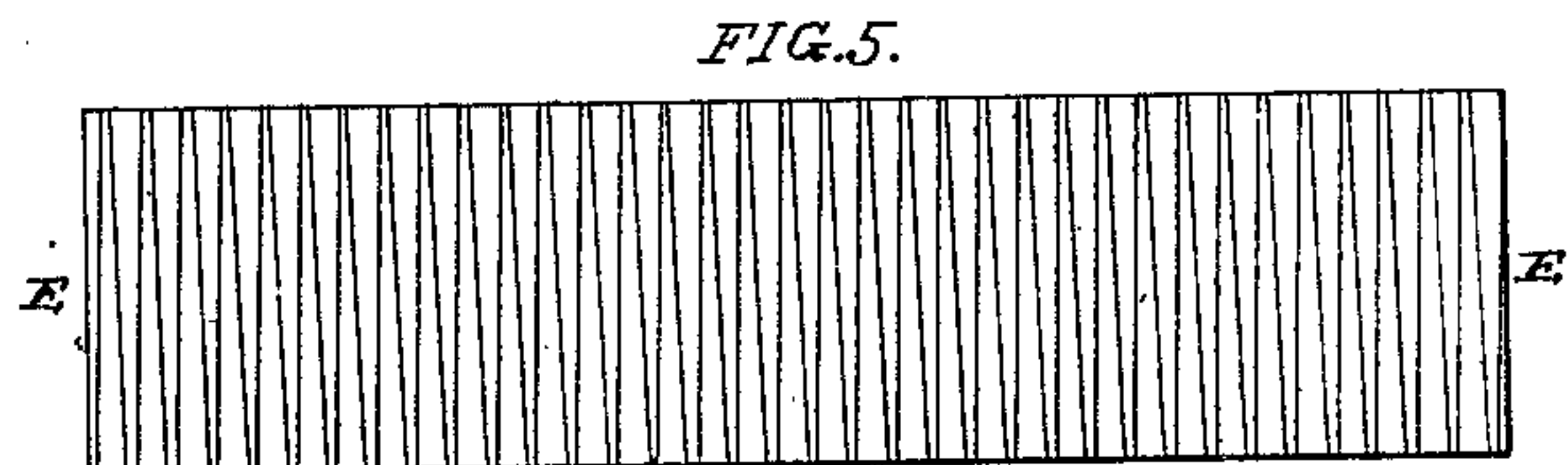
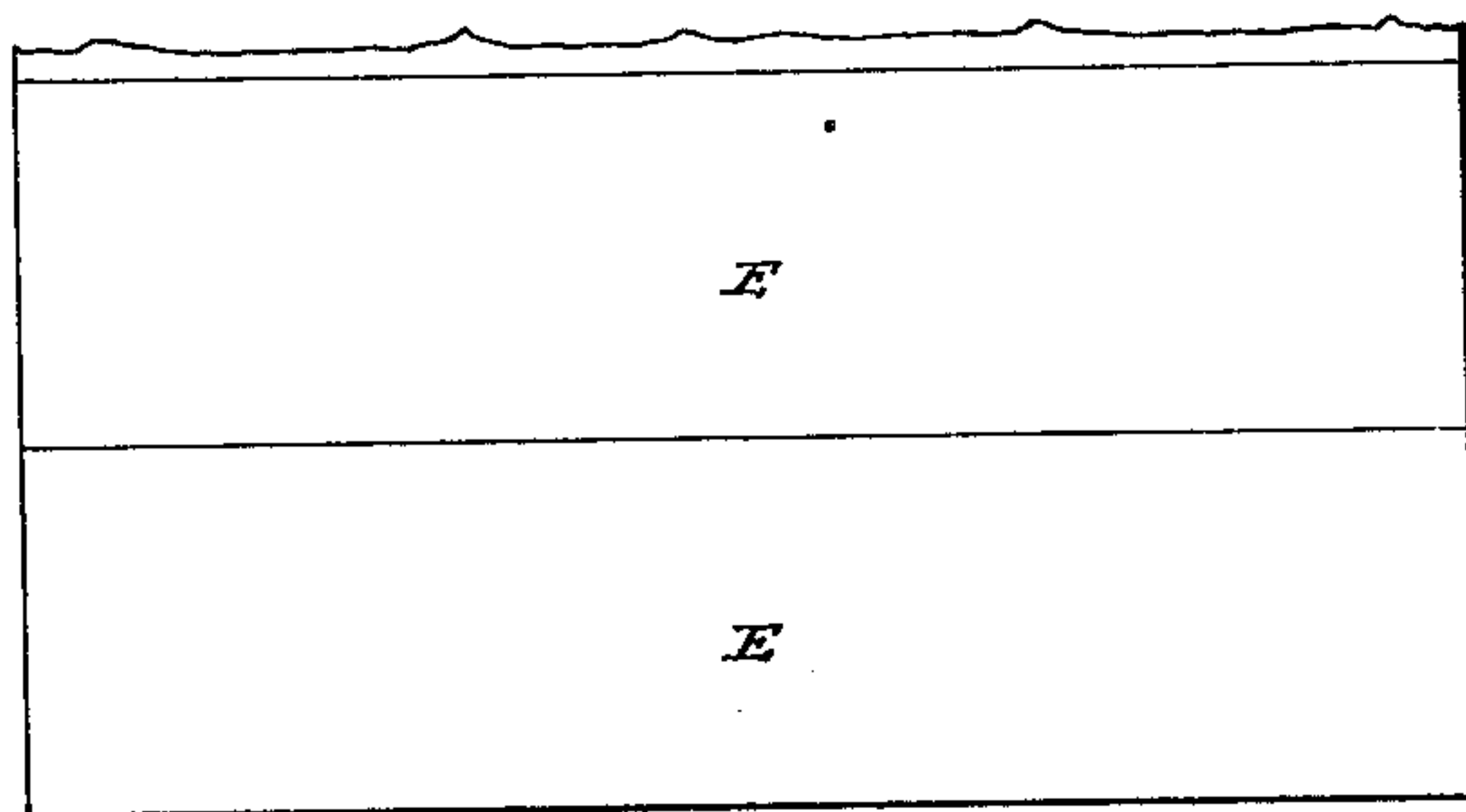
