

No. 802,979.

PATENTED OCT. 31, 1905.

A. M. ENGLISH.
SPRING LID BOX.
APPLICATION FILED FEB. 5, 1901.

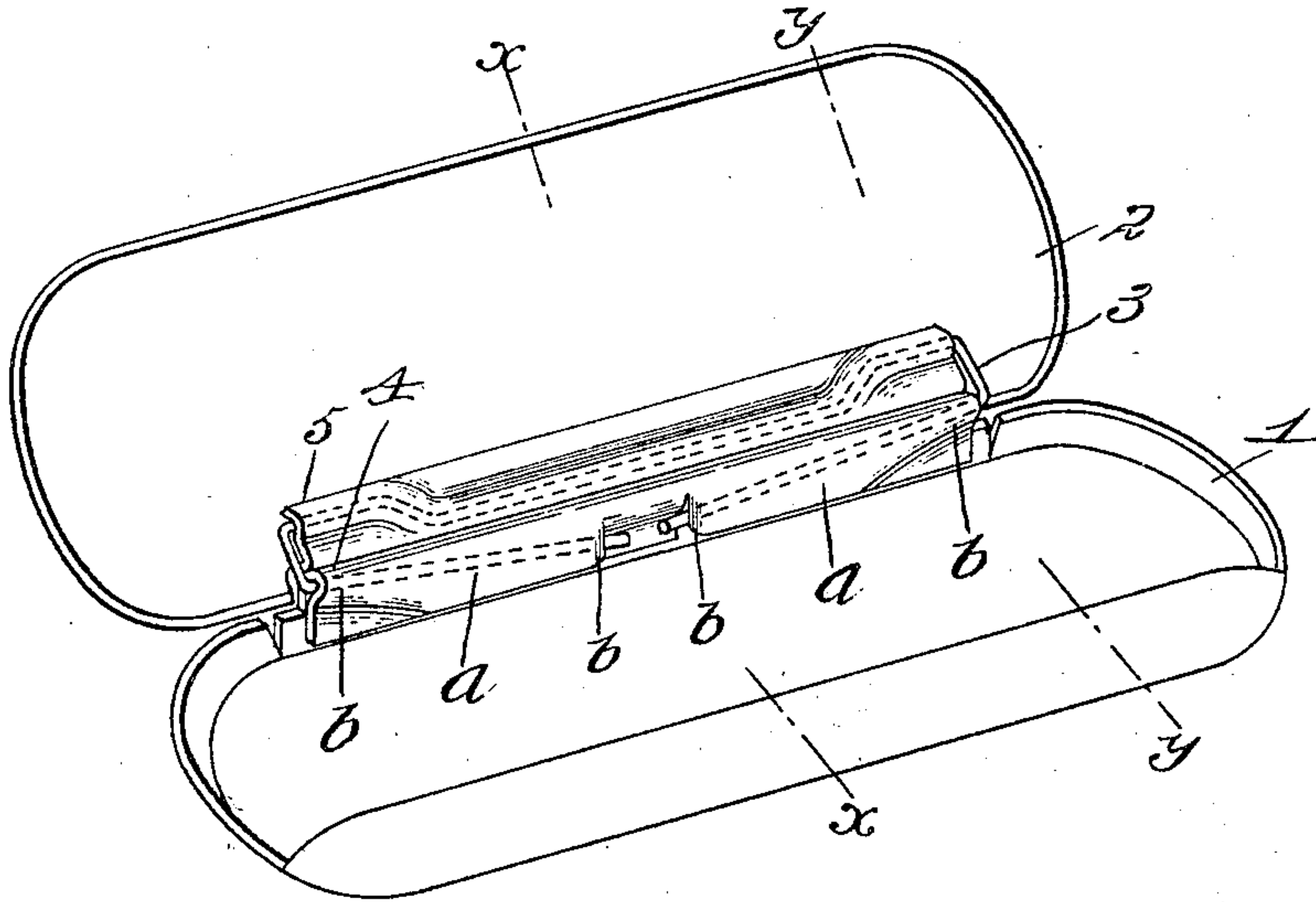


Fig. 1.

