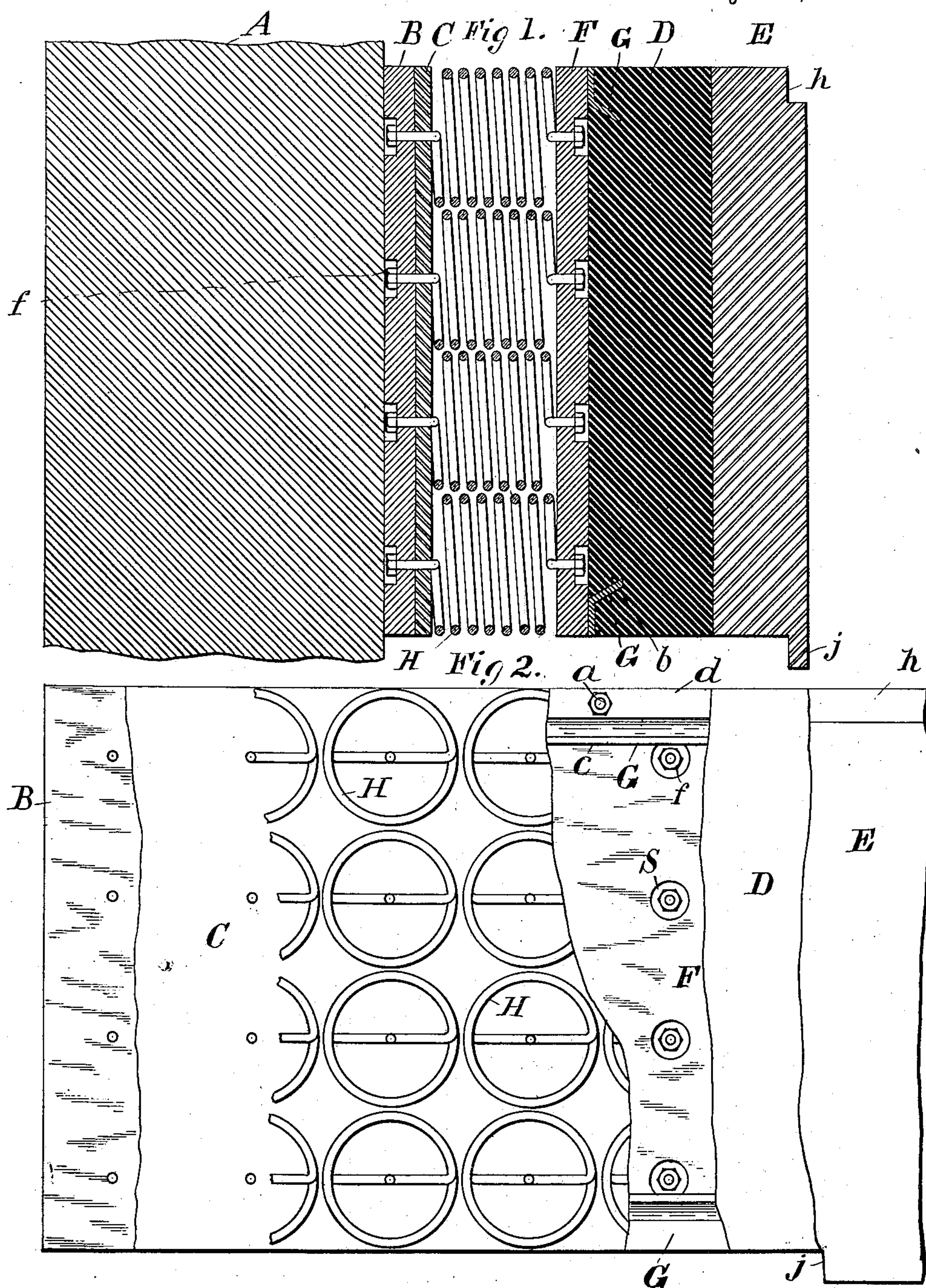


(No Model.)

J. L. MATTHEWS.
PROTECTIVE COVERING FOR SHIPS' ARMOR.

No. 604,940.

Patented May 31, 1898.



-WITNESSES-

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UNITED STATES PATENT OFFICE.

JOHN L. MATTHEWS, OF BALTIMORE, MARYLAND.

PROTECTIVE COVERING FOR SHIPS' ARMOR.

SPECIFICATION forming part of Letters Patent No. 604,940, dated May 31, 1898.

Application filed September 4, 1897. Serial No. 650,624. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. MATTHEWS, of the city of Baltimore and State of Maryland, have invented certain Improvements in Protective Elastic Coverings for Armor of Iron-Clad Vessels, of which the following is a specification.

The object of this invention is the construction of an elastic composite covering to be attached to the outer surface of the armor to reduce the concussion of projectiles, and thereby prevent the penetration of the armor by projectiles, as will hereinafter fully appear.

In the description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, in which—

Figure 1 is cross-section of a piece of the elastic covering, together with a part of the armor to be protected. Fig. 2 is a partly-sectional front view of the covering.

Referring now to the drawings, A represents a portion of the armor-plate of an iron-clad.

B is a plate of steel attached to the armor by any suitable means. To this plate of steel is united a coating C of some soft metal, such as Babbitt metal. The union is effected by pouring on the outer surface of the steel plate the soft metal while in a molten condition, its adhesion being effected in a manner similar to that in the covering of iron and steel with zinc in a process commonly known as "galvanizing."

D is a body of rubber which is made as hard as possible without materially reducing its compressibility and elasticity. To this body of rubber is attached a plate E of soft metal the composition of which is about the same as that of the coating C. This is united to the rubber by pouring it onto its surface while in a melted condition or onto a sheet of tin-foil which is laid on the rubber. In either case the metal adheres to the rubber, and when the tin-foil is employed the same becomes melted by the contact with the molten Babbitt metal. The united rubber and Babbitt metal is covered on the inner side with a sheet plate F of steel, it being held to the steel by means of flanged strips G, which are held to the steel by means of screws a.

The rubber is sawed lengthwise to form grooves *b* for the reception of the flanges *c* of the strips G and also cut away for the base part *d* of the strips, as shown in Fig. 1.

Between the steel plate F and the Babbitt-metal coating C are placed spiral springs H, the inner ends of which are passed through the Babbitt-metal coating C and the steel plate B and the outer end through the steel plate F. The ends of the springs are threaded and have nuts *f*, which are seated in recesses S. These springs are stiff enough to support the plates exterior of them and yet have some compressibility.

The protective covering, composed of the various elements as described, is placed in strips one upon another over the armor-plate, which may be made considerably thinner than that generally employed, as the covering will protect it, and the lateral edges of the outer Babbitt-metal sheets may have a rabbet *h* on one edge and a tongue or lip *j* on the other, as shown.

In operation a shot striking the outer plate E of the Babbitt metal and penetrating it carries with it a piece of the said metal, which forms a cushion for its end, and the rubber and springs have to be destroyed before the point of the shot comes into contact with the inner Babbitt metal. In continuing its course the projectile has to force a portion of the inner soft plate through the inner steel plate, so that when it reaches the armor its force is considerably spent.

I do not limit myself to the exact arrangement of the elements of the coverings as described, as they may be differently arranged to effect the same result.

I claim as my invention—

A protective covering for armor, which consists in the combination of an exterior plate of Babbitt metal, a body of rubber applied to the inner surface of the said metal, and a spring backing secured to the armor and forming a support for the rubber and its outer covering of Babbitt metal, substantially as specified.

JOHN L. MATTHEWS.

Witnesses:

WM. T. HOWARD,
DANL. FISHER.