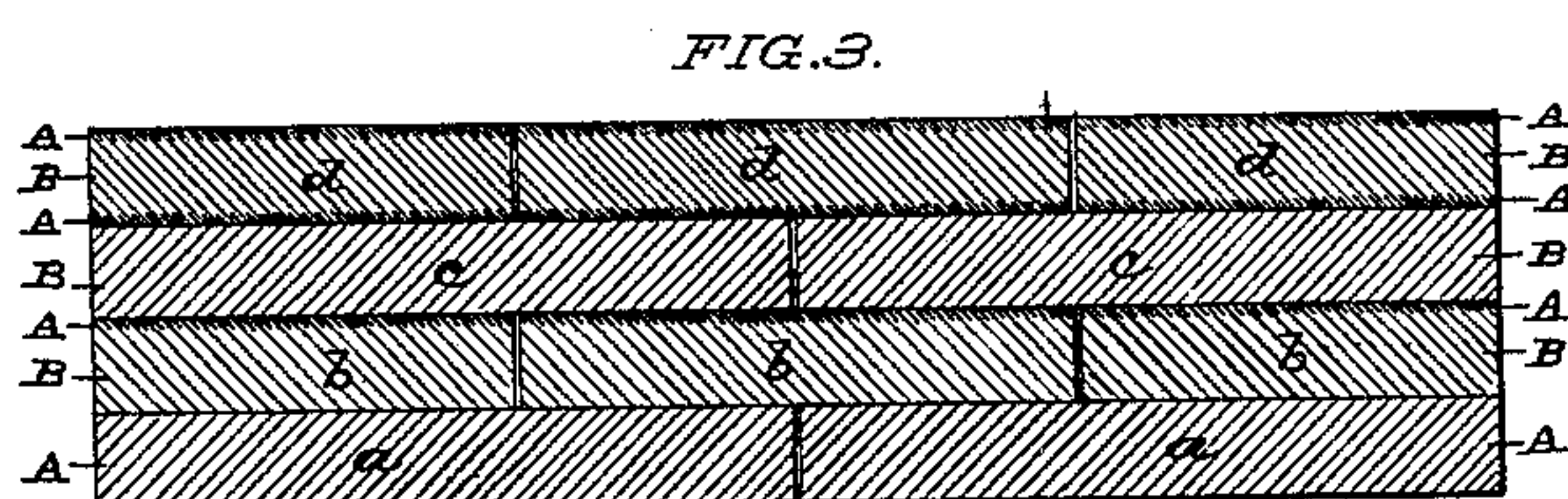
