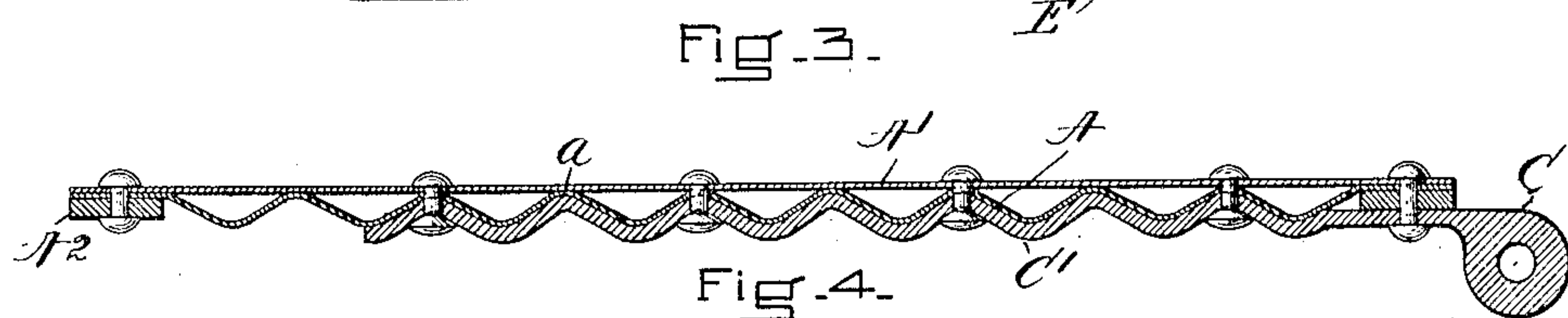
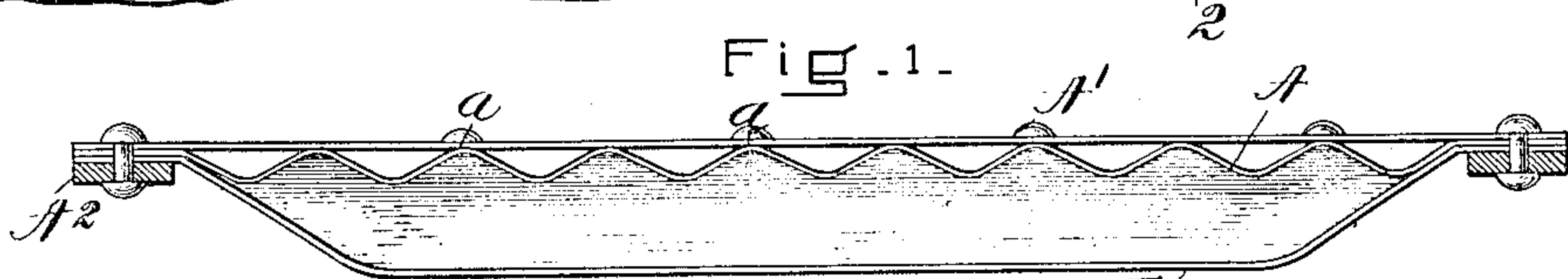