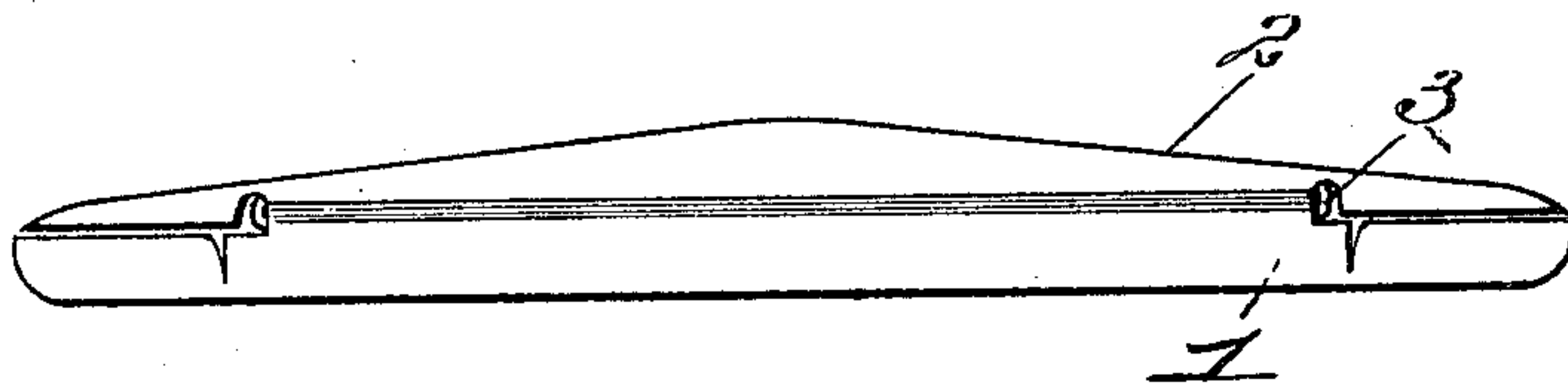


Fig. 2.

