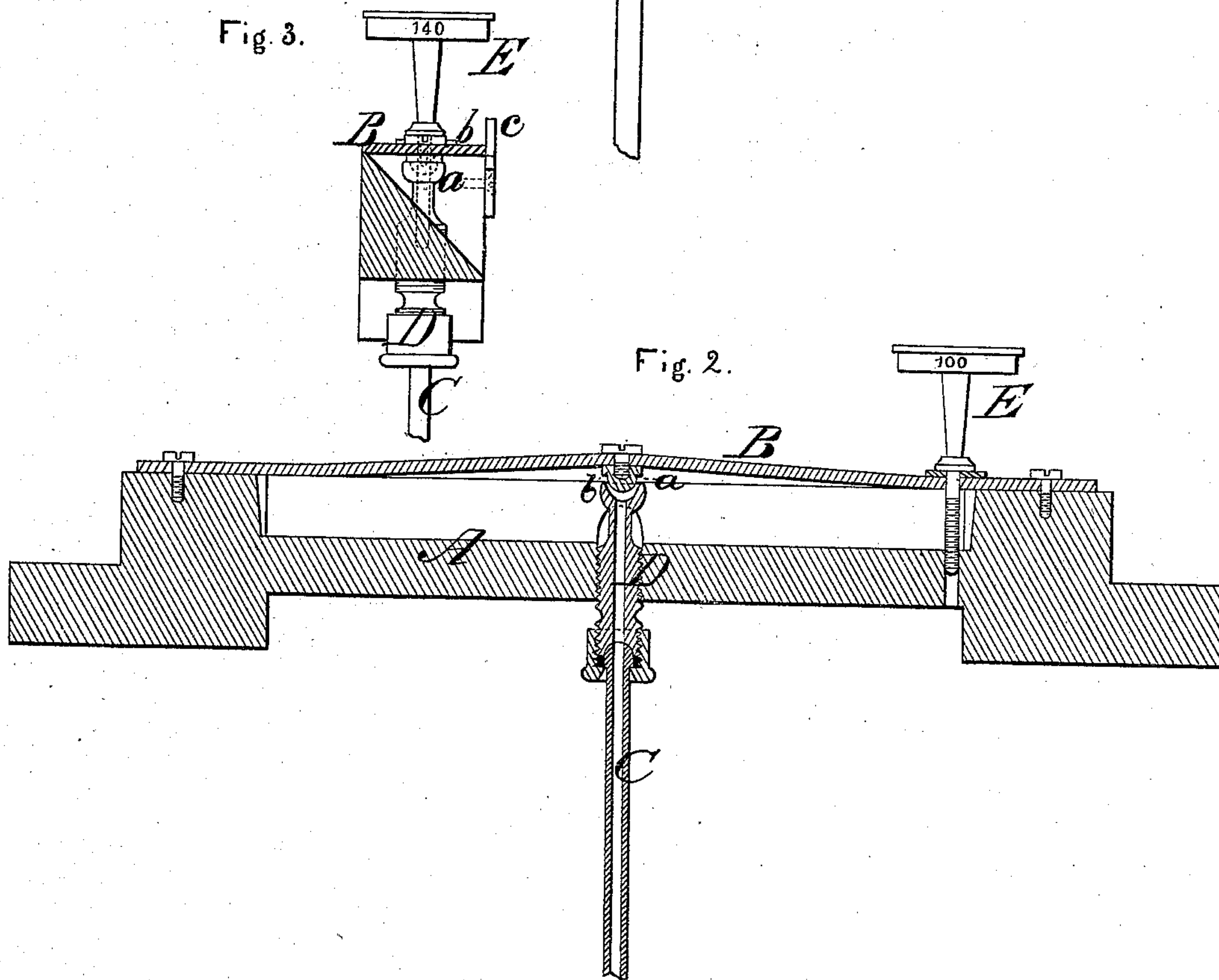
