

(No Model.)

F. E. LANGE.  
WATCHCASE SPRING.

No. 511,150.

Patented Dec. 19, 1893.

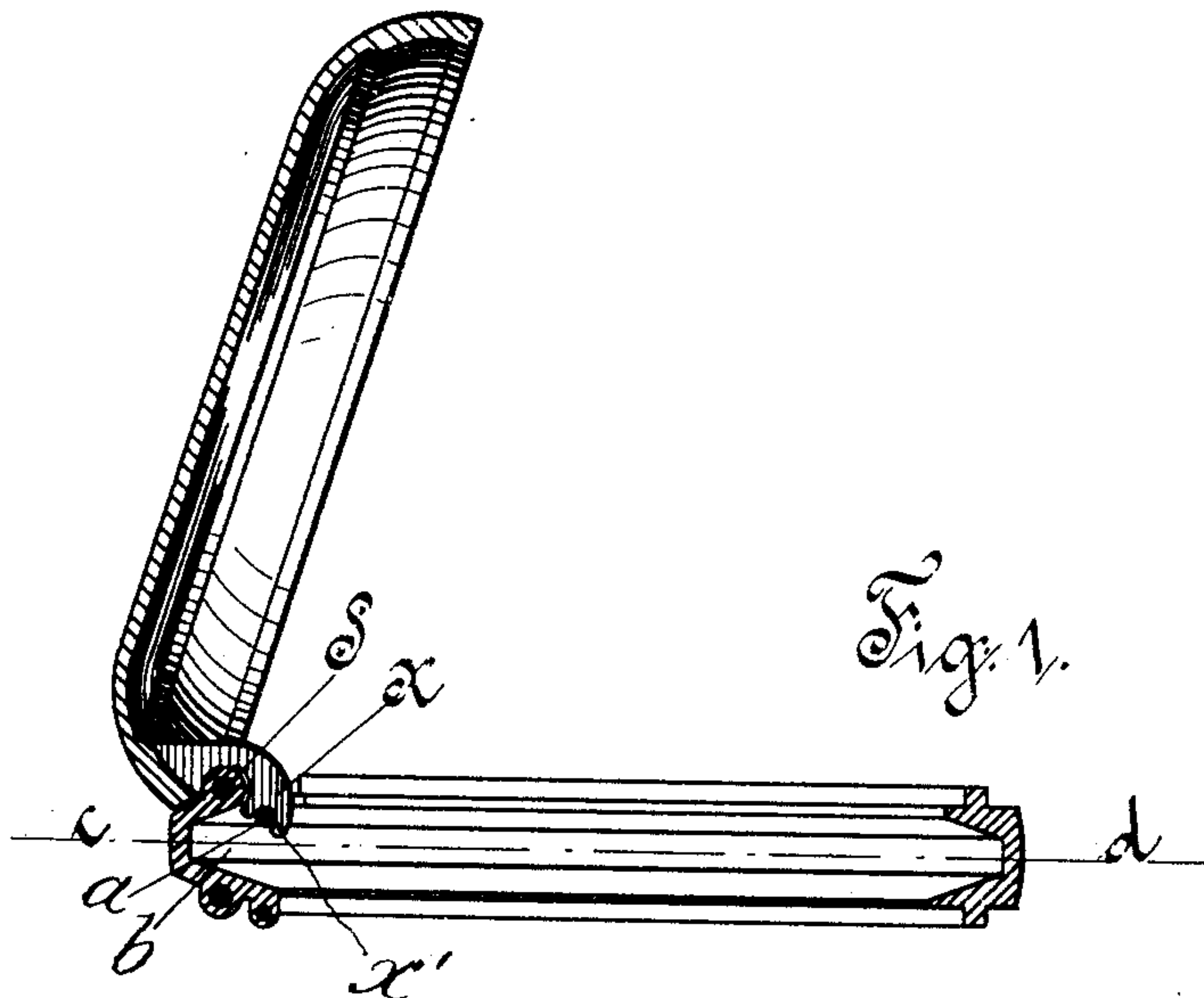


Fig. 1.

