(No Model.)

J. FREY.

SCHOOL BLACKBOARD.

No. 338,397. Patented Mar. 23, 1886.

Fig. 1.

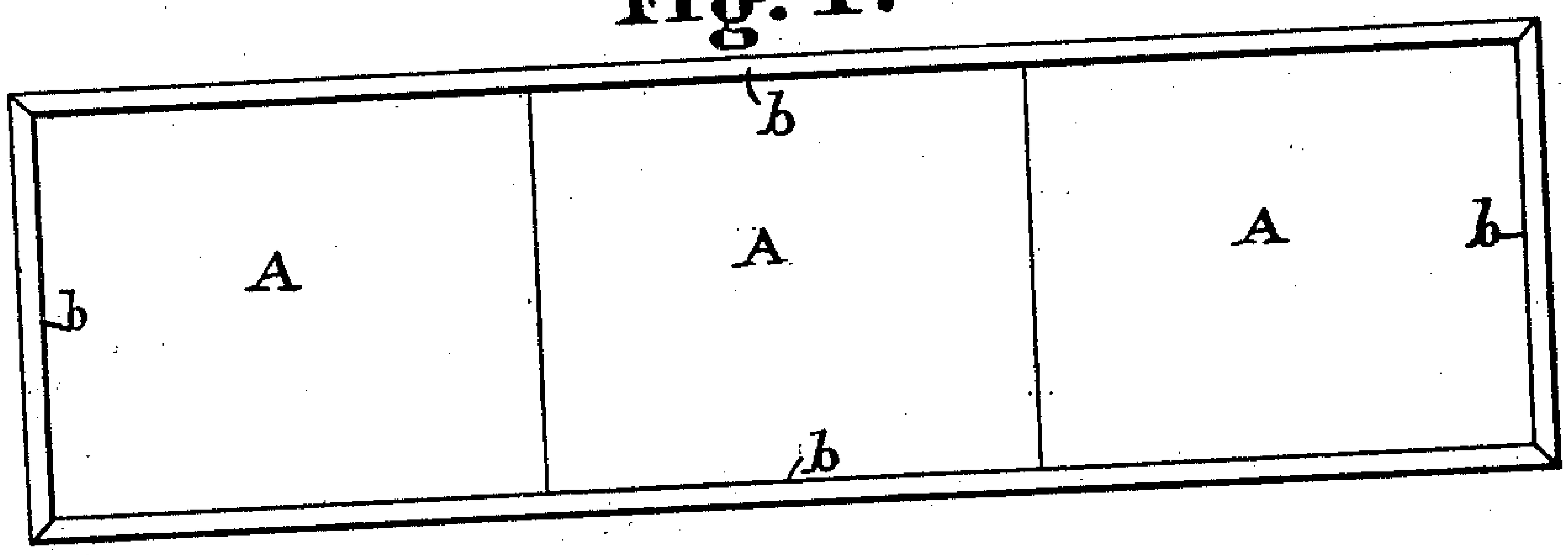


Fig. 2.

