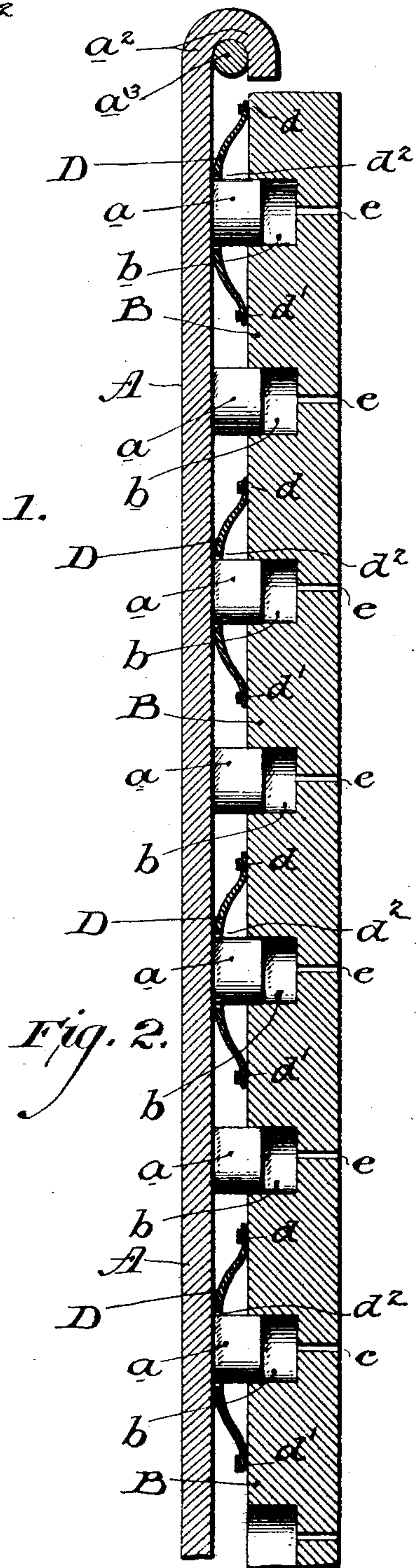
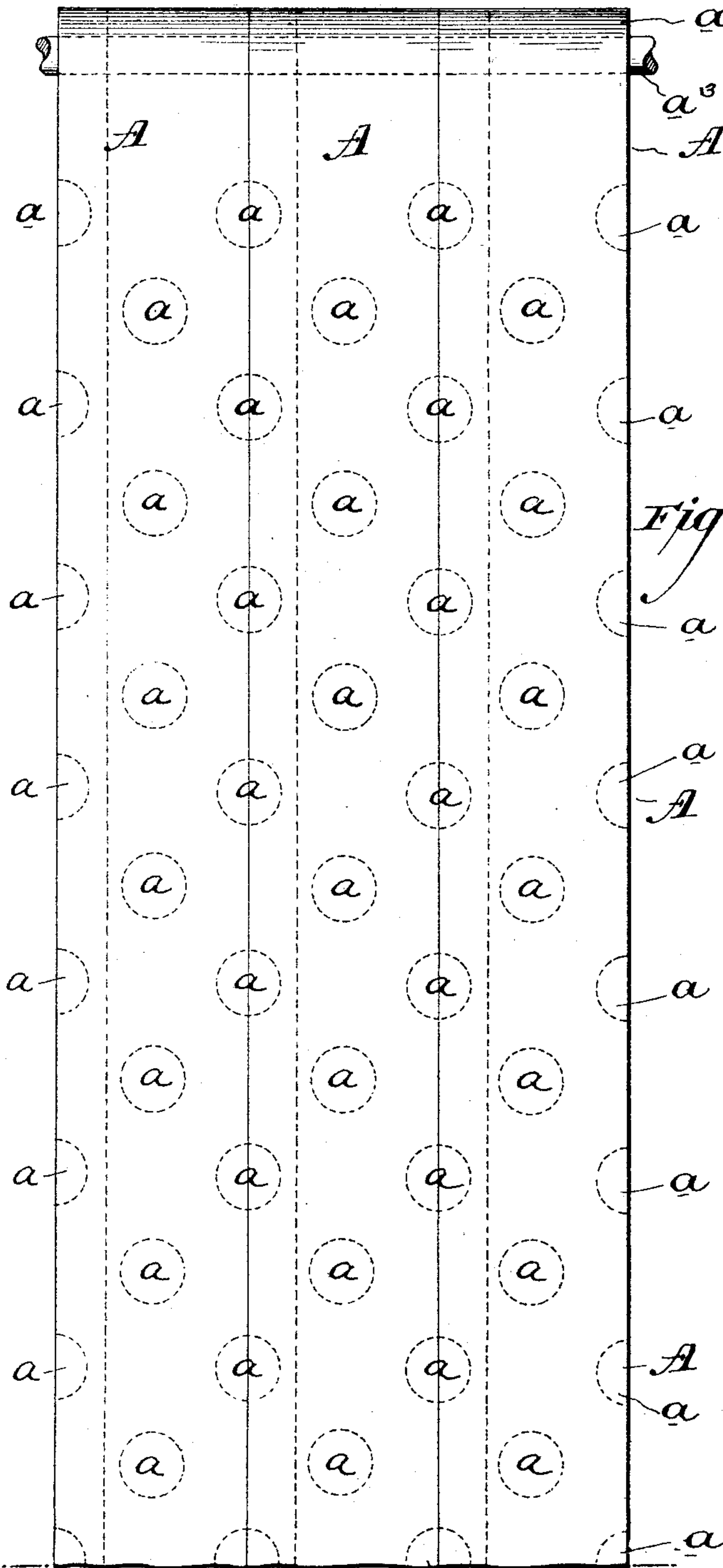