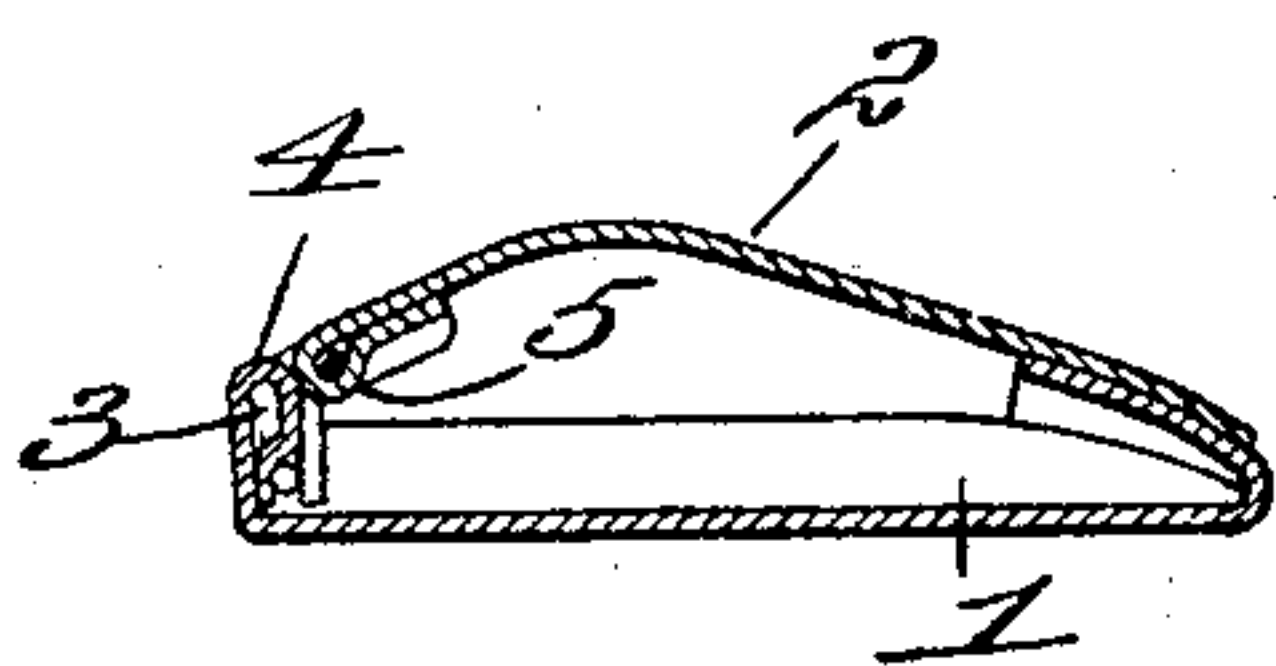


Fig. 3.