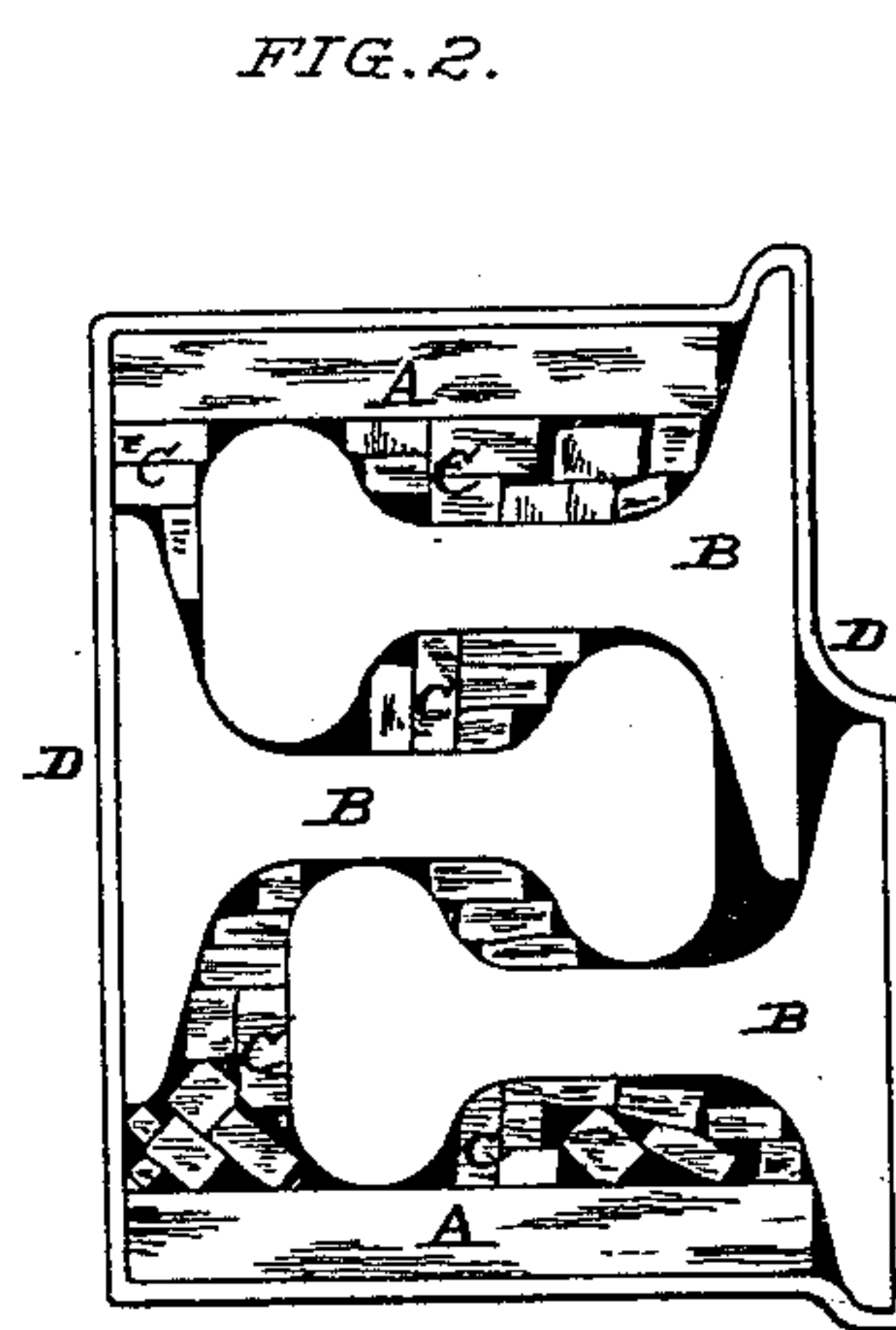
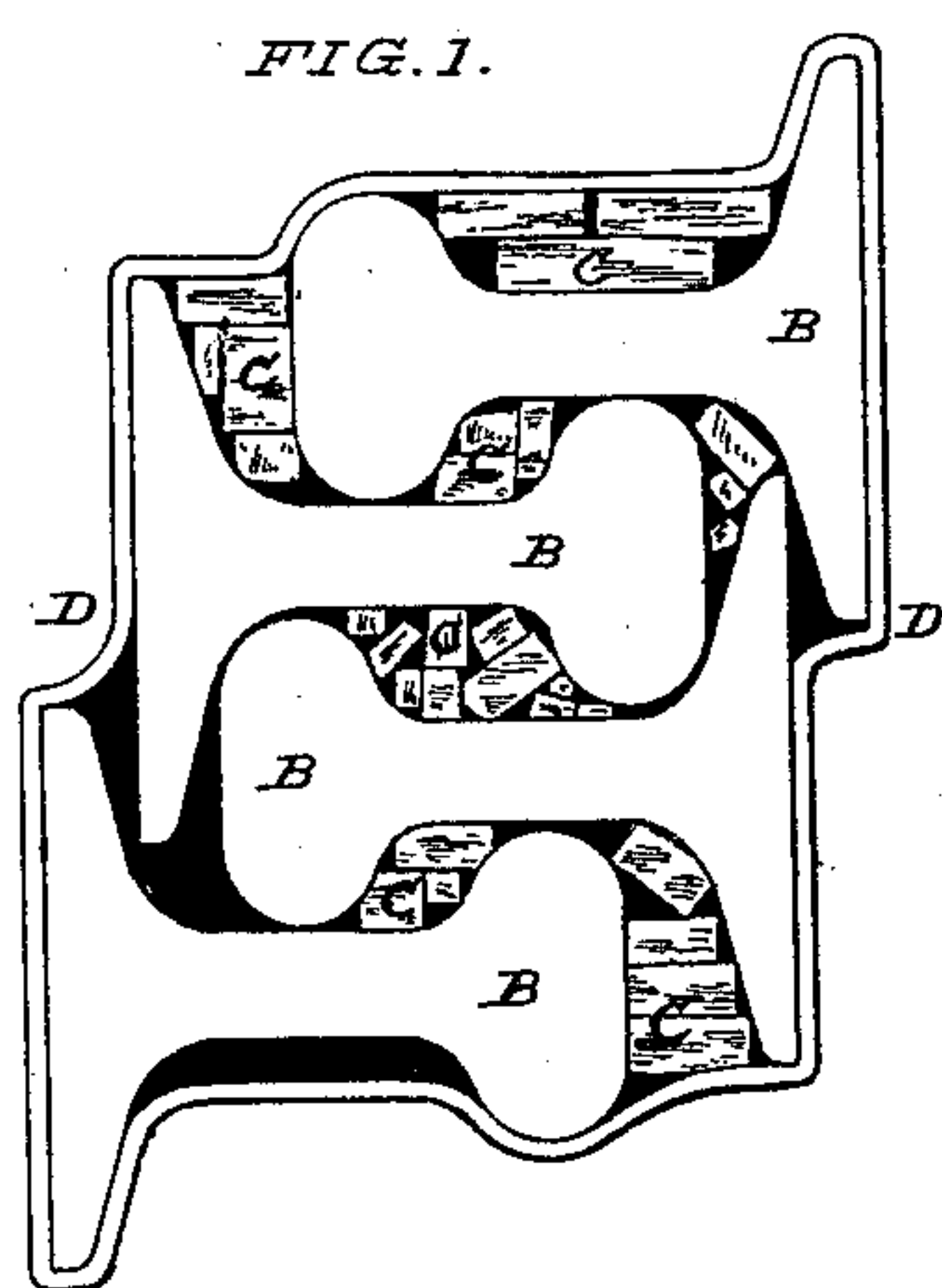


