

THE "CHALMERS SYSTEM" OF NAVAL ARMOUR.

SCALE 1/2 INCH, - 1 FOOT.

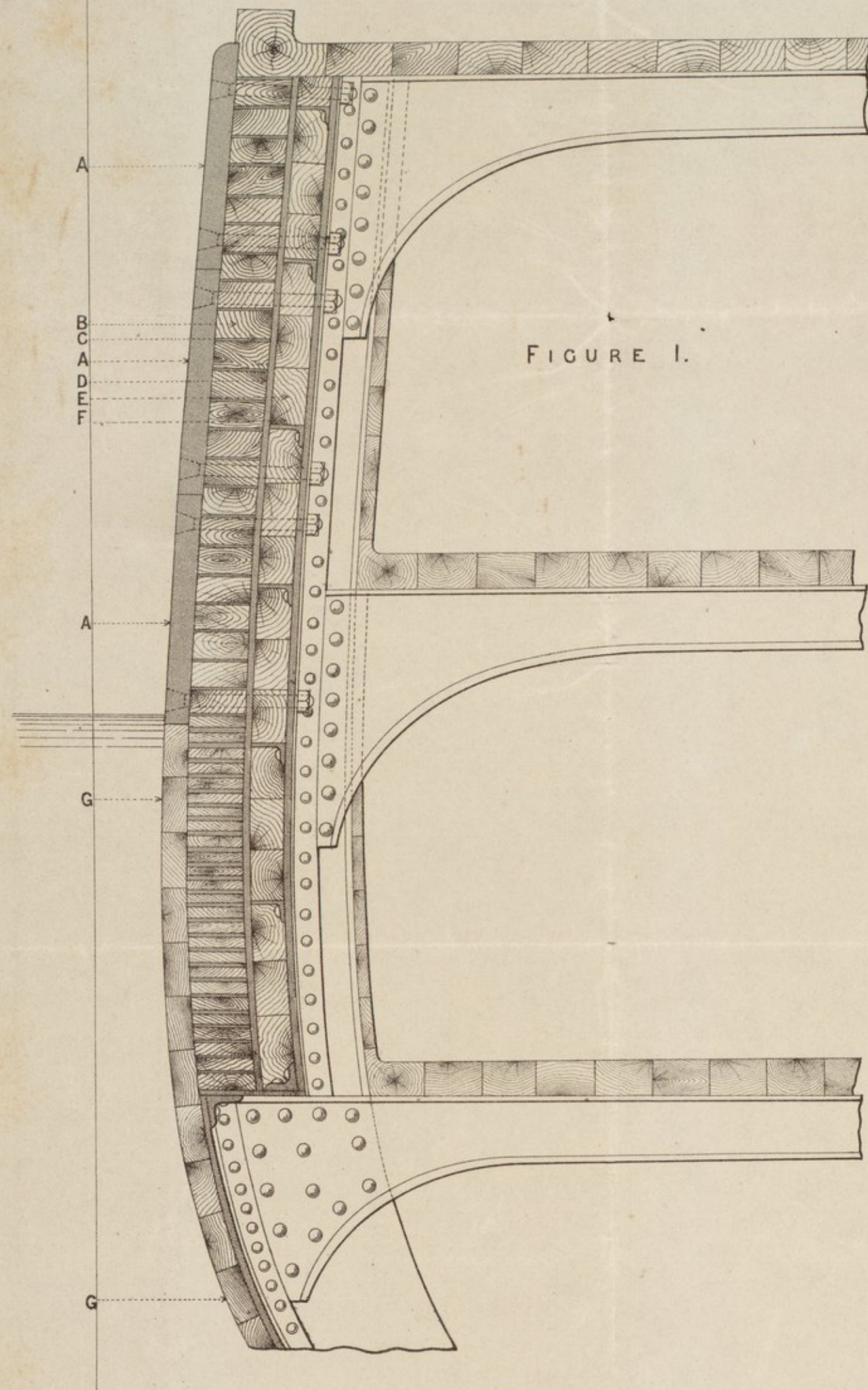


FIGURE 1.