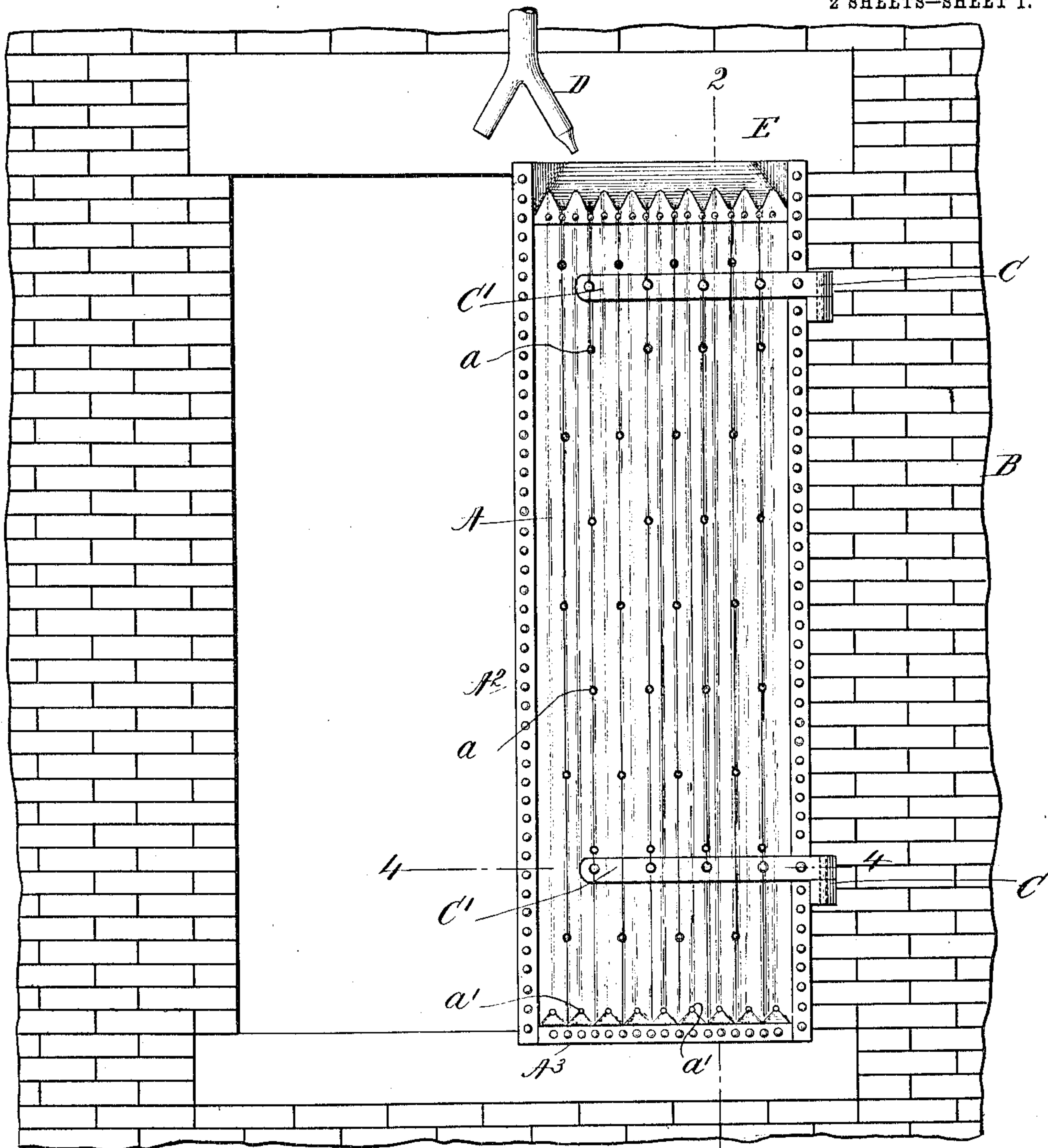