H. CLAY.
ARMOR PLATE.

No. 485,683.

Patented Nov. 8, 1892.



WITNESSES:

Chas. C. Collier
David S. Williams,

INVENTOR:

Henry Clay
by Chas. C. Collier
att'y.

(No Model.)

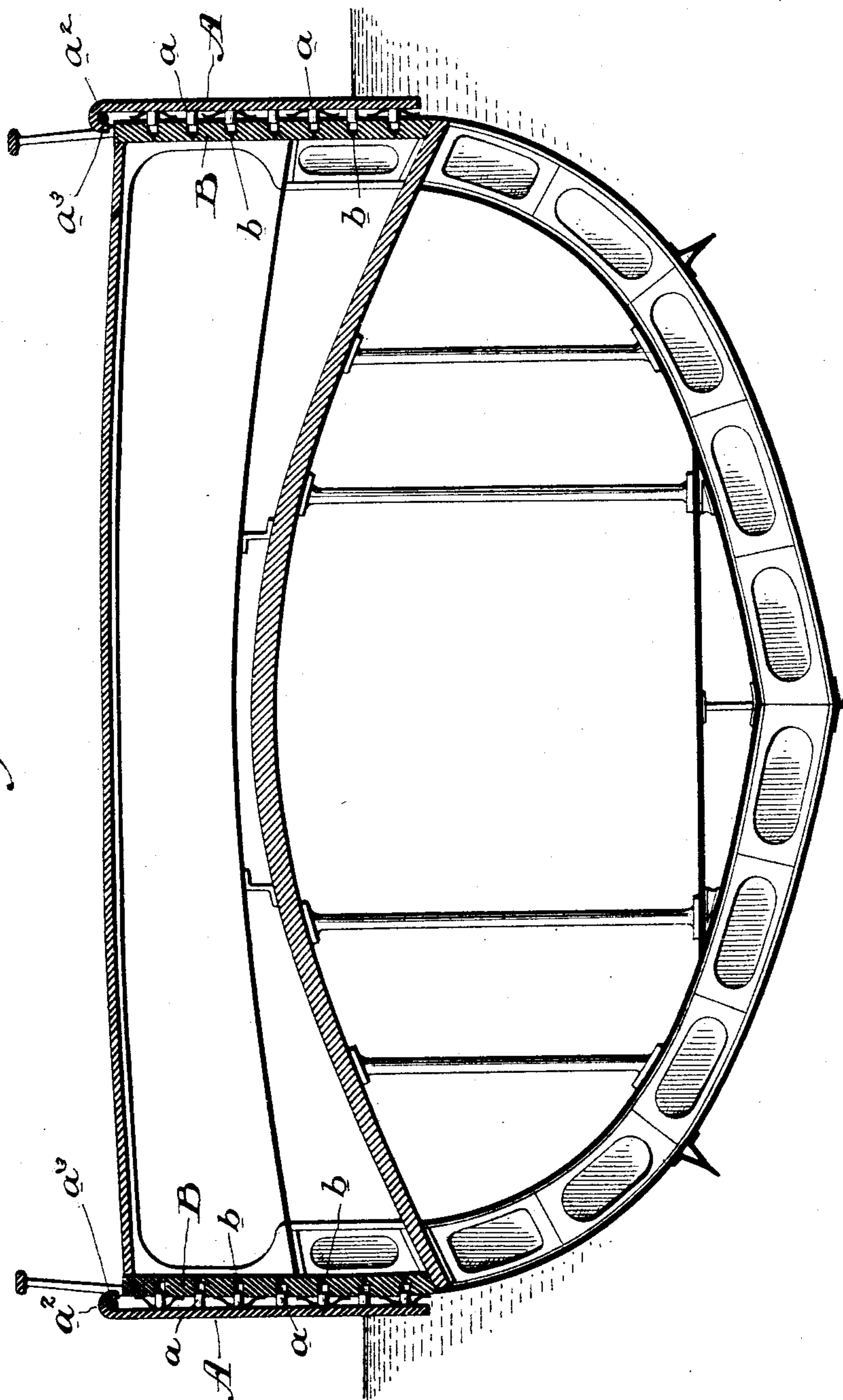
2 Sheets—Sheet 2.