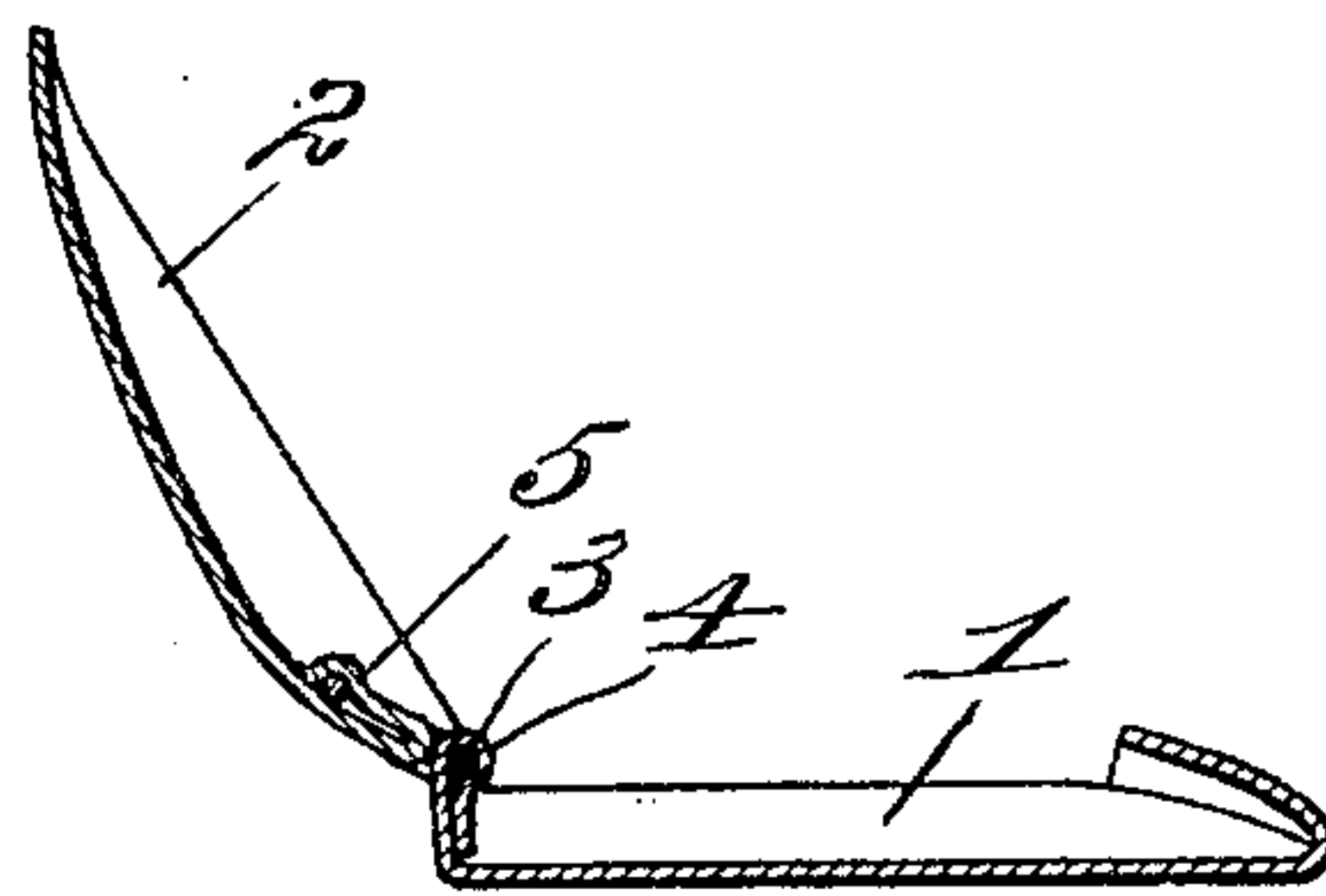


Fig. 4.

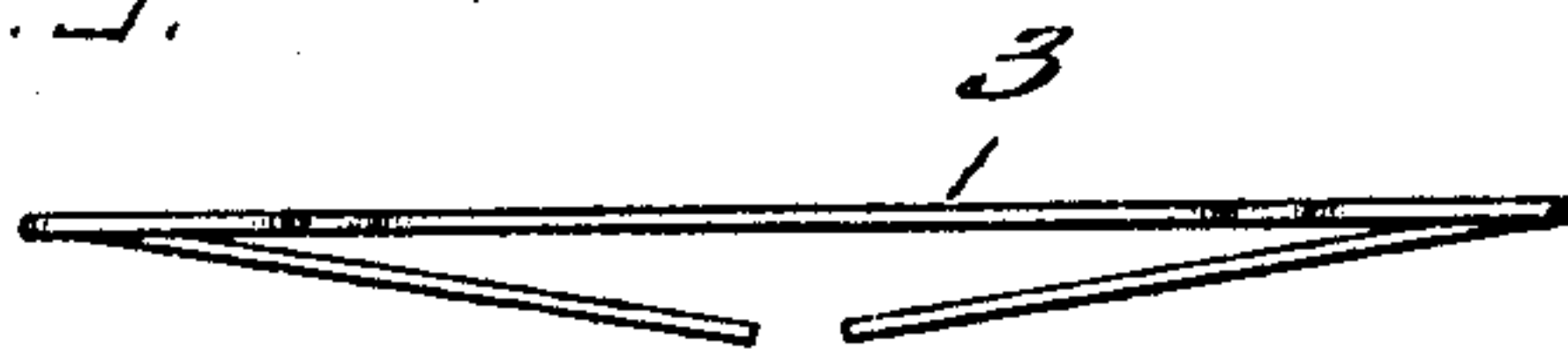


Fig. 5.