No. 843,462.

PATENTED FEB. 5, 1907.

W. S. HUTCHINSON.
FIRE RESISTING SHUTTER.
APPLICATION FILED SEPT. 23, 1906.

2 SHEETS—SHEET 1.



WITNESSES
Edwin Roberts
Charles S. Woodbury

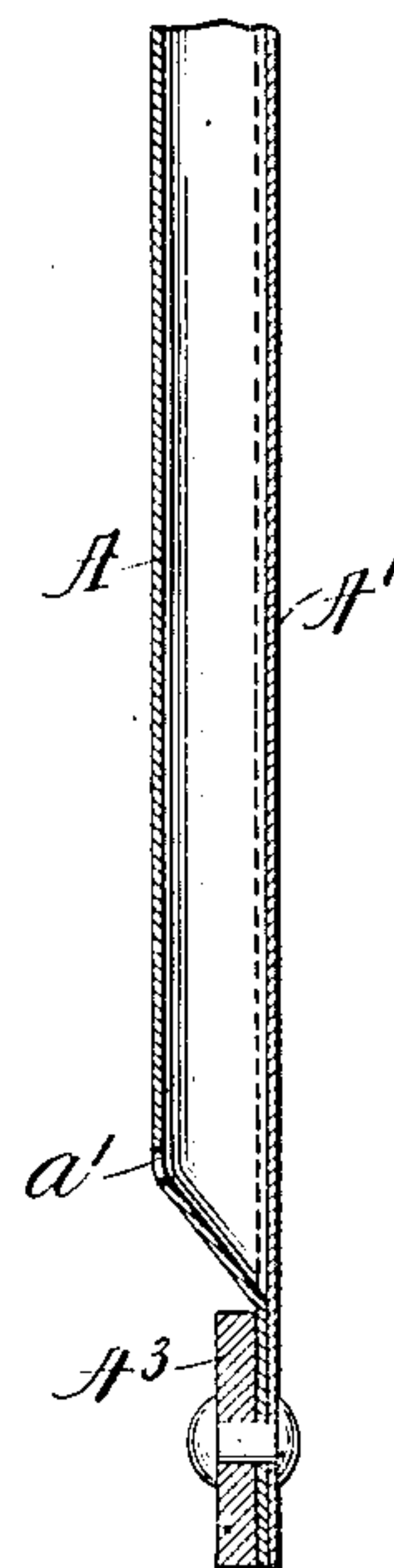
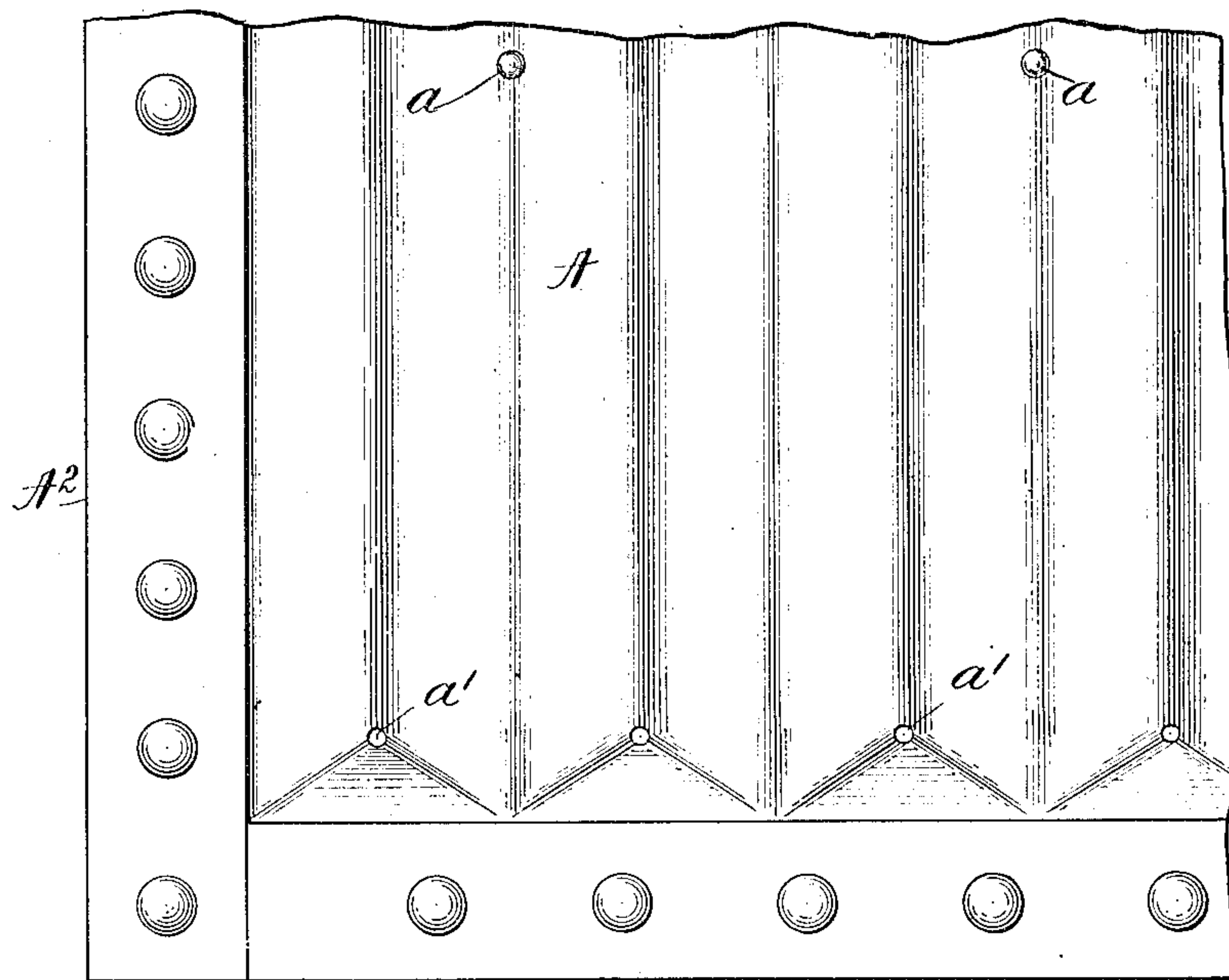