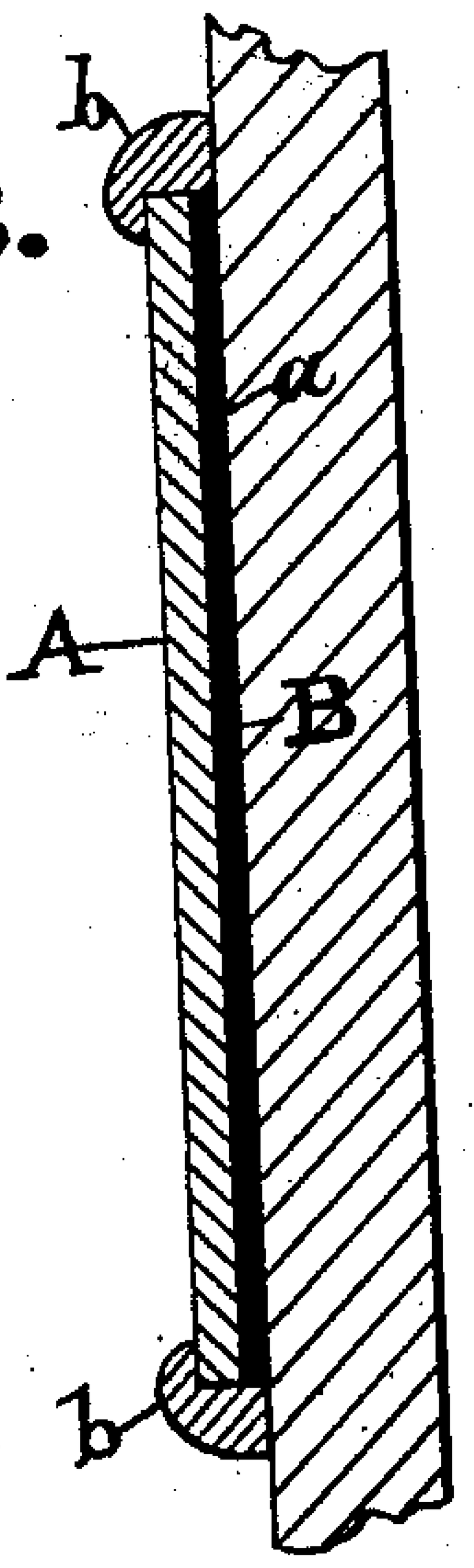


Fig. 3.

