(No Model.)

M. F. COOMES & A. W. HYDE.

ARMOR PLATING.

No. 457,525. Patented Aug. 11, 1891.

Fig. 1.

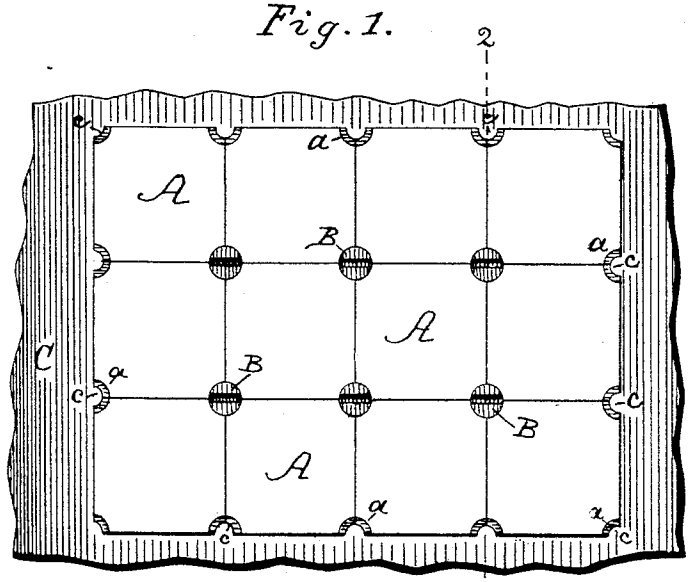


Fig. 2.

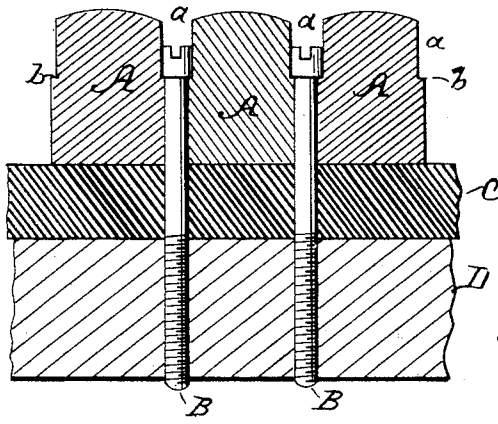


Fig. 3.

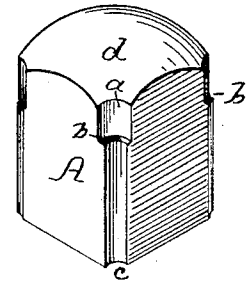
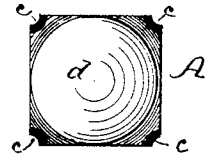


Fig. 4.



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UNITED STATES PATENT OFFICE.

MARTIN FRANCIS COOMES AND ARUNAH WATERMAN HYDE, OF LOUISVILLE, KENTUCKY.

ARMOR-PLATING.

SPECIFICATION forming part of Letters Patent No. 457,525, dated August 11, 1891.

Application filed September 20, 1890. Serial No. 365,618. (No model.)

To all whom it may concern:

Be it known that we, MARTIN FRANCIS COOMES and ARUNAH WATERMAN HYDE, citizens of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Armor-Plating for Ships and Batteries; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to armor for ships and batteries; and it consists in a novel method of applying and securing the plating.

Figure 1 is a plan or face view of a portion of our improved armor. Fig. 2 is a vertical section on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of one of the outer blocks of the armor-plate. Fig. 4 is a top view of the block or cube shown in Fig. 3.

In the figures, A is the outer plate or cube of hard steel, D is a backing or inner plate of softer steel, and C is a rubber pillow or packing interposed between A and D. The cube A has a rounded face *d*, and at each corner a quadrantal cut-away portion *c* for the reception of the screw-bolt B, a countersunk recess *a* for the bolt-head, and a shoulder *b*, against which the bolt-head rests. The inner plates of soft steel are of ordinary dimensions, but the outer plates or blocks of hard steel are comparatively much smaller, and by reason of the small size and rounded faces of the outer plates the damage resulting from the impact of a projectile is reduced to a minimum. The bolt-heads are secured from such damage by countersinking them, and by the method of applying them each block is held by four bolts and each bolt holds four blocks of the outer plating. The form which is thus presented we prefer, but it may obviously be variously modified without departing from the principle of our invention. For example, the face of the blocks of the outer plating may be conical or angular, and their shape may be triangular or octagonal. The bolts may be square, and they may only partially penetrate the softer steel backing, and the rubber cushion between the inner and outer plating may be omitted. In the last case, our invention presents the exterior surface of hard steel and the interior surface of soft steel, which at present is widely regarded as a desideratum in armor-plating.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. An armor-plating for vessels, consisting of an inner plating of soft steel, an outer plating of smaller blocks of hard steel, and a rubber packing between the inner and outer plating, all suitably fastened together, substantially as described.

2. In armor-plating for vessels, the combination of the inner plating of soft steel, the outer plating of hard steel, and the connecting-bolts at the corners of each outer plate, substantially as described.

In testimony whereof we affix our signatures in presence of two withesses.

MARTIN FRANCIS COOMES.
ARUNAH WATERMAN HYDE.

Witnesses:
CHAS. W. PARSONS,
N. BERNSTEIN.