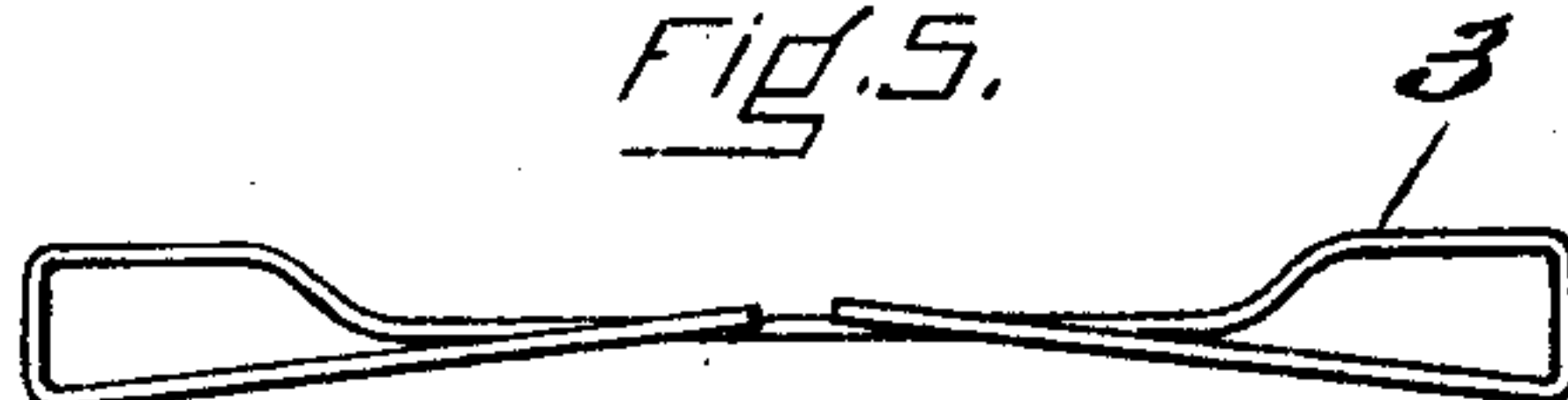


Fig. 6.

WITNESSES

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UNITED STATES PATENT OFFICE.

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SPRING-LID BOX.

No. 802,979.

Specification of Letters Patent.

Patented Oct. 31, 1905.

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To all whom it may concern:

Be it known that I, ANALDO M. ENGLISH, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Spring-Lid Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to an improvement in spring-lid boxes.

The object of my invention is to improve and simplify the construction of spring-lid boxes and to make a box in which the spring when in one position acts to hold the lid open and when in another position to hold the lid closed.

Another object of my invention is to make an improved spring-lid box in which the spring which acts to hold the lid open or closed shall at the same time constitute the hinge by which the lid is pivoted to the box.

To the above end the present invention consists in the improved spring-lid box hereinafter described and claimed.

In the accompanying drawings, illustrating the preferred form of my invention, Figure 1 is a perspective view showing my improved spring-lid box open. Fig. 2 is a rear elevation. Fig. 3 is a section on the line $x x$ of Fig. 1, showing the lid closed; and Fig. 4 is a section on line $y y$, Fig. 1, showing the lid open. Figs. 5 and 6 are respectively plan and front elevations of the spring used in the construction of the box illustrated in the other figures shown separate from the lid and box.

I have shown my improvement in spring-lid boxes in connection with a spectacle or eyeglass case; but it is to be understood that my invention relates to spring-lid boxes irrespective of their character or use.

In the illustrated embodiment of my invention the box 1 and lid 2 are made of sheet metal, and the spring 3 constitutes the hinge by which the lid is secured to the box and the means for holding the lid either in its open or in its closed position. The sheet metal of the box and lid are extended beyond the edges of the members and bent back upon themselves, as at 4 and 5, to embrace the spring. According to my invention the spring 3 is rigidly secured to one of the members, as the lid 2.

This is conveniently accomplished by forming a bend or bends in the wire spring 3 and inclosing these bends within the bent portion 5 of the metal of the lid. My invention contemplates any device or means of attaching one end of the spring rigidly to one of the members—that is, either to the lid or to the box; but I prefer to attach the spring rigidly to the lid, because such arrangement is more convenient in the manufacture of the boxes. So, therefore, while my invention in its broader aspects is not limited to securing the spring rigidly to the lid, but contemplates securing it rigidly to either the lid or the box, I prefer for the reasons stated and for other reasons apparent to those skilled in the art to attach the same rigidly to the lid. The spring 3 is pivotally secured in hinged bearings to the other member, as the box 1, so that when the lid is opened or closed the spring turning with the lid may rotate with relation to the box. In the illustrated embodiment of my invention the two similar ends of the spring 3 are inclosed within the bent portion 4 of the box, and these parts of the spring 3 are pivoted on the box on lines inclined to and intersecting the axis about which the lid turns. At the point where the spring leaves the box the spring is coincident with the axis upon which the lid turns. These portions of the spring therefore constitute hinges, and the parts of the spring extending down into the bent portion 4 of the box constitute the springs which operate to exert their force in the direction to close or open the lid according to the position which the lid shall at the time occupy. As seen from Figs. 5 and 6, in which the spring is shown apart from the box and lid, these portions of the spring are initially bent to a position inclined to the plane of the part of the spring inclosed by the bent portion 5 of the lid. These portions of the spring so initially bent being inclosed within the bent portion of the box in the position shown in Fig. 1 of the drawings operate when the lid is in the position shown in Fig. 1 to exert a pressure upon the lid tending to hold it open, and when the lid is turned to the position shown in Fig. 3 they exert a pressure upon the lid tending to hold the lid closed. It is to be observed in this connection that my invention in its broader aspects is not limited to a spring which subserves both the function of a hinge and spring, but that it is capable

