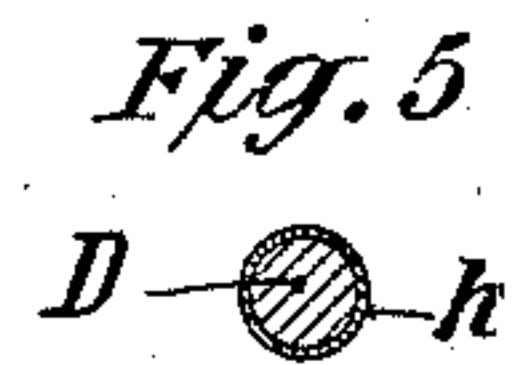
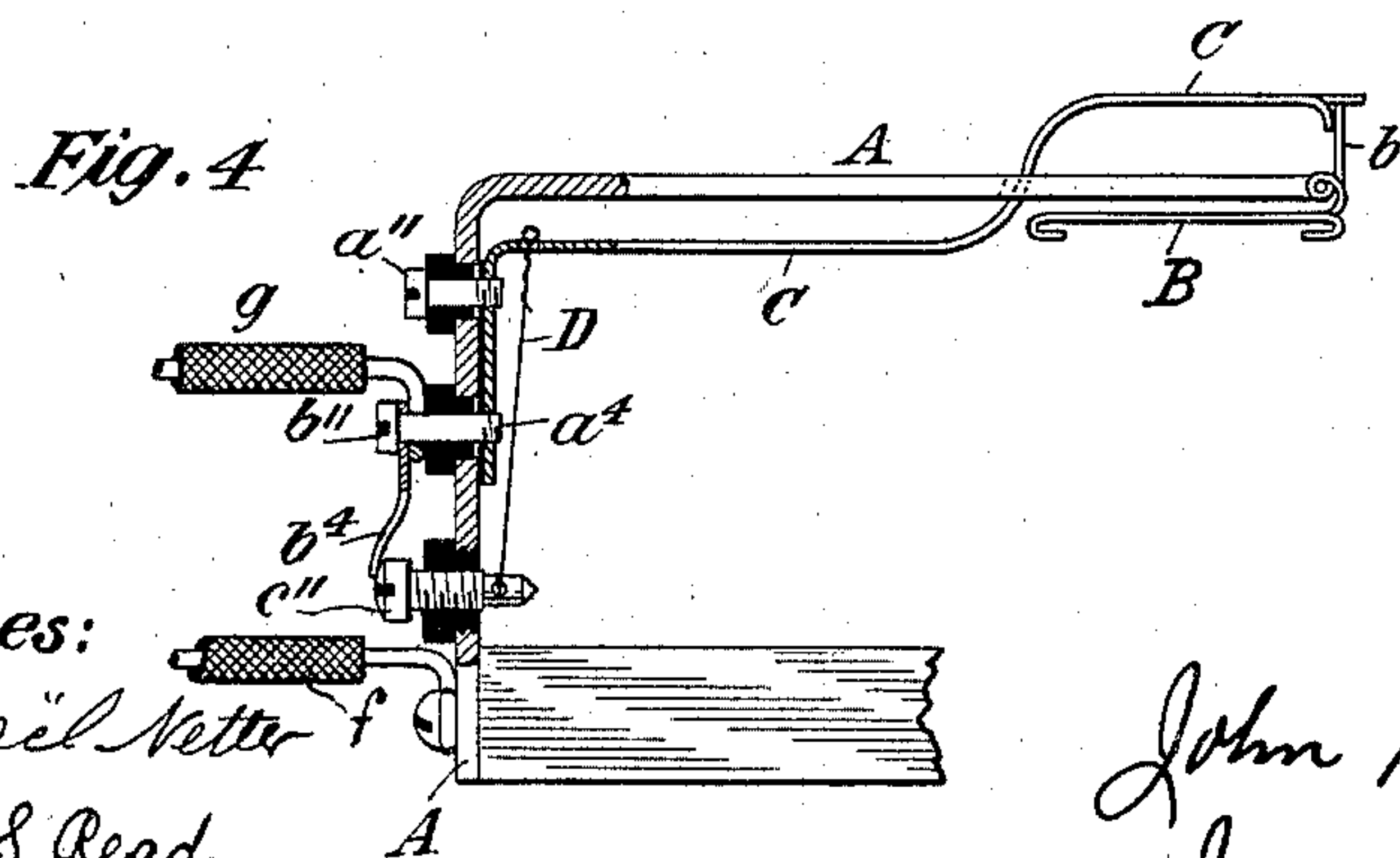
