportions may be slightly varied, according to the position that the plaster is to occupy: About thirty-two per cent. quicklime, about thirty-two per cent. plaster-of-paris, about sixteen per cent. sand, about sixteen per cent. pulverized coke, and about four per cent. glue,

to which is to be added, or may be added, a suitable amount of hair to bind the plaster, in conjunction with the glue, with the usual amount of water to bring the material into plastic condition.

While the bounden quality of the plaster may be improved by the addition of the hair, yet, as the plaster-blocks are completely inclosed and held within the folded burlap, a serviceable block may be constructed for some purposes without the use of hair.

9 represents the partition-studs, onto which and onto the stringer 10 the plaster-cloth blocks 11, that cover the walls, are secured by nails 12. 13 are the joists that rest on said stringers, and to which the ceiling-blocks (also marked 11, as the counterparts of those attached to the wall) are secured by nails 12.

14 represents the finishing-coat of plaster that is spread on the blocks, and 15 are the clinches between the plaster-blocks, which reenforce the hold of the plaster to the blocks.

The operation of construction of the sections or blocks of plaster-cloth is as follows: A piece of burlap or other suitable material is cut of adequate size, as shown in Fig. VI, for folding around and forming a tight inclosure of the plaster to prevent it cracking and disintegrating. The said section of burlap being cut, it is laid in and over the mold 1 in the position shown in Fig. IV, so as to have a sufficient supplemental width on one side the mold to lap over the plaster-block when it is counterlapped and sufficient supplemental margins on the other side and ends of the mold for folding back, so as to safely inclose and hold in the plaster. The section of burlap having been placed in position, as stated, and shown in Fig. IV, a suitable amount of the plaster, which has been prepared according to the formula already described, is laid on the burlap in said mold, as is also shown in the same figure. The narrow marginal edge 5 may then be lapped or folded over on the plaster, as shown in Figs. V and IX. The wide supplemental portion 7 of the burlap is then folded over said plaster, as shown in said figures, entirely covering, or nearly so, the plaster and the narrow marginal side fold that has, as stated, been previously folded, as shown in Figs. V and IX.

While I have shown and described the narrow side margin, 5, as first folded over and the wide lap after, and that is my preferred course of procedure, yet I do not confine myself to that rotation, for the wide lap may, if desired, be first turned over and the narrow one after. In either case, after the two side counterlaps have been folded, then the two narrow end laps are folded over inward, as shown in Fig. X, and said projecting ginal end edges, which when first folded over, as shown in said figure, break the regularity of outline on the top of the block, are forced down into the plastic plaster of the block by the pressure of the follower or compressor 2.

16 represents the end folds, and 17 the side folds, of the burlap when the burlap-blank is cut, as shown in Figs. XI and XII, approximating the shape of the blank of a letter-envelope.

For some kinds of plastering I prefer to cut the burlap-blank and fold it in the latter-described form, as it produces no multiple edge folds at the edges, only producing a double lap where the margins of the side folds overlap the edges of the end folds. This arrangement produces a manifold alone at the junction of the corners of the folds in the center of the block, which is easily pressed in the mold by the compressor to effect a uniform outline on top, and which manifold, it will be seen, comes immediately in contact with the joist or stud, as the case may be, and one of the attachment-nails, passing through the center of the block, in consequence passes through said manifold ply and securely holds the same.

In Fig. XIII is shown my device for breaking joints at the junction corners between the ceiling and wall, in which alternate blocks are made to form united ceiling and wall blocks to prevent the very common cracking of the plaster at said corner junctions of the ceiling and wall plaster. To easily effect the bending of the block, I score or cut the burlap across the middle of said block, as shown at 19, which definitely lays out the corner line and removes the main obstruction to effecting the bend—viz., the adverse brace of said burlap. It will be seen that the round turn of the burlap as it encompasses the plaster provides a catch-hold for the finishing coat of plaster that is applied after the attachment of the blocks, even when said blocks are nailed immediately in juxtaposition to each other; but I prefer to attach them, as shown in Fig. II, with a slight intervening space, 18, between them, which provides an opportunity for the mortar of said finishing coat to be forced through and form the clinch 15. It will be seen that even where the junction-line follows under and in line with a joint still even then the round edges of the block provide a light curvilinear clinch that is of decided advantage in securing the adhesion of the finishing coat.

As the plaster is entirely incased within the burlap, the folds of which turn around its edges, it is held and firmly bound against disintegration; also, being so bound, a much thinner layer of plaster is effectual to do the work required than is necessary without said binding. The blocks are, in consequence, thin, light, and easily handled, and, when required, bent around curves or corners; also, in driving the nails for the attachment of the blocks the plaster is securely held by the inclosing burlap from disintegration. Did not the burlap constitute the outer layers and bind around the edges of the block, there would be effected no encompassing binding influence that could effectually held the plaster from disintegration during the concussion from the driving of the nails.