W. H. POWELL.
PILES FOR NAIL-PLATES.

No. 189,495.

Patented April 10, 1877.



ATTEST:

Robert Burns.
Chas. J. Gooch.

INVENTOR:

William H. Powell
per *Knights Bros*
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UNITED STATES PATENT OFFICE.

WILLIAM H. POWELL, OF BELLEVILLE, ILLINOIS.

IMPROVEMENT IN PILES FOR NAIL-PLATES.

Specification forming part of Letters Patent No. **189,495**, dated April 10, 1877; application filed December 29, 1876.

To all whom it may concern:

Be it known that I, WILLIAM H. POWELL, of Belleville, St. Clair county, State of Illinois, have invented a certain new and useful Improvements in the Construction of Fagots and Piles for Rolling Nail-Plates, which process is fully set forth in the following specification and accompanying drawing, in which—

Figure 1 is an end view of a fagot built up of old rails and scrap metal. Fig. 2 is an end view of a fagot built up of old rails and scrap, with a piece of ordinary muck-bar at top and bottom, to form the top and bottom faces of the bar rolled from the fagot. Fig. 3 is a section through a pile built up of sections of bars alternately six by three-fourths inches and four by three-fourths inches in transverse section, and, say, twelve inches in length. These piles are for rolling into nail-plates. Fig. 4 is top view of a part of a nail-plate, showing, by dotted lines, the manner of cutting it up into pieces E, from which the nails are cut in the usual manner. Fig. 5 shows one of the pieces, with lines indicating the manner of cutting it up into nails.