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Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY CLAY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HARRISON SNYDER, TRUSTEE, OF SAME PLACE.

ARMOR-PLATE.

SPECIFICATION forming part of Letters Patent No. 485,683, dated November 8, 1892.

Application filed March 3, 1892. Serial No. 423,648. (No model.)

To all whom it may concern:

Be it known that I, HENRY CLAY, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, have invented a new and Improved Armor-Plate, adapted for the protection of the sides of ships of war and for other analogous uses, of which the following is a specification, reference being had to the drawings, in which—

Figure 1 is an elevation; Fig. 2, a longitudinal section; Fig. 3, a sectional view showing the application of the armor to the hull of a vessel.

The object of my invention is to effect an armor-plate which shall protect the body of a vessel or other structure to which it is attached, not so much by the impenetrability of its material to projectiles fired against it as by the fact that its construction is such that it will yield to the blow of the projectile, and thus absorb gradually the thrust or blow of the projectile, and so protect the body of the vessel or other structure to which it is applied.

To this end my invention consists, primarily, in so constructing and combining two or more plates, one superimposed upon another, as that air-chambers are provided, which upon a blow of a projectile striking the outer or exposed plate serve as cushions, whereby the force or impact of the blow is, as stated, absorbed and the penetration of the plate by the projectile prevented.

A A A in the drawings represent the outer or exposed plates, which are provided with integral projections or pistons *a a*, preferably cylindrical, distributed throughout their inner surface.

B B B are the inner plates, which are provided with corresponding openings *b b*, formed in and distributed throughout their outer surfaces. In applying these plates to a vessel the inner one may be attached to the body of the vessel in the ordinary way; but the outer or exposed plates should preferably be curved at their upper ends, as shown at *a*², and suspended upon rods *a*³, attached to the vessel, the projections or pistons formed upon the one plate being made to coincide with the openings formed in the other plate, so that

upon the impact of a projectile thrown against and striking the outer plate the projections or pistons will be forced into the openings with which they respectively coincide, thus compressing the air therein, the result being that the force of the projectile is expended wholly or measurably in such compression of the air and the penetration of the armor and body of the vessel or other structure consequently prevented. It is obvious that the body of the plates should be placed and maintained at a distance from each other, as shown in Fig. 2, and for this purpose and to serve as guides to direct and secure the entrance of the projections or pistons of plates A into the corresponding openings of plates B, I provide the springs D, the outer ends of which are held in position by the guides *d d'*, and which at their inner ends are fastened to or made to surround and embrace the several projections or pistons, as shown at *d*².

The plates according to my improvement need not be provided with the described pistons and openings, except above the water-line of the vessel to which they are to be attached, and the outer plate may and preferably should at its lower end not be connected to the inner plate, but be supported from above, as clearly shown in Fig. 3.

The several sheets or sections constituting the entire sheathing or armor A A A and B B B, respectively, are made to overlap each other and are united together in the ordinary manner.

In order to obviate the generation of too great a heat in the openings B B B upon the sudden compression of air therein when the outer plate is struck by a projectile, I provide said openings with air-vents, as shown at *e e e*.

I am aware that armor-plates have been constructed having various spring-backings, and also that various other elastic devices have been employed to arrest or absorb the force of projectiles thrown against the plates, and hence I do not claim, broadly, the construction of a yielding armor-plate; but

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

1. An improved armor-plating consisting of inner and outer plates separated from each

other, one of said plates having a series of openings formed therein, each provided with an air-vent, and the other plate having a series of projections or pistons integral therewith and adapted to be forced into the openings in the other plate and compress the air therein when the outer plate is struck, substantially as specified.

2. As an improvement in armor-plating, an inner plate secured to the body to be protected and an outer plate suspended at its upper end upon suitable supports attached to the body to be protected, the said plates being separated and one having a series of openings formed therein and the other a series of projections or pistons integral therewith registering with the said openings in the other plate and adapted to compress the air in said openings when the outer plate is struck, substantially as described.

3. As an improvement in armor-plating, an

inner plate secured to the body to be protected, an outer plate suspended at its upper end upon suitable supports attached to the body to be protected, springs interposed between the said plates to separate them from each other, one of said plates having a series of openings formed therein, each provided with an air-vent, and the other plate having a series of projections integral therewith registering with the openings and adapted to compress the air therein when the outer plate is struck, substantially as specified.

In testimony whereof I have hereunto subscribed my name, at Philadelphia, in the presence of two witnesses, on this 6th day of February, A. D. 1892.

HENRY CLAY.

Witnesses:

GEO. W. REED,

CHAS. C. COLLIER.