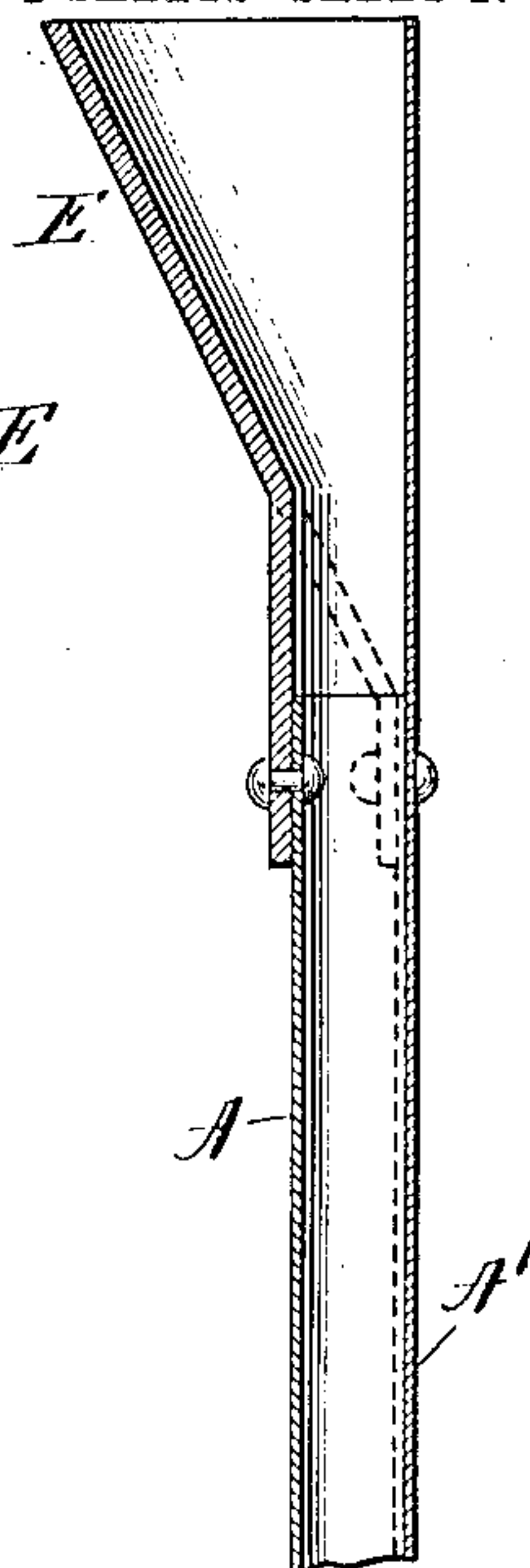
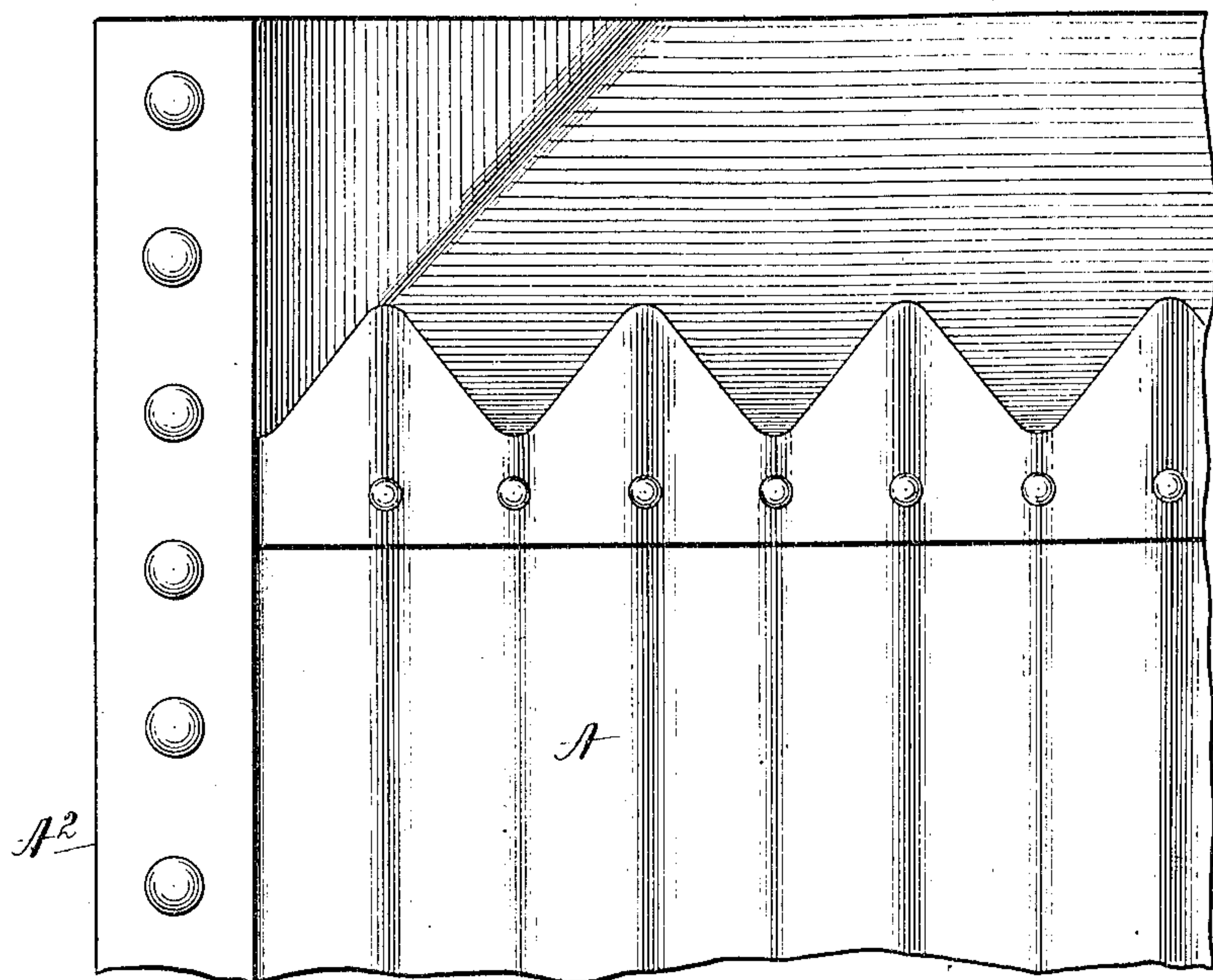
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2 SHEETS—SHEET 2.



