No. 734,289. PATENTED JULY 21, 1903.

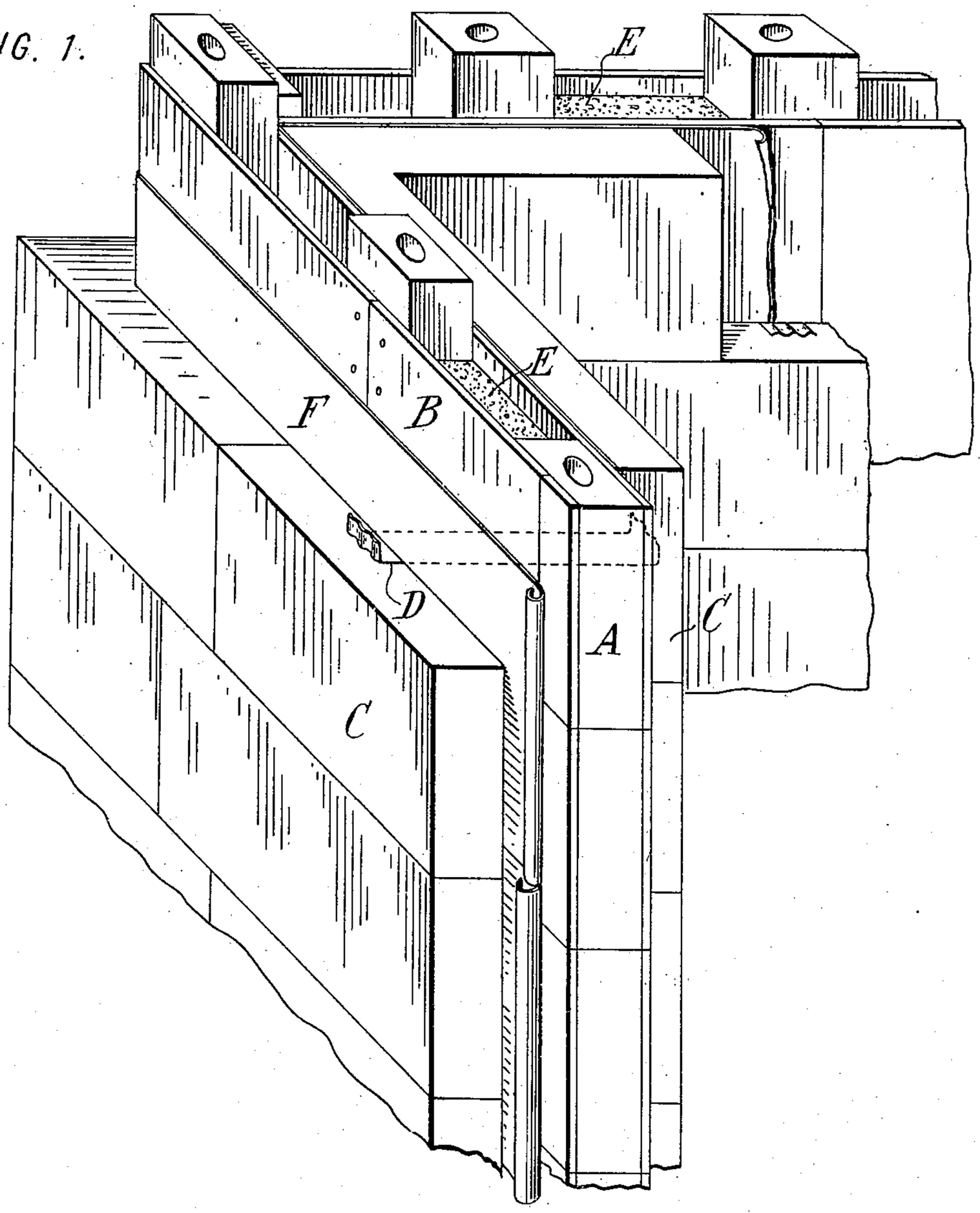
W. N. WIGHT.