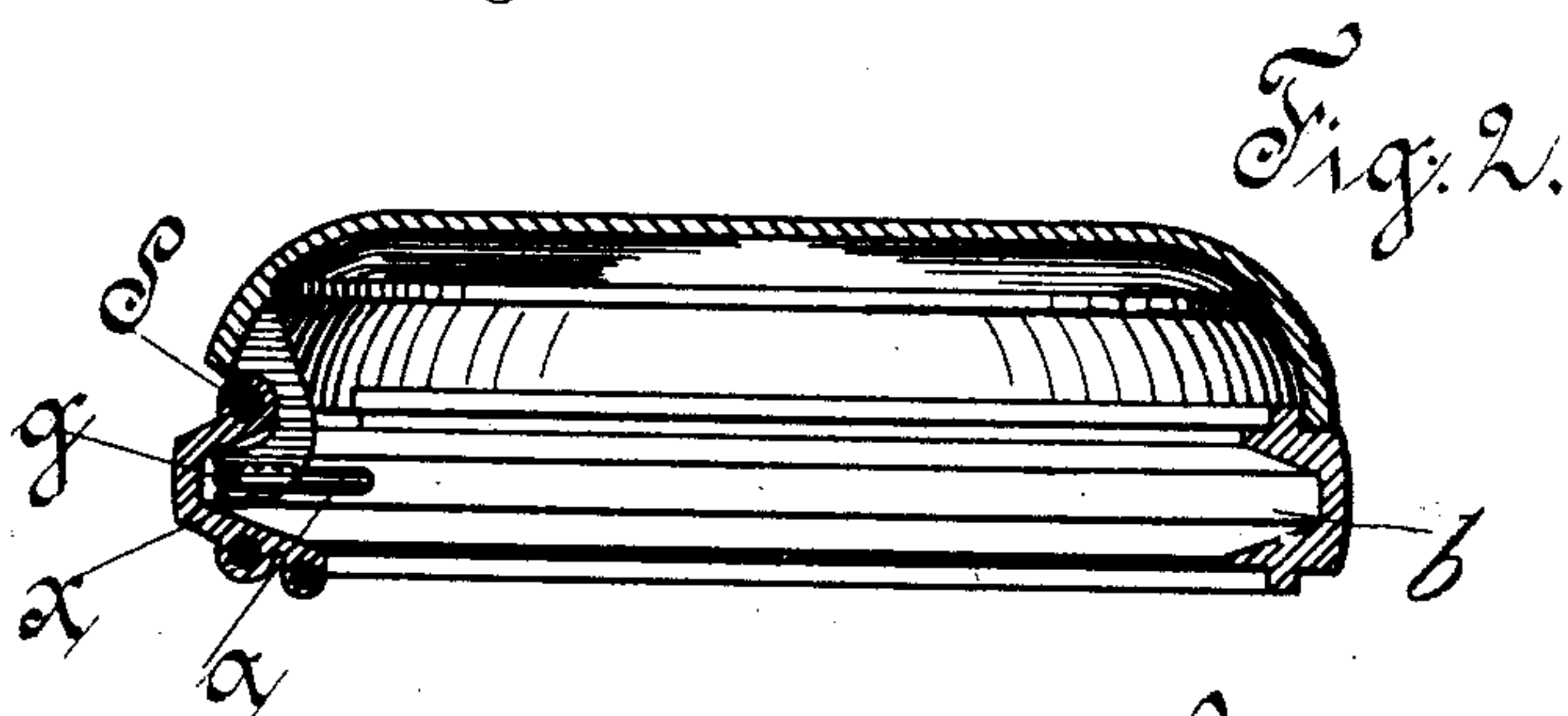


Fig. 2.