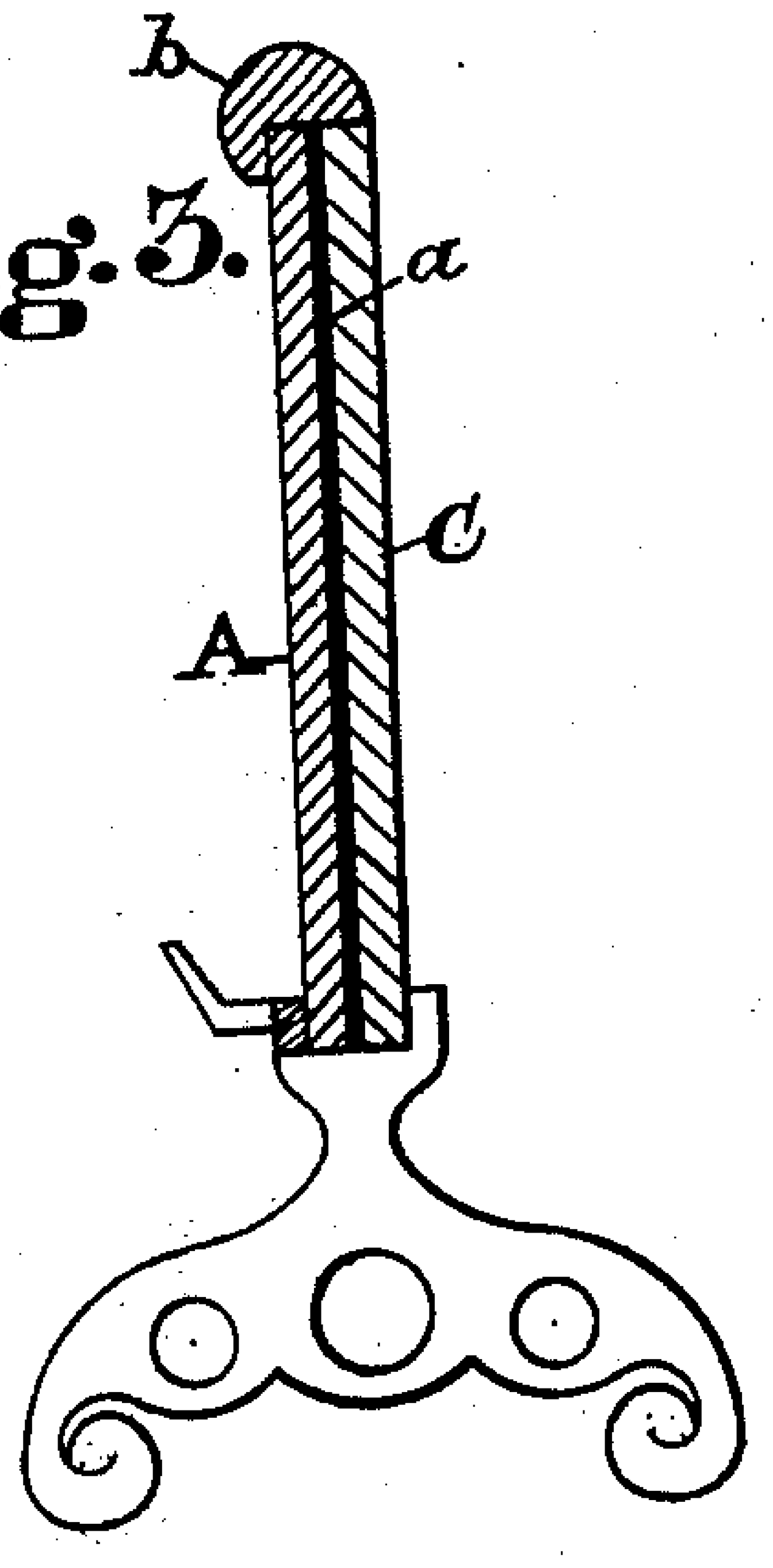
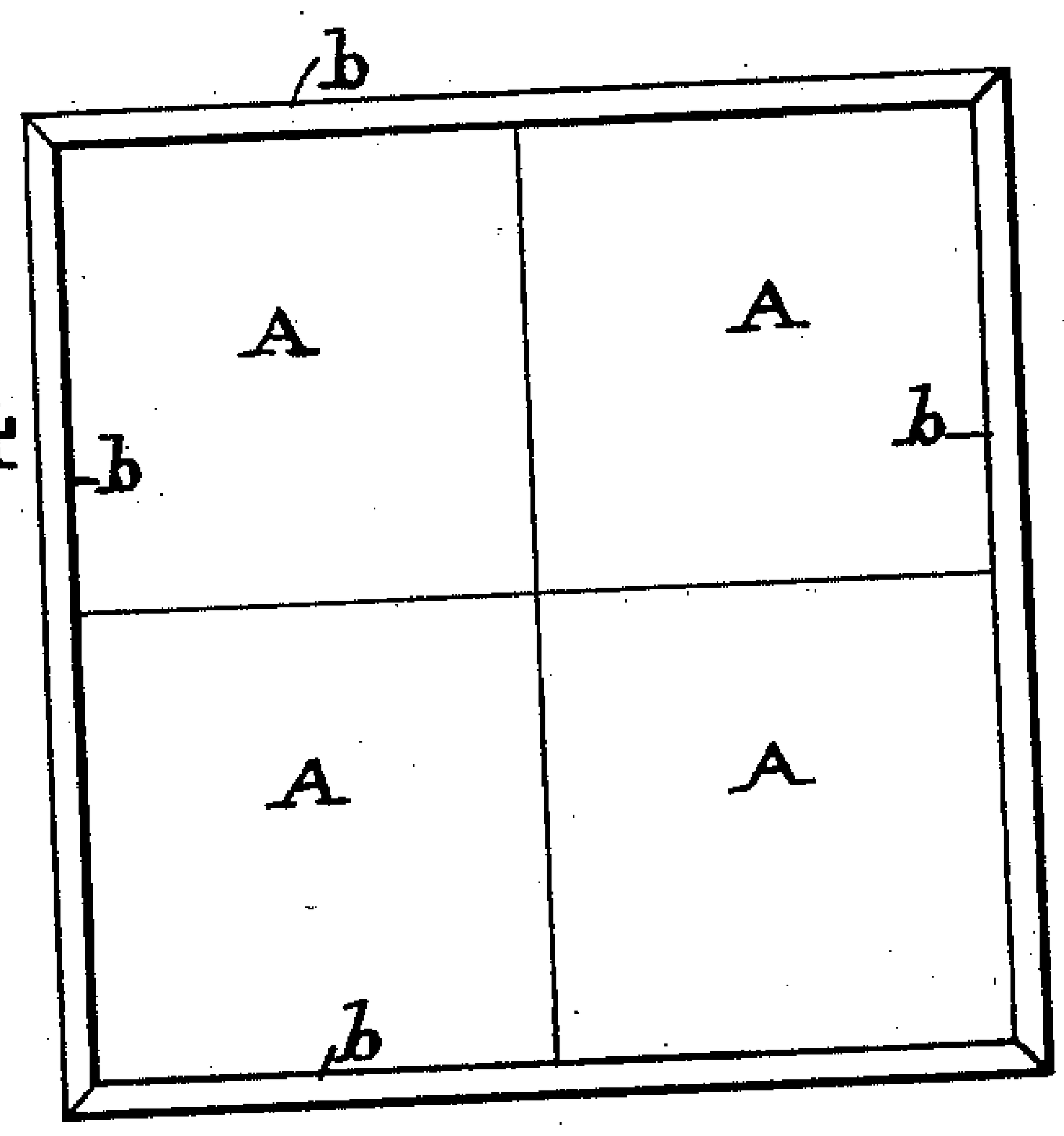


Fig. 4



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UNITED STATES PATENT OFFICE.

JOHN FREY, OF CINCINNATI, OHIO.

SCHOOL-BLACKBOARD.

SPECIFICATION forming part of Letters Patent No. 338,397, dated March 23, 1886.

Application filed November 6, 1885. Serial No. 181,996. (No model.)

To all whom it may concern:

Be it known that I, JOHN FREY, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in School-Blackboards, of which the following is a specification.