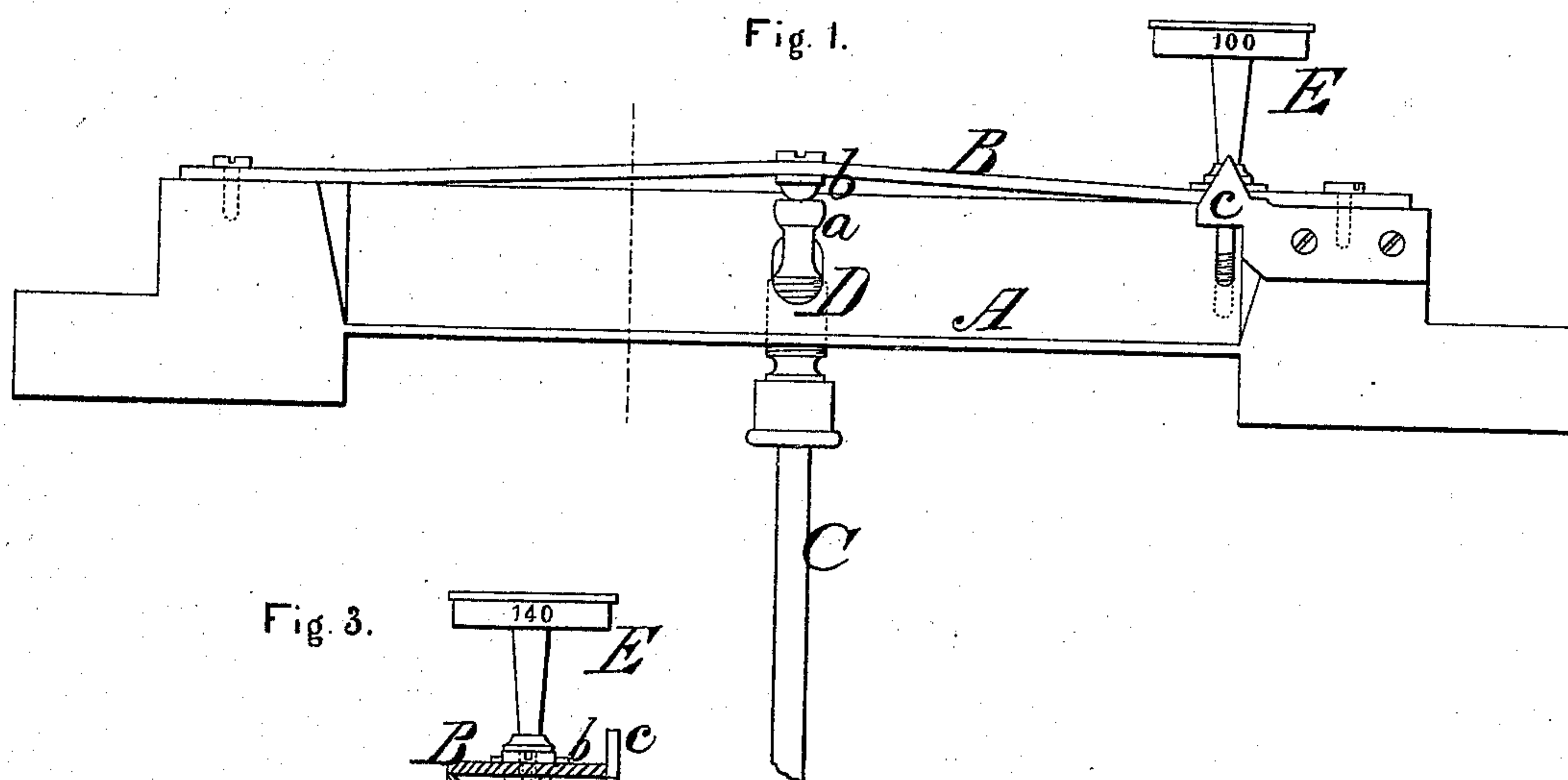