A3 Fig. 5.

Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM SPENCER HUTCHINSON, OF BOSTON, MASSACHUSETTS.

FIRE-RESISTING SHUTTER.

No. 843,462.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed September 23, 1905. Serial No. 279,762.

To all whom it may concern:

Be it known that I, WILLIAM SPENCER HUTCHINSON, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Fire-Resisting Shutters, of which the following is a specification.

My invention and improvements herein described relate to the construction and operation of fire-resisting shutters, doors, and the like to be applied to the external wall-openings of buildings or the openings and partitions within the buildings. The necessity for cheap and efficient shutters of this general character, which shall be able to resist protracted exposure to great heat, is recognized by the owners and occupants of buildings and by fire-insurance underwriters, and so far as I am now informed, the best available practical device of this nature consists of the wooden door or shutter, sheathed or faced with tinned sheet-iron. Shutters of this character retain their shape and do not warp even under the application of great heat; but their capacity to resist protracted exposure to heat is limited. Modern warehouses and other large buildings situated in crowded city districts, where they are subject to danger from fire exposure, are now very extensively provided with fire-protective water-circulating systems both for automatic sprinklers and hose connections, and it is in cooperation with such circulating systems that my invention achieves effective utility.

In the drawings hereto annexed, wherein a window-shutter is used as an illustrative embodiment of my invention and improvements, Figure 1 shows such a window-shutter in elevation. Fig. 2 is a section of the shutter in Fig. 1, taken along the line 2 2. Fig. 3 is a top plan view of the said shutter. Fig. 4 is a section of the same along the line 4 4, Fig. 1; and Fig. 5 is a broken elevation, on an enlarged scale, of the said shutter, showing sundry details of construction.

The shutter A, Fig. 1, is hinged or otherwise movably secured to the wall B of the building, so as to be capable of closing over a window or other aperture in said wall. In the present instance selected for illustration the shutter is hinged at C to the wall in the usual manner. Projecting from the wall B is a water-nozzle D to direct water into the interior of the shutter when the same is

closed. This nozzle D may be connected with any suitable source of water-supply and may be used either independently or in connection with an internal sprinkler system.

The shutter is lightly, but strongly, constructed, of two thin sheets of metal A A', whereof one at least is corrugated, as shown in the figures. Both of these may be corrugated; but in order that the shutter may close tightly over the opening which it is designed to protect I recommend that the metal sheet, which is to lie against the edges of such opening, be a flat sheet, as A', Figs. 2, 3, and 4. Along the lines where the two plates A A' are tangent the two are secured together by rivets, as at *a*.

The edges of the shutter are reinforced by side and bottom strips A² A³. At the top of the shutter which is open there is secured a funnel-plate F, of sheet metal, which is preferably stamped to proper shape, so as to rivet closely against one of the sheets whereof the body of the screen is composed. This funnel extends transversely from one side of the shutter to the other and forms a transverse receptacle or water-space in communication with all of the vertical water-spaces, whereby each vertical water-space will be filled, no matter at what point water is introduced at the top. The hinge-bars C' are shown as bent to fit the corrugations of the sheet A and are riveted through both sheets, as shown in Fig. 4. The corrugations of the sheet A form spaces or water-chambers, which extend vertically from top to bottom of the shutter, and at or near the bottom of these spaces drain-holes of small diameter, such as *a'*, are drilled.

The operation of my improved shutter is as follows: In case of exposure to fire the shutter is closed and secured and water is turned on through the nozzle D, which directs the stream into the flaring mouth of the funnel-plate E. The spaces between the two sheets A A' are thus quickly filled with water, the small diameter of the drain-holes *a'* being such that the screen-spaces will remain full so long as the nozzle D delivers water into the funnel-plate E. A very moderate circulation of water is all that is necessary to keep the shutter perfectly cool, and the escape of drainage-water from the holes *a'* will still further assist in keeping cool the exterior of the wall B by running down over its surface. The danger of warping, which is so serious a consideration, is entirely avoided by the wa-

ter circulation through the shutter, which is sufficient to dissipate the fiercest heat directed against the shutter itself. So long as the stream flows from the nozzle D the shutter
5 will remain effective, and its utility, therefore, is not limited in duration, as is the case with the sheathed wooden shutters, which have heretofore proved to be the best practical and available means of fire protection of this
10 general character. Moreover, the shutter constructed according to my invention may be made of extremely light sheet material and be therefore cheap to construct and easy to operate. A thickness from outside to
15 outside of the shutter of five-eighths of an inch will be found amply sufficient to afford the requisite stiffness in all but the largest shutters of this character.

What I claim, and desire to secure by Letters Patent, is—

1. A fire-resisting shutter, containing in

combination two metal sheets, whereof one is corrugated, and secured in contact with the other along tangent lines to form parallel vertical water-spaces, and a transverse water-receptacle communicating with each of the vertical spaces. 25

2. A fire-resisting shutter, containing in combination two metal sheets whereof one is vertically corrugated and secured in contact with the other along tangent lines to form parallel vertical water-spaces, and a funnel-shaped receptacle at the top of the shutter, extending transversely across the same in communication with each of the vertical spaces. 30 35

Signed by me at Boston, Massachusetts, this 19th day of September, 1905.

WILLIAM SPENCER HUTCHINSON.

Witnesses:

ODIN ROBERTS,

JOSEPH T. BRENNAN.