WALL.

APPLICATION FILED NOV. 12, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.



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NO MODEL. 2 SHEETS—SHEET 2.

FIG. 2.

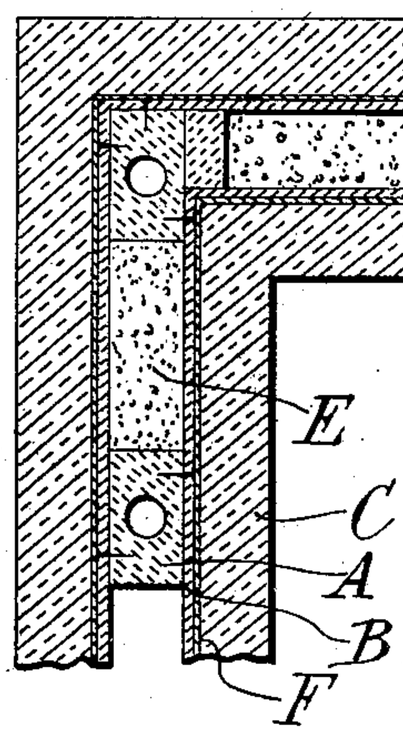


FIG. 3.

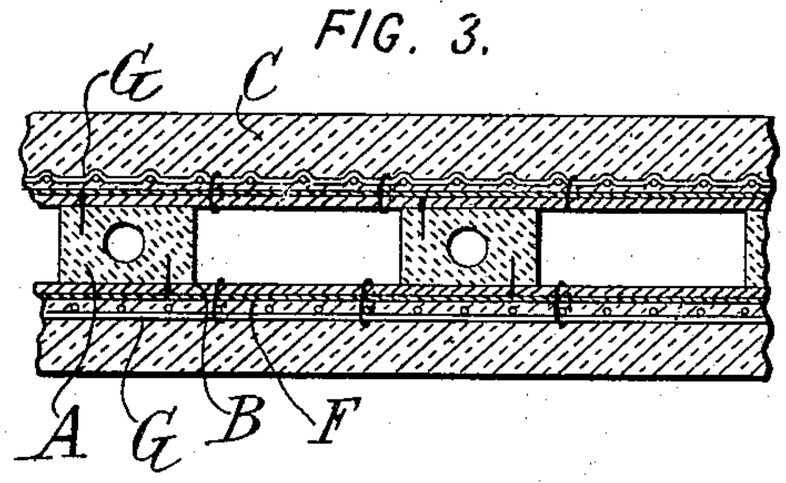


FIG. 4.

