(No Model.)

T. ENGLISH & A. WILSON.

ARMOR PLATE.

No. 307,035. Patented Oct. 21, 1884.

Fig. 5.

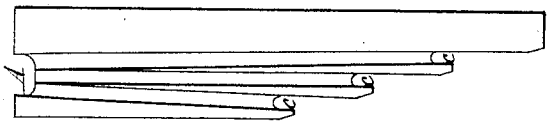


Fig. 7.

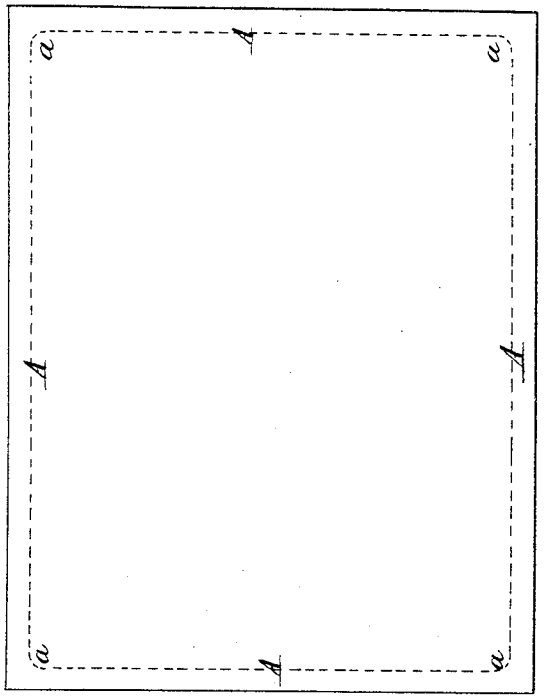


Fig. 8.

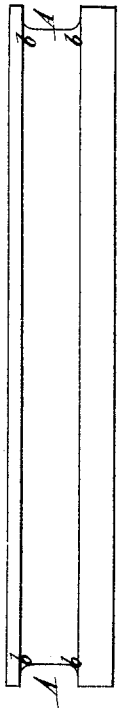


Fig. 4.

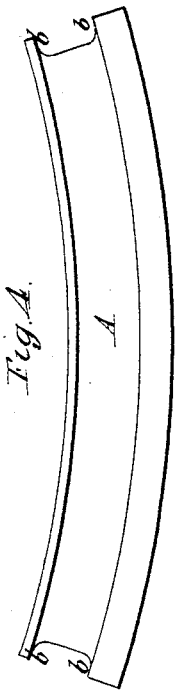
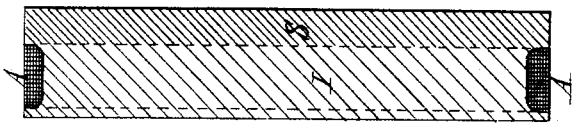


Fig. 2.



Witnesses.
Jo. L. Coombs
Robt Everett,

Inventors.
Thomas English
Alexander Wilson.
By James L. Norris.
Atty

UNITED STATES PATENT OFFICE.

THOMAS ENGLISH, OF HAWLEY, DARTFORD, COUNTY OF KENT, AND ALEXANDER WILSON, OF SHEFFIELD, COUNTY OF YORK, ENGLAND.

ARMOR-PLATE.

SPECIFICATION forming part of Letters Patent No. 307,035, dated October 21, 1884.

Application filed July 15, 1884. (No model.) Patented in England June 10, 1884, No. 8,817.

To all whom it may concern:

Be it known that we, THOMAS ENGLISH and ALEXANDER WILSON, citizens of England, residing, respectively, at Hawley, Dartford, county of Kent, England, and at Sheffield, county of York, England, have invented a new and useful Improvement in Armor-Plates, of which the following is a specification.

Armor-plates made wholly or partly of steel are liable, when struck by projectiles, to break in pieces. Our invention relates to means of reducing the liability of such plates to fracture, and of preventing the pieces from separating when fracture occurs. We effect this as we will describe, referring to the accompanying drawings.

Figure 1 is a front view; Fig. 2, a transverse section; Fig. 3, an elevation of one edge of an armor-plate to which our invention is applied; Fig. 4, a view similar to Fig. 3 of a curved armor-plate; and Fig. 5, an end view of a beveled plate, showing the manner of forming the grooves therein.

The plate may consist, as shown, of iron, I, faced with steel, S, or it might be entirely of steel. All around in the edges of the plate, within its thickness, we cut a groove, A, making this groove with its bottom rounded at the corners *a*, and also somewhat rounded in profile at the angles *b*. In this groove we wind around the plate numerous convolutions of wire or ribbon, preferably of steel, so as to fill up the groove and form a strong girdle around the body of the plate. When the plate is slightly curved, the groove may be straight; but when the curvature is considerable the groove should follow the like curvature, as shown in Fig. 4, so that it is parallel or approximately parallel to the face and back of the plate. When a plate is thinned at one edge, which is usually done by beveling off a portion of the back, we form the groove as shown in the end view, Fig. 5, cutting it in several steps, *c*, formed in the beveled part, these steps converging along the ends into a single groove, A, cut along the wide edge. Several of the convolutions of the wire or ribbon occupy each of these step-grooves *c*, all these convolutions occupying conjointly the wide groove A.

Having thus described the nature of our invention and the best means we know for carrying the same into practical effect, we claim—

1. An armor-plate having a groove cut in its edges and filled with wire or ribbon wound in numerous convolutions around the plate, substantially as and for the purposes herein set forth.

2. An armor-plate thinned toward one edge, having several grooves cut in steps at its back, converging to a single groove in its wide edge, the said grooves filled with wire or ribbon wound in numerous convolutions therein, substantially as described.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 26th day of June, A. D. 1884.

THOMAS ENGLISH.
ALEXANDER WILSON.

Witnesses to the signature of the above-named Thomas English:

J. WATT,
PERCY R. GOLDRING,
Both of 17 *Gracechurch Street, London.*

Witnesses to the signature of the above-named Alexander Wilson:

G. W. WESTLEY,
PERCY R. GOLDRING,
Both of 17 *Gracechurch Street, London.*