My invention relates to blackboards such as are commonly used in schools, lecture-rooms, &c., its object being to improve the same in the qualities of durability, efficiency, and economy of construction. The essential qualities sought in structures of this kind are, a hard and durable surface, taking the chalk easily and capable of withstanding the wear of the earthy crayons containing hard and gritty particles without losing its roughened surface and becoming smooth, and also a firm and solid body capable of withstanding accidental blows, tending to produce indentations or surface fractures, and unaffected by atmospheric changes, tending to warp or split or scale the material.

As heretofore constructed, various constructive materials have been used. Among these, wood having a painted surface has been chiefly employed, but is subject to all the disadvantages above indicated. A surfacing of "silicate," "artificial slate," or similar material has been employed upon a backing of mortar or plaster, but is subject to the disadvantage of cracking, &c., partaking of all the qualities of the plaster in this respect, besides giving a brittle surface, easily scaling off, and soon wearing smooth. As a substitute for this, blocks or slabs of slate have been used; but this, also, is a comparatively soft material, easily chipped, broken, and scaled, soon polishing to a smooth surface, besides being comparatively expensive. It has also been proposed to make a blackboard or writing-tablet of glass, having one side painted or covered with a black compound, and the other side treated by grinding and the application of acid to form a writing-surface. As a substitute for all these materials, I employ slabs or blocks of glass rendered opaque and dark-colored by the introduction of a suitable pigment in the process of manufacture, and surfaced by a proper application of the "sand-blast," by which latter means also the surface can be at any time renewed *in situ*.

My invention will be more clearly understood from the accompanying drawings, in which—

Figure 1 is an elevation of a permanent blackboard secured against or forming part of the wall of a school-room; Fig. 2, a vertical cross-section of the same; Fig. 3, a vertical cross-section of a movable blackboard in which the glass is secured in a frame of wood with an interposed filling of rubber, paper, or cement; and Fig. 4, a diagram of a blackboard composed of four slabs "butted" together.

Referring now to the drawings, A designates a glass slab or heavy glass plate, of any convenient size, constituting a panel or section, of which there may be several to constitute a continuous blackboard. It is set into the wall B, or in a wood or iron frame, C, against a proper backing, *a*, of plaster-of-paris, cement, cloth, paper, or any substance adapting itself to variations in the rear surface contour of the glass plate and produce a firm support at all points. Suitable overlapping fillets of wood, *b*, form a frame for the plate and hold it marginally against any displacement. Where two or more slabs are used together, as illustrated in Fig. 1, their vertical meeting edges may be butted and cemented together, without the interposition of an overlapping holding-fillet; or four smaller plates, preferably square, may be butted together and cemented in a square holding-frame, as shown in Fig. 4. The glass so used is to be especially prepared for the purpose in the manufacture by adding a pigment of dark color in sufficient quantity to render the material opaque and prevent the transmission or refraction of light. Any dark color may be used, either black or any more attractive color—such as red, blue, green, purple, &c.—by which an ornamental effect may be given. The slab, either before or after setting in position, is to be suitably roughened by the sand-blast, and its surface thereby adapted to receive the chalk, and this may be renewed at any time by the same means. The special advantages of this construction, among others, are, first, the material does not absorb greasy matters or moisture, as does almost every other used for the purpose heretofore, and always "takes" the chalk; second, it is harder and presents a more durable surface than slate or any other material heretofore used, to resist wear of crayons; third, it is cheaper than slate

and free from all scaling tendencies, and can by proper annealing be toughened and strengthened against breakage by blows, such as accidental blows of a "pointer;" fourth, it is unaffected by weather or ordinary temperature; fifth, it is much easier cleaned either by dry or wet pads or sponges; sixth, it is incapable of indentation, as wood, or scaling, as plaster, or "blistering," as a painted wooden surface; seventh, it can be "resurfaced" by the sand-blast at will until the entire body of the material is worn through, thereby enhancing durability beyond any known substance heretofore used; eighth, the material is homogeneous throughout, thereby insuring identical qualities of surface at all points, whereas wood or slate is affected by the "grain;" ninth, it may be colored as desired to harmonize with the surroundings.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. As a new article of manufacture, a blackboard composed of material rendered opaque and dark-colored in the process of manufacture, and having a sand-blast writing-surface, substantially as described.

2. As an improved article of manufacture, a blackboard composed of opaque dark-colored glass held against a suitable backing and having a sand-blast writing-surface, substantially as described.

3. As an improved article of manufacture, a blackboard composed of two or more glass slabs butted together and held against a suitable backing, said glass slabs being opaque throughout their substance, and having a sand-blast writing-surface, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN FREY.

Witnesses:
L. M. HOSEA,
C. D. KERR.