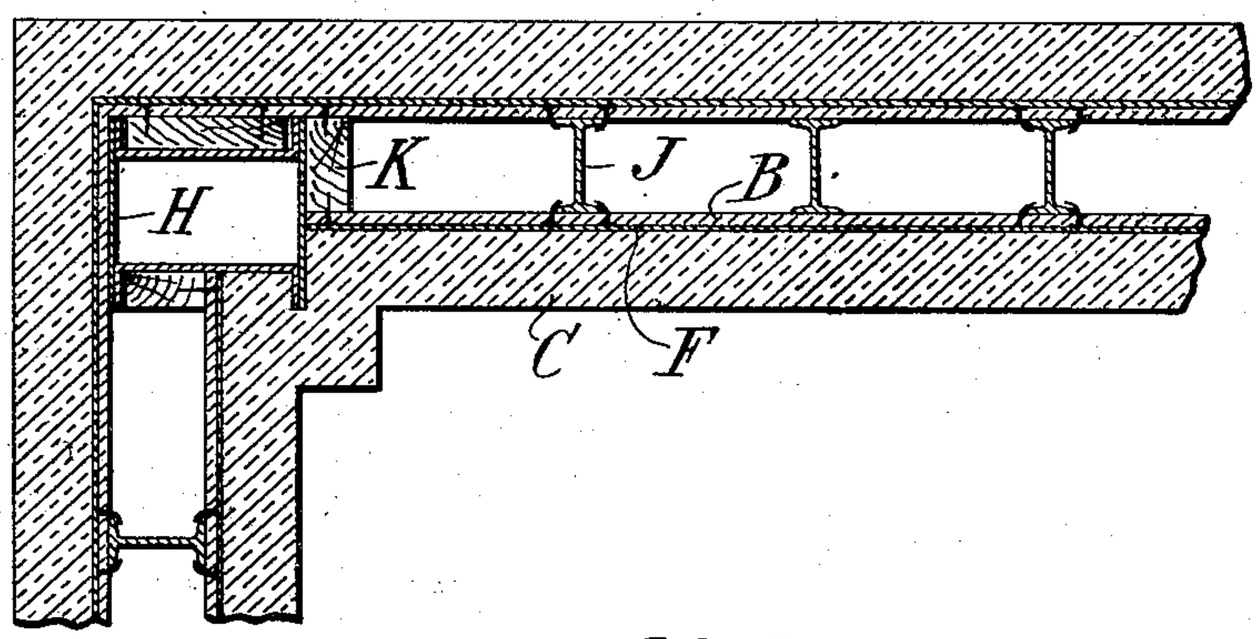
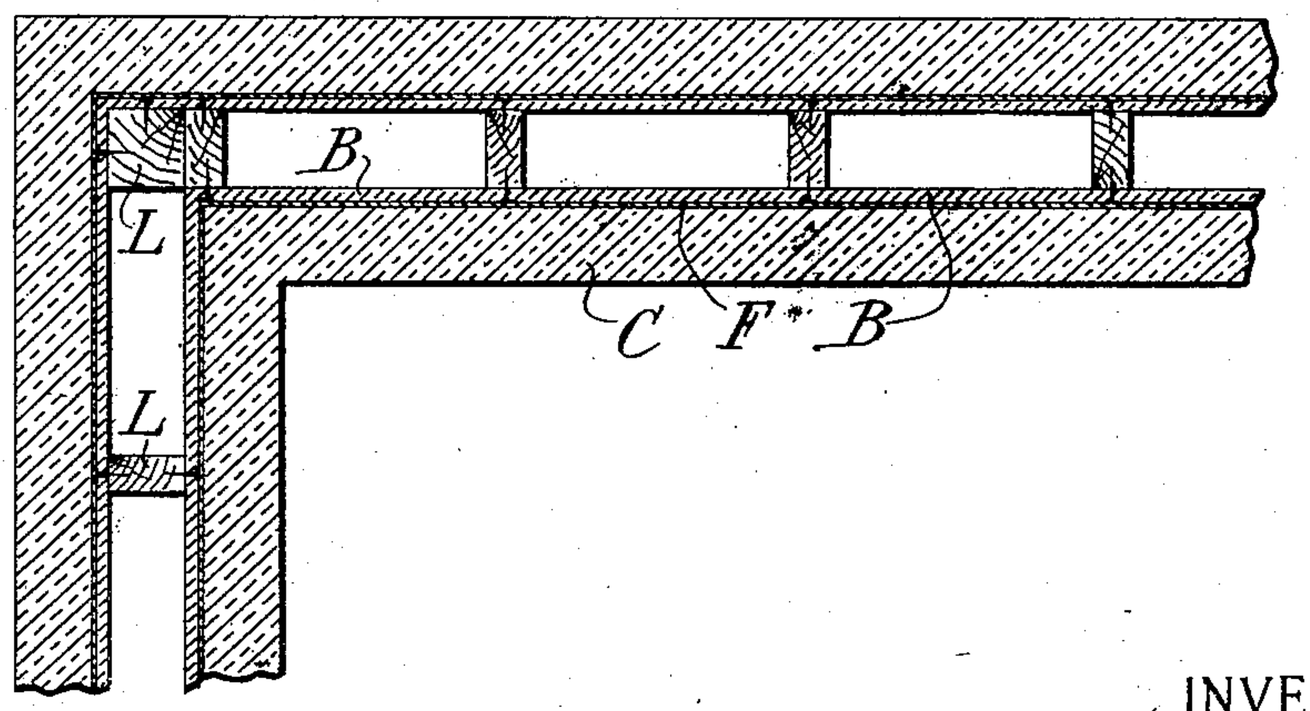


FIG. 5.