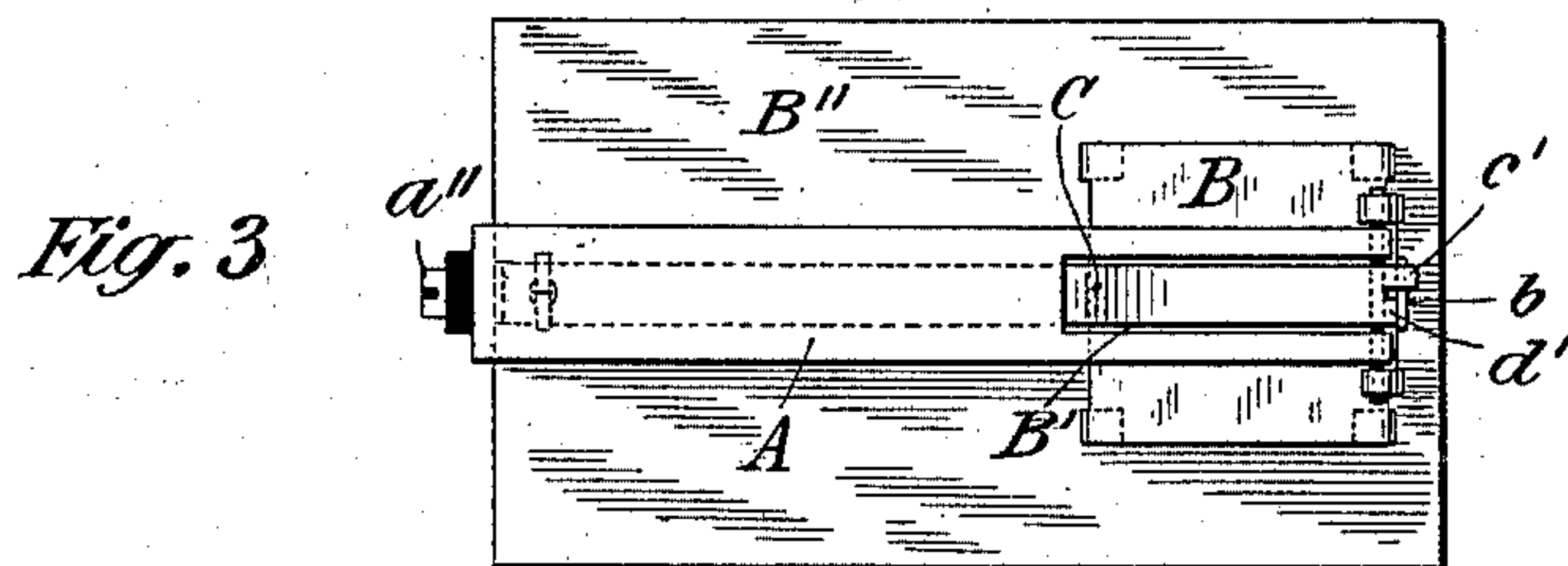
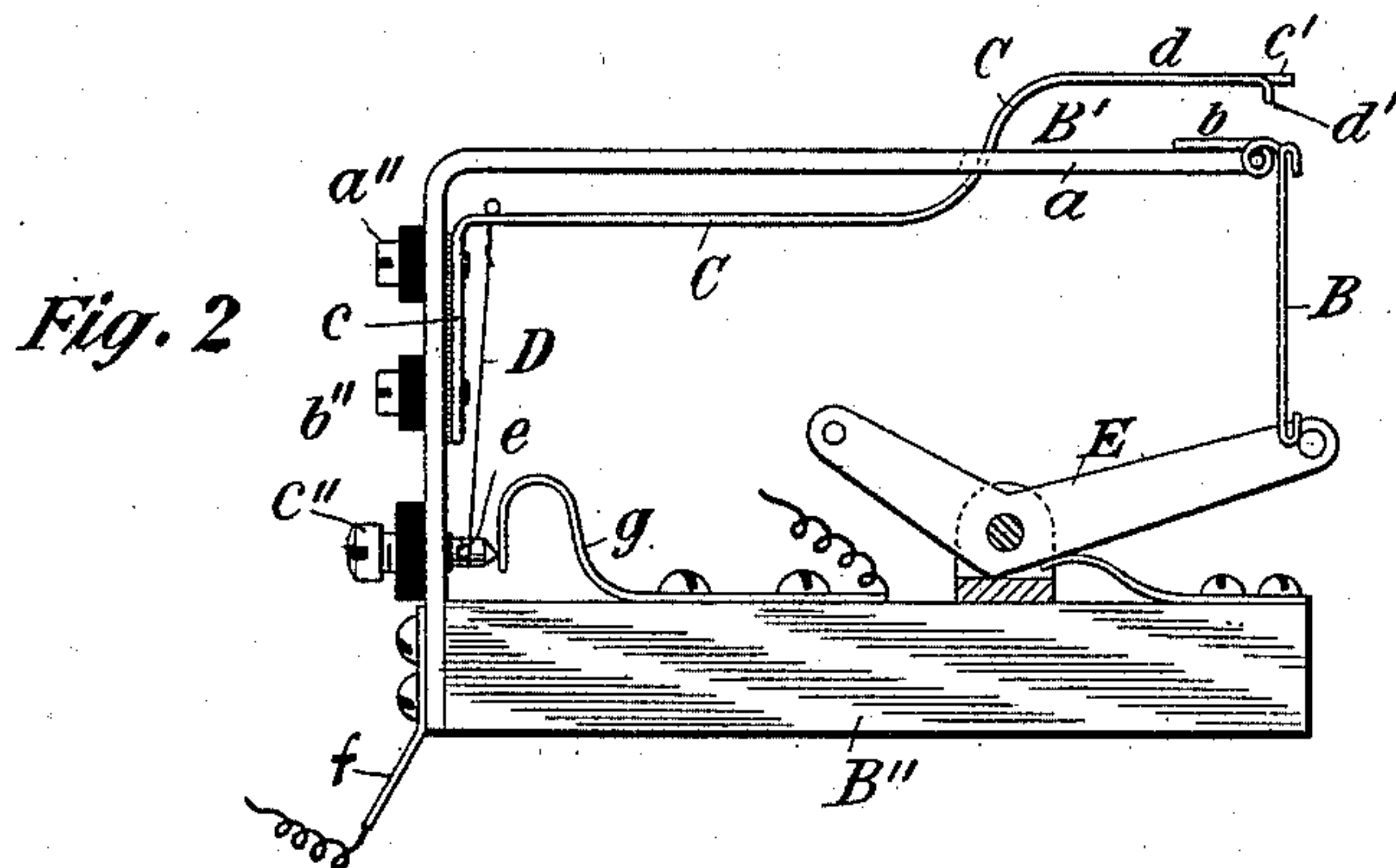