C. H. LEHNIS & W. KUEBLER.  
Automatic Fire-Alarms.

No. 150,660.

Patented May 5, 1874.



WITNESSES  
*Villette Anderson.*  
*George E. Upham.*

By

INVENTORS  
*Charles H. Lehnis,*  
*William Kuebler*  
*Chipman Hornum & Co*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

CHARLES H. LEHNIS AND WILLIAM KUEBLER, OF PHILADELPHIA, PA.

## IMPROVEMENT IN AUTOMATIC FIRE-ALARMS.

Specification forming part of Letters Patent No. **150,660**, dated May 5, 1874; application filed March 18, 1874.

*To all whom it may concern:*

Be it known that we, CHARLES H. LEHNIS and WILLIAM KUEBLER, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and valuable Improvement in Automatic Fire-Alarms; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a plan view of our device. Fig. 2 is a longitudinal sectional view of the same, and Fig. 3 is a transverse sectional view.

The object of our invention is to improve the automatic fire-alarm for which Letters Patent of the United States were granted to Charles H. Lehnis on the 25th day of November, 1873, and numbered 144,991. The improvement consists in the employment, in a novel manner, of a piece or strip, extended by heat, secured at its ends to a frame; also, the combination, with an intermittent joint, of an expansible strip and an adjusting tension-screw; also, a piece or strip, extended by heat, having a valve, *a*, in combination with a pipe, as will be hereinafter more fully described.

The following is a description of our invention.

In the annexed drawings, the letter A designates a frame or bar, which may be made either of wood or metal, and which is secured to any established object. B designates a strip or piece of hardened rubber, horn, or other material which will extend when subjected to a moderate degree of heat. This piece B is rigidly secured by its ends to the frame A, and at the middle of its length a valve, *a*, is secured to it, which valve is adapted to a seat, *b*. The valve-seat *b* is made in the upper end of a tube, D, which is rigidly secured to the frame A, and to which a pipe, C, is applied by an air-tight joint. The pipe C will communicate with one of two communicating cylinders containing mercury, in one of which is applied a piston. This piston will be connected to mechanism for giving an alarm, as fully set forth in the Letters Patent above referred to, or in any other suitable manner. E represents an adjusting-screw,

which is applied to the piece B near one end, and tapped into the frame A. The head of this screw E has certain figures on it, any one of which may be made to register with a fixed pointer, *c*. By adjusting the screw E the piece B can be depressed between its ends, and the valve *a* held on its seat *b* with more or less force. The valve *a* can thus be set to rise at any desired degree of heat. In the event of a fire taking place near the device above described, the heat will cause the piece B to extend, and as its ends are immovably secured to the frame A it will bow up in the center, and thus raise the valve *a* from its seat and open the end of the tube D.

It is proper to state here that when the valve *a* is on its seat the air in pipe C is exhausted, which causes the mercury in one of the cylinders above referred to to rise, and in the other cylinder to fall; consequently, when the valve *a* is raised, as above described, air will rush into pipe C and establish an equilibrium of pressure in the mercury-cylinders. This has been fully explained in the Letters Patent above referred to.

We may design to use our invention in connection with electric alarms, and in this case the intermittent joint *a b* need not be valvular in construction.

What we claim as new, and desire to secure by Letters Patent, is—

1. The extensible piece B, secured at its ends to a frame, A, and having a valve, *a*, applied to it, in combination with a pipe, C, substantially in the manner and for the purposes described.

2. The combination, with an intermittent joint, of a strip, B, expansible by heat, and the adjustable tension-screw E, substantially as and for the purpose described.

3. The expansible strip or piece B, confined by its ends to a frame, A, in combination with an alarm mechanism, substantially as described.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

CHARLES H. LEHNIS.  
WILLIAM KUEBLER.

Witnesses:

ALLEN H. GANGEWER,  
JOS. R. TINDALL.