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No. 734,289. Patented July 21, 1903.

UNITED STATES PATENT OFFICE.

WILLIAM N. WIGHT, OF NEW YORK, N. Y.

WALL.

SPECIFICATION forming part of Letters Patent No. 734,289, dated July 21, 1903.

Application filed November 12, 1902. Serial No. 131,006. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. WIGHT, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Walls, of which the following is a specification.

My invention aims to provide certain improvements in walls, whereby they may be constructed chiefly of masonry and will be perfectly fire, sound, and damp proof. The wall is especially designed for buildings such as storehouses, where it is desirable to prevent the quick transmission of changes of temperature in the atmosphere or to prevent passage of any moisture whatever. Various other advantages are specified in detail hereinafter.

Referring now to the drawings showing embodiments of the invention, Figure 1 is a perspective view of a corner in course of construction. Fig. 2 is a horizontal section of a portion of Fig. 1. Fig. 3 is a similar section showing a modification in detail. Figs. 4 and 5 are similar sections showing modifications in the studs used.

My improved wall consists largely of masonry—such, for example, as concrete molded in place or built up of separate previously-molded blocks. The composition of the masonry is not essential to the invention—any good artificial-stone composition being suitable. The outer portion or shell of the wall is the load-supporting part, which carries preferably all the weight of the roof and floors, being composed of strong masonry and is built up alongside of or about a previously-constructed core, whose chief function is to facilitate the rapid erection of the supporting-shell, and which also forms a permanent part of the complete wall. This core is preferably cellular, and the cells may be filled with ashes or other similar filling to prevent circulation and preserve a good insulating dead-air space. The cellular core preferably consists of uprights, spaced apart from each other, and boards or the like outside of said uprights. The uprights themselves may be of plaster composition and also the boards, so that the entire core is of plaster composition. The wall is preferably double-faced, so that the masonry forms a shell inclosing the core on both sides, but the important features of advantage apply as well to a wall having a supporting shell or portion of masonry on only one side and any suitable facing on the other side.

Referring now to the embodiments illustrated in the drawings, the core is shown in Fig. 1 to consist of a series of uprights A molded of any suitable plaster composition and preferably provided with a longitudinal aperture, as shown. On the outer sides of the uprights are arranged plaster-boards or the like B, which may be nailed directly to the uprights A or otherwise attached thereto, or which may be held in place by attaching the boards on opposite sides of the uprights to each other. The core thus formed is not primarily designed to support the weight of the floors or roof, but chiefly to serve as a guide for the main supporting-wall. Upon this core is erected a supporting wall or shell of concrete C, which may be molded in place in blocks in the known way, or in a monolith, or which may be built up of separately-molded blocks cemented together. These blocks may be cemented or otherwise attached to the plaster-boards B of the core, or they may be held together by bonding the outer shell C and the opposite inner shell C by any suitable means, such as metal bonds or ties arranged at suitable intervals. Such ties, for example, may be simple pieces of metallic lathing D, extending from the inner to the outer concrete portions of the wall, bent up at the ends and embedded in the concrete. The concrete wall, if rough on the outside, may be finished off in any suitable way, if desired. As the building of the wall progresses, the cells or spaces between the uprights A may be filled with ashes E, Figs. 1 and 2, or similar sound-deadening light material, or the cells may be allowed to remain empty.

Where extreme precaution against the passage of moisture or variations of temperature is desired sheets of waterproofing-paper F may be laid in the wall, preferably between the plaster-boards B and the concrete wall C. They may be, for example, nailed directly to the uprights or to the plaster-board. They may be used on only one side of the wall or on both sides, as desired.