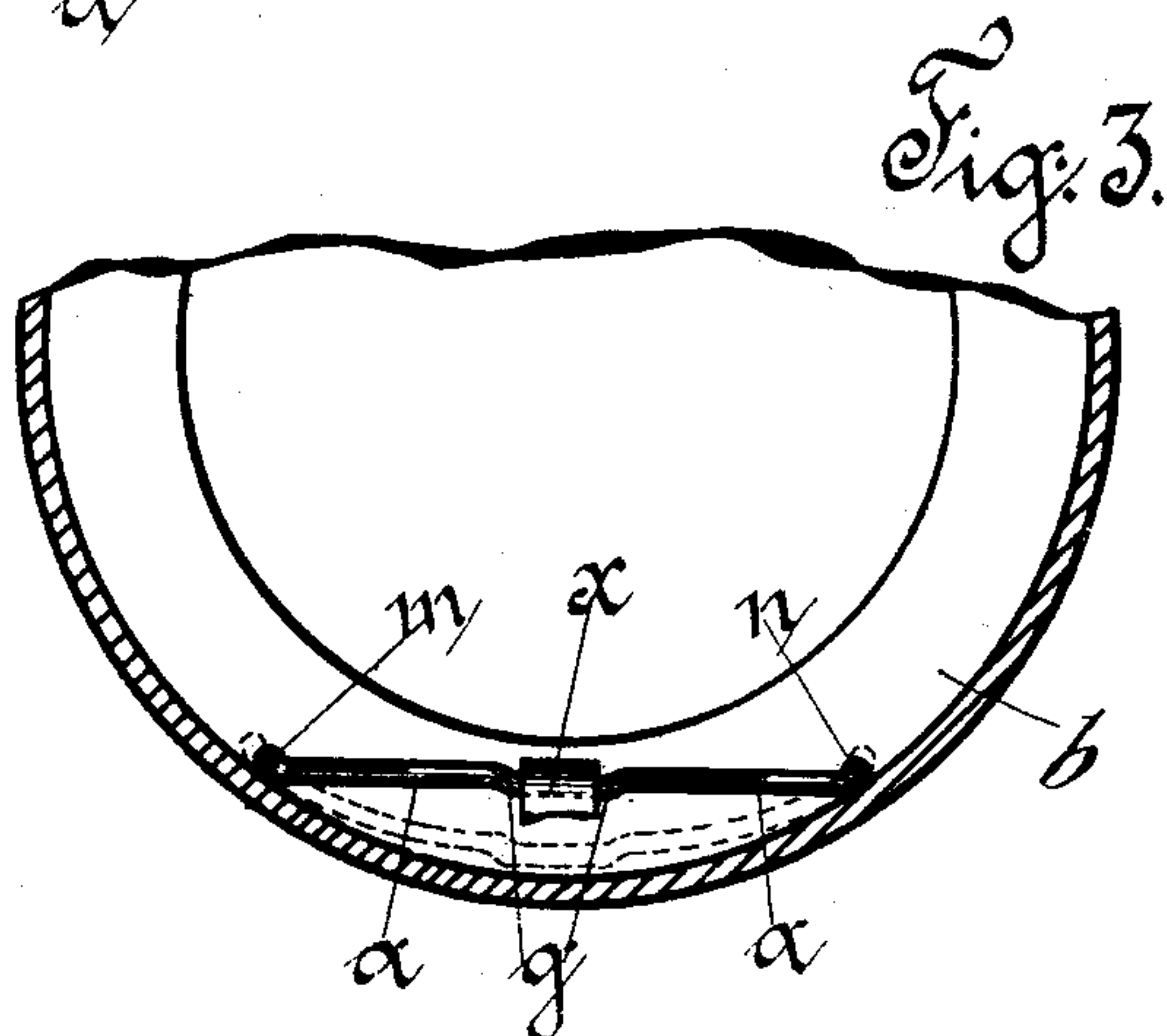


Fig. 3.



Attest:

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# UNITED STATES PATENT OFFICE.

FRIEDRICH EMIL LANGE, OF GLASHÜTTE, GERMANY.

## WATCHCASE-SPRING.

SPECIFICATION forming part of Letters Patent No. 511,150, dated December 19, 1893.

Application filed July 13, 1893. Serial No. 480,377. (No model.)

*To all whom it may concern:*

Be it known that I, FRIEDRICH EMIL LANGE, a subject of the King of Saxony, residing in the town of Glashütte, Saxony, in the German Empire, have invented certain new and useful Improvements in or Relating to Watchcase-Springs, of which the following is a specification.

This invention relates to lifting springs for watch-cases, lockets, boxes and the like, whereby the lid or cover of such watch-cases, will be automatically lifted or opened when the catch which keeps such lid or cover closed is released.

The object of the said invention is to provide a lifting spring which will be cheap in price, and not easily deranged or made inoperative, and which, if ever out of order, may be readily replaced, by the ordinary purchaser, by a new one. The lifting springs heretofore in use have been comparatively expensive and are generally so applied that they can be repaired or replaced only by a skilled watchmaker. They were, moreover, so constructed that they were liable to become broken or deranged. All these difficulties have been overcome in the present invention, which involves, broadly, a simple wire, preferably substantially straight, which is arranged below the hinge of the lid, and against which bears a tongue extending down from the lid.

The invention further consists in such further features and combinations of parts, as will be hereinafter set forth and pointed out in the claims.

In the drawings accompanying this specification—Figure 1 represents a section through an open watch-case embodying my invention, said section being taken on a plane at right angles to the axis of the hinge of the watch-lid; Fig. 2 a similar section, showing the watch-case closed; Fig. 3 a section at right angles to the plane of section of Fig. 1, and on the line  $c-a$ , in said figure; Fig. 4 a detail view of the watch-case spring removed; and Fig. 5 a similar view of a somewhat modified form of spring.