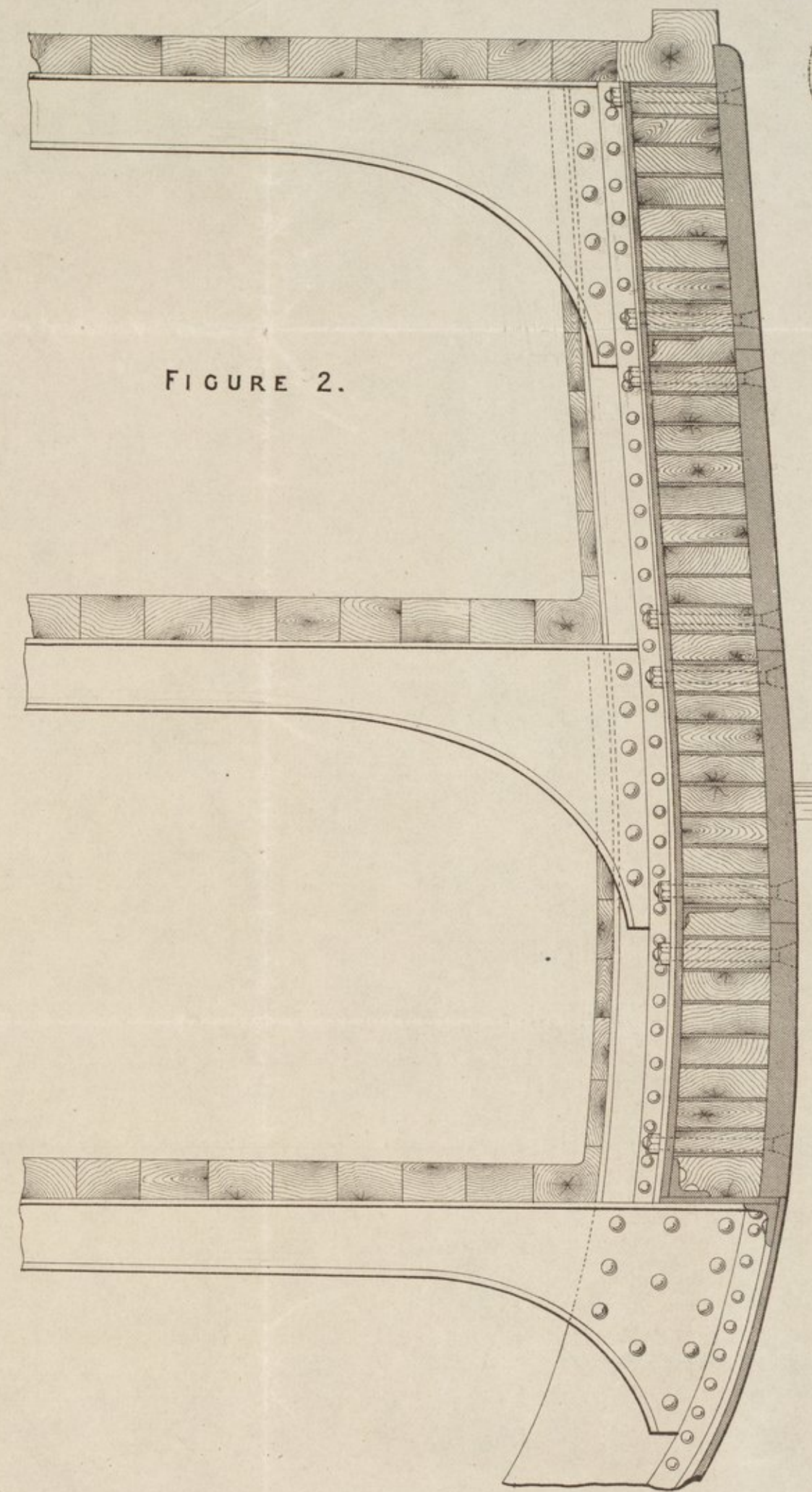


FIGURE 2.