The fagots or piles shown in Figs. 1 and 2 undergo a similar treatment to each other.

They are heated in a blast heating-furnace, and are then rolled with the sides of the rails at top and bottom—that is, in the same position as the rails were originally rolled—so as to preserve the lamination of the iron, and, in the case of the pile shown in Fig. 2, to preserve a surface of muck-bar A at bottom and at top, for purposes hereinafter set forth. In Figs. 1 and 2 the rails are lettered B, scrap C, and inclosing tie or band D. The piles 1 and 2 are rolled into bars, which I have made of the following cross-section: six by three-fourths inches, and four by three-fourths inches. They are cut up into lengths about twelve inches long, and are piled, as shown in Fig. 3, with a lap-joint, so that the piles will hold together without any strap or band. The formation of this pile, and the arrangement of the bars therein may vary somewhat; but I have found perfectly satisfactory results to be obtained when arranged as shown—that is, with the lower course *a* consisting of ordinary muck-bar formed from puddled pig-iron. The next stratum or course (marked *b*) is made from a pile

similar to that shown in Fig. 2, except that one of the muck-bars A—say, the upper one—is removed therefrom, so that there is only one surface, A, of new iron, as shown, at the top of the course, the bar being inverted in the pile, so as to form a good welding-surface with the bottom of the next stratum or course *c*, which is made from the pile shown in Fig. 1, which consists wholly of rail and scrap. The upper course or stratum *d* is formed of pieces of bar-iron formed from the pile shown in Fig. 2, having an upper and under surface, A, of new iron, and a central part formed of rail and scrap, (lettered B.)

In rolling the bars from the pile shown in Fig. 2, and also from that shown in Fig. 3, great care is had that the faces of the new iron A, at top and bottom, shall not be rolled into the edges of the bar, but shall remain upon the upper and under surfaces in said bar, as they are relied upon to give the required smooth sides to the nail-plate. The piles are heated to a full welding-heat in blast heating-furnaces before rolling, and the pile shown in Fig. 3 is rolled into a plate—say, one foot in width, and the thickness of the nails for which it is intended, and is afterward, by transverse cuts, divided into pieces E, having a length equal to the width of the plate, and a width equal to the length of the nail.

It will be understood that I claim no novelty in forming a fagot or pile of sections of old rails, or in cutting the nail-plate up into pieces in which the fiber is transverse, so that it shall be lengthwise of the nail, for these things are not new, and the latter is the usual practice; but I believe that it is new to construct a nail-plate of a mixture of old and new iron, in varying strata, as proposed and practiced by me.

My improved process has the following advantages:

First, it secures a solid bar, sheet and nail, and fiber of the bar, sheet, and nail produced out of the piles is maintained as found in the rail when first rolled.

Second, it produces nails equal in every respect to the best nails in the market, and at much less expense than they can be manufactured by the usual method, direct from the pig metal.

Third, it secures in the bars used to construct the nail-plate pile, a solidity which lessens the loss in the heating-furnace fully thirty-three per cent.; also, it lessens the loss in the crop-ends of the nail-plate thirty-three per cent. over the present method of working, and thus augments the actual product of nails per ton of raw material used eight per cent.

In my process of utilizing old railroad-iron for the manufacture of cut nails and spikes, I find that I can produce twenty-five hundred kegs per week, (proportionate sizes,) to meet the demands of the trade, with an economy in the actual consumption of material and labor over a mill of the same capacity, manufacturing under the present method, fifty per cent. of coal, seventy-five per cent. of iron ore, seventy-five per cent. of wrought-iron scrap, and seventy-five per cent. less wear and tear

of puddling-furnaces and tools, reducing the cost of labor in producing the requisite quantity of muck or puddled bar to equal the given quantity of nails fifty per cent.

I claim as my invention—

1. The fagot constructed, substantially as shown in Fig. 2, with a number of sections, B B B, of old rail, and one or more surface-pieces of muck-bar, applied as shown at A, to produce bars *b d*, with one or more new surfaces, as and for the purposes set forth.

2. The pile for final rolling, constructed of bars *b* and *d*, made from old rail, with new surfaces, and interposed bars *c* of old rail-iron, as explained.

WILLIAM H. POWELL.

Witnesses:

SAML. KNIGHT,
ROBT. BURNS.