of being used in spring-lid boxes which are provided with a hinge or hinges separate from the spring. It is also to be noted that my invention is not limited to a double spring; as shown, as each half of the spring is complete and operative as a spring for holding the lid open or closed independent of the other half of the spring; but I prefer to use the double spring of the character shown, because in such case the spring constitutes the only means for securing the lid to the box, and which construction, furthermore, conduces to simplicity and ease of manufacture.

In the operation of turning the lid from its closed to its open position, or vice versa, the part of the spring inclosed within the bent portion 4 of the box is strained, and it is thereby distorted flexurally. Therefore I prefer to make the inclosing portions of the box larger in the middle, as at *a*, than at the ends, as at *b*, so that at the ends the spring is closely engaged by the metal, and in the middle a space is provided within which this part of the spring may bend. As seen in Fig. 4, the bent portion 4 closely embraces the spring 3 inclosed thereby at the point where the spring leaves the box. As seen in Fig. 3, the end of the spring is embraced between two parts of the bent portion 4, this V-shaped notch being open on its under side and the initial bend of the spring tending to hold the end thereof in the notch, as shown. By this means it will be seen that the part of the spring embraced by the bent portion 4 of the box is supported at opposite ends so that during the turning of the lid this portion of the spring may bend without coming in contact with the walls of the inclosing metal, whereby the friction incident to the turning of the spring is much diminished.

Having thus described my invention, I claim as new and desire to secure by Letters Patent of the United States—

1. A spring-lid box, having, in combination, a sheet-metal box, a sheet-metal lid and a spring consisting of a bent piece of wire, the sheet metal of the box and lid being bent back upon themselves to receive the spring, the part of the spring inclosed by the bent-

back part of the sheet metal of one of the members being bent so that it is rigidly held thereby, and the part of the spring inclosed by the bent-back part of the sheet metal of the other member being straight so that it may turn therein, substantially as described.

2. A spring-lid box, having, in combination, a box, a lid and a spring consisting of a piece of wire rigidly secured to one member and pivotally secured to the other member on a line inclined to and intersecting the axis about which the lid turns, substantially as described.

3. A spring-lid box, having, in combination, a box, a lid and a spring consisting of a piece of wire rigidly secured to one member and pivotally secured to the other member on a line inclined to and intersecting the axis about which the lid turns, the portion of the spring which is pivotally secured to the said member being supported at its opposite ends and free at its intermediate portions, substantially as described.

4. A spring-lid box consisting of a box provided with a hinge-bearing, a lid, and a piece of wire constituting a combined hinge-pintle and spring rigidly secured to the lid and engaging said hinge-bearing in the box, acting in one position to hold the lid closed and in another position to hold the lid open, substantially as described.

5. A spring-lid box, having, in combination, a box provided with a hinge-bearing, and a lid provided with a piece of spring-wire rigidly secured thereto at one end, the other end of said spring-wire passing loosely through said hinge-bearing in which it is adapted to turn, said hinge-bearing being inclined to the axis upon which the lid turns and said spring-wire being initially bent and being laterally distorted when in place in the box so that it tends to hold the lid in both open and closed positions, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ANALDO M. ENGLISH.

Witnesses:

HORACE VAN EVEREN,
ALFRED H. HILDRETH.