By referring to the drawings, it will be observed that under my invention, a substantially straight piece of spring-wire,  $a$ , preferably a piece of blue-tempered steel-wire, is arranged below the hinge,  $s$ , and in an annu-

lar recess,  $b$ , on the inner side of the edge or rim of the watch-case, in such a way that both its ends touch the walls of said recess, and the wire forms the chord of the arc of the annular recess included between its ends. The said spring-wire is loose and unattached to any part of the watch-case. It is held in place by a tongue,  $x$ , attached to the watch-lid near or above the hinge, and extending down into the watch-case far enough to bear against the middle portion of the spring-wire,  $a$ , so as to hold it in place. In order to enable the tongue,  $x$ , to more securely hold the spring-wire in place, it is provided at its end with a recess,  $x'$ , into which the spring-wire fits, and, in order to prevent the spring-wire from slipping longitudinally, or becoming disengaged, it is provided with a central bend,  $g$ , which, as shown in Figs. 3 and 4, may be formed by two bends. When formed as in Fig. 4, the said central portion fits into the recess,  $x'$ , of the tongue,  $x$ .

The ends of the spring-wire,  $a$ , are slightly bent and rounded, as shown at  $m$  and  $n$ , Figs. 3 and 4, in a direction opposite to the central bend or portion,  $g$ .

The operation of this lifting spring is obvious. When the catch which holds down the watch-lid is released, the resiliency of the spring-wire,  $a$ , bearing against the tongue,  $x$ , forces the same upwardly, and causes the lid to be automatically lifted, the spring-wire then assuming the position indicated in full lines in Fig. 3. When, however, the watch-lid is depressed, the tongue,  $x$ , bearing against the spring-wire,  $a$ , forces the same back and bends it so as to lie against the wall of the recess,  $b$ , as indicated in dotted lines in Fig. 3. The spring is inserted by simply fitting it in place in the annular recess,  $b$ , so that its ends touch the recess, then compressing the same so as to clear the end of the tongue,  $x$ , and finally allowing the bend or re-entering central portion,  $g$ , to snap into the recess,  $x'$ , on end of tongue,  $x$ . In this way, an old spring which has become worn out, or defective, or lost, may be readily replaced by a layman, as well as a skilled mechanic, the cost of such repair, including the cost of the spring, being very much smaller than under the constructions hitherto employed, as will be readily understood. It is, moreover, apparent that a



lid-lifting device made under my invention is very durable and not liable to get out of order.

While I have described my lid-lifting device in connection with a watch-case, it will  
5 be observed that the same is adapted for use on lockets, boxes and similar devices, and that I desire to be protected in its use for all such purposes. It is manifest that the lid-lifting device shown in embodiment of my invention  
10 may be variously modified, without departing from my invention. I, therefore, do not desire to be limited to the exact construction shown, but

What I claim, and desire to secure by Letters Patent, is—

1. In a lid-lifting device for watch-cases, lockets, and the like, a spring-wire whose ends bear against the inner side of the watch-case, in combination with a tongue extending from  
20 the watch-lid, whose end bears against the spring wire, substantially as set forth.

2. In a lid-lifting device for watch-cases, lockets, and the like, a watch-case having an annular recess, a spring-wire arranged in said  
25 recess and loose therein, in combination with a tongue extending from the watch-lid, whose end bears against the spring-wire.

3. In a lid-lifting device for watches, lockets, and the like, the combination, of a spring-

wire having a central bend whose ends bear  
30 against the inner sides of the watch-case, in combination with a tongue extending from the watch-lid and provided with a recess at its end, the central bend of the spring-wire fitting into the recess of the tongue, substan-  
35 tially as set forth.

4. In a watch-case, the combination of the following parts: a case provided with an inner annular recess, a lid hinged thereto, a tongue attached to the lid above the hinge,  
40 extending down into the watch-case and having a recess at its end, a spring-wire having a central bend and rounded bent ends bearing against the walls of the annular recess of the watch-case, the central bend of the spring-  
45 wire fitting into the recess in the tongue, substantially as set forth.

5. As an article of manufacture, a lid-lifting spring, consisting of a piece of spring-wire having a central bend and bent and  
50 rounded ends, substantially as set forth.

In testimony that I claim the foregoing as my invention I have hereunto set my hand in the presence of two witnesses.

FRIEDRICH EMIL LANGE.

Witnesses:

OSCAR SCHMEIDLER,  
PAUL ARRAS.