I do not confine myself to burlap for the envelope of the plaster, for, while that is my preferred material, any other suitable fiber, as stated, may be advantageously used.

In the construction of the sections or blocks of the plaster-cloth, the said blocks are generally molded about thirty-two inches long, which is of sufficient length to reach across two spaces between joists or studs, as the case may be, to which they are secured by nails at the ends and middle, without the intervention of lath, the use of which combustible material is thereby entirely avoided. My preferred width for said blocks is about sixteen inches; but I do not confine myself to the above-mentioned length and width, which may vary according to the uses for which it is required and the convenience of the plasterer.

It is preferred to leave the blocks in the mold in which they are pressed for about five minutes, when they are sufficiently set, so that they can be removed therefrom and the molds vacated for future use. Now, it will be seen that not only by the entire enveloping of the plaster-blocks with the burlap are said blocks firmly held and bound against disintegration in the process of attachment, and afterward from the settling of buildings and other causes, but also another very important feature in their application is that the plastering of a building by this system can be completed at once. The workmen do not require to wait for the shrinkage and setting of one coat before the application of another. The finishing coat can be applied immediately after the attachment of the blocks. In practice it is generally preferred to first stop the intervening clinch-spaces between the blocks, and then immediately apply the finishing coat, so that it may engage in integral affinity with the plaster of the intervening stops and clinches. Again, as the plaster of the sections is set before their attachment to the studs and joists, and they are preferably attached in position to break joints, there can be no extended cracks in said plaster. It will also be seen that, unlike with common plastering, where each of the primary layers of the threefold coat has to settle, dry, and set before the application of the succeeding coat, and the whole has to season before the house is habitable, by the use of these previously-prepared plaster-blocks, on which alone is applied the thin finishing coat, houses can be inhabited almost immediately after completion.

The great danger from the use of lath when, in times of conflagration, the heat springs the lath, which then throws the plaster and then presents a highly-combustible media for the spread of the fire, is, by the use of these enveloped plaster-blocks, entirely avoided. Means for the avoidance of the use of lath where timber is scarce is also an advantage. Another use to which this fire-proof cloth is put is that of the background and sliding screens for theatrical scenic representations on the stage. For adaptation to that purpose the plaster-cloth may either be made in thin sheets of any breadth and length required, or may be secured in sections to a suitable movable frame, and in either case after erection it should receive its finishing surface-coat, which presents a smooth glossy surface for the representations to be painted thereon.

It will be seen that by the use of these fire-proof scenic slides on the stage a very fruitful cause of conflagrations in theaters would be avoided.

In conclusion I would state that the reason that hair was not stated in the formula as one of the ingredients that are used in the construction of the plaster (and it was only there stated that it might beneficially be added in certain cases) was that, as the fabric completely envelops the plaster and firmly holds it from disintegration, it exercises the functions of the hair and makes its use unnecessary in most cases; but when the plaster-cloth is constructed for use in the last-named purpose (for sliding screens for scenic representations) and other like uses a suitable amount of hair in the composition of the plaster is preferred, so as to re-enforce it and enable it to withstand the vibrations consequent on the sliding of the screens.

I claim as my invention—

1. In fire-proof plaster-blocks for ceilings and walls, &c., the combination of the plaster layer 8, and the enveloping burlap or other fiber layers and folds that entirely inclose it, substantially as described, and for the purpose set forth.

2. In fire-proof plaster-blocks for ceilings and walls, &c., the combination of a layer of plaster constructed in accordance with the formula specified and the envelope of burlap or other fiber on which said layer of plaster rests and extensions of which fold over both sides and ends of said plaster layer and are arranged to hold it from disintegration, substantially as described, and for the purpose set forth.

3. In fire-proof plaster-blocks for ceilings, walls, &c., the combination of the enveloping layers of burlap or other fiber and the intervening layer of plaster, composed of quicklime, plaster-of-paris, sand, pulverized coke, and glue, as herein specified, the burlap being folded entirely around the plaster and its meshes filled therewith, substantially as described, and for the purpose set forth.

4. In fire-proof plaster-blocks for ceilings, walls, &c., the combination of the plaster layer 8, constructed in accordance with the formula herein specified, the burlap or other fibrous cover that entirely envelops said layer and holds it from disintegration, the burlap on one side across the middle of said

the other, substantially as described, and for the purpose set forth.

5. In fire-proof plaster-blocks for ceilings, walls, &c., the burlap envelope-blank cut in approximate form to that of the letter-envelope, the central oblong portion of which blank fits within the mold in which the blank is pressed, the plaster layer 8, composed of quick-lime, plaster-of-paris, sand, pulverized coke, and glue as herein specified, the angle flaps 16 and 17 of said burlap or other fiber cloth being folded over said plaster-envelope to entirely inclose the same and hold it from disintegration, substantially as described, and for the purpose set forth.

ALFRED J. PARIS.

In presence of—
BENJN. A. KNIGHT,
SAML. KNIGHT.