REFERENCE.

Figure 1 represents this system as tried in the Chalmers' Target, which had a 3 1/4 inch armour plate, A; the compound backing, B C; the second plate D; and the cushion and stringers, E F.

As a suggestion, the armour plate, figure 1, is stopped at the waterline. If a weight of iron equal to that of the plate be thrown into the backing below the waterline, as represented, it would keep shot out of the ship as well, if not better, than the portion protected by the armour plate. Hence, the ship could be planked, caulked, and coppered all round by carrying the planking G under the ship's bottom.

Figure 2 represents the compound backing applied to an iron frigate without the second plate and cushion.

The weight of materials represented in both sections is about the same as is employed in the "Warrior," or "Minotaur" class of ships, the iron of the three systems being distributed in about the following proportions:—

Chalmers' plan,	46 per cent. in the structure, and 54 in the armour plate.
"Warrior" do.	32 " " 68 "
"Minotaur," do.	26 " " 74 "

Taking the prices of the plates of the respective targets as data, the estimated cost of plating a ship of the "Minotaur" class upon

The Chalmers' plan, would be	£62,000.
The "Warrior" "	£78,000.
The "Minotaur" "	£92,000.

This difference in cost is to be attributed chiefly to the difference in the thickness, weight, and cost of the respective armour plates.

ADVANTAGES OF THE CHALMERS' SYSTEM.

- 1st. It offers better resistance to shot than any other plan.
- 2nd. It adds considerably to the structural strength of the ship, thus enabling it to carry the armour plates without straining.
- 3rd. It prevents the spreading of fire in the backing from the explosion of shell or otherwise.
- 4th. It is easy to repair. The plates of the Chalmers' Target were removed, and replaced after resisting 29 rounds of heavy ordnance—the only instance of the kind that has occurred at Shoeburyness—indeed, the only one in which such an operation was possible after so much firing.
- 5th. It is lighter in proportion to its strength than any other plan.
- 6th. It is economical, as well as light and strong.

OPINIONS.

Chalmers' Target, composed of 3 1/4 inch plates, properly backed after his system, withstood a hammering from the guns which no other target of any kind had ever borne at Shoeburyness with such impunity. This was entirely due to the backing.—*Times*, 9th December, 1863.

The Chalmers' Target had a greater power of resistance than the "Warrior" Target.—*Duke of Somerset, First Lord of the Admiralty*.

It was of greater strength than the "Warrior" or any other target.—*Sir John Pakington, late First Lord of the Admiralty*.

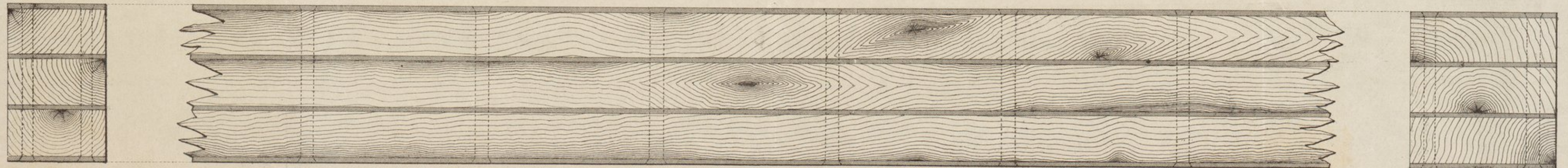
No other target designed for naval purposes has resisted a similar weight of shot with so little injury.—*Iron Plate Committee*.

Only one target has fulfilled all the requirements of strength so needed and so long sought for—the Chalmers' Target.—*Times*, 8th July, 1863.

The strongest for its weight as yet produced.—*Quarterly Review*, January, 1864.

LONDON, 1865.

COMPOUND BACKING. SCALE 1 1/2 INCH - 1 FOOT



SECTION FIGURE 1.

SECTION FIGURE 2.

N.B.—This Backing should be put together in blocks, as shown above with an adhesive substance between the layers, before being bolted to the Ship's side.

Price 6d.

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James Chalmers.