Where the masonry is formed of concrete molded in blocks against the core or in a monolith, I prefer to reinforce it by embedding a steel-wire fabric therein. As the strain is all vertical, I prefer to use a fabric such as is described in my applications for patent, Serial Nos. 122,464 and 125,361, and which comprises straight wires in one direction, so as to give great tensile resistance in such direction, and cross-wires spacing the straight wires from each other. In the present case the strips of fabric should be laid with the straight wires running vertically, each breadth being wired to the adjoining one, or they may be arranged with the straight wires running vertically on one side of the core-wall and horizontally on the other side. The fabric is preferably attached to the outside of the plaster-board and a slight distance outward therefrom, as shown at G, Fig. 3, so as to be firmly embedded in the concrete. This particular fabric which I have described is preferably made with very large meshes, from two to six inches or more, and the concrete is very easily molded about it after the fabric is in place. The structure thus built is extremely strong, the tensile strength of the reinforced concrete serving to transmit strains from one part to another, and thus distribute them substantially uniformly over the entire wall, making it possible, in fact, to use a cheaper concrete when desired.

The invention may be varied in a number of details besides those described. For example, instead of the molded plaster composition uprights described, ordinary steel or wooden uprights may be used or combinations of the two. For example, in Fig. 4, I show at the corner a built-up steel column H and along the wall steel **I**-beams J, serving as the uprights to which the plaster-boards B are attached in any suitable way, as by any well-known form of attaching-clip, or the plaster-boards by attachment to each other at opposite sides of the uprights may be perfectly held in place. In this figure I have illustrated the shell of concrete C and the waterproof-paper F, substantially as in Fig. 1. If desired, I may use wooden blocks K, as shown, for the attachment of the ends of the plaster-boards.

In Fig. 5 I show a wall similar in all respects to that of Fig. 4, except that timber uprights L are used. The plaster-boards B are nailed directly to these, and the concrete C and waterproof paper F are arranged as previously described.

Though I have described with great particularity of detail various structures embodying my invention, yet it will be understood that the invention is not limited to the specific constructions shown and described. Various modifications thereof in the details and in the combination and arrangement of the parts are possible to those skilled in the art without departure from the invention.

What I claim is—

1. A wall comprising in combination an outer load-supporting shell of masonry and a separately-constructed permanent core therefor.

2. A wall comprising in combination an outer load-supporting shell of masonry and a separately-constructed permanent cellular core therefor.

3. A wall comprising in combination an outer load-supporting shell of masonry and a separately-constructed permanent cellular core therefor having its walls filled with ashes or the like.

4. A wall comprising in combination an outer load-supporting shell of masonry and a permanent core of plaster composition.

5. A wall comprising in combination an outer load-supporting shell of masonry and a core consisting of uprights spaced apart from each other, and boards or the like outside of said uprights.

6. A wall comprising in combination an outer load-supporting shell of masonry and a core consisting of uprights of plaster composition spaced apart from each other, and plaster-board or the like outside of said uprights.

7. A wall comprising in combination an outer load-supporting shell of masonry, a permanent core therefor, said shell being arranged on opposite sides of said core, and ties connecting the opposite sides of said shell directly to each other.

8. A wall comprising in combination an outer load-supporting shell of masonry, a permanent core therefor, and a sheet of waterproof material interposed between said masonry and said core.

9. A wall comprising in combination an outer load-supporting shell of concrete having a wire fabric embedded therein, and a permanent core therefor.

10. A wall comprising in combination an outer load-supporting shell of concrete, a permanent core therefor, and a sheet of wire-netting attached to said core and embedded in said concrete shell.

11. A wall comprising in combination an outer load-supporting shell of concrete, a core consisting of uprights spaced apart from each other and plaster-board or the like outside of said uprights, a sheet of waterproof material between said core and said concrete shell, a wire-netting embedded in said shell, said shell being arranged on opposite sides of said core, and ties directly connecting the opposite sides of said shell and embedded therein.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM N. WIGHT.

Witnesses:
FRED WHITE,
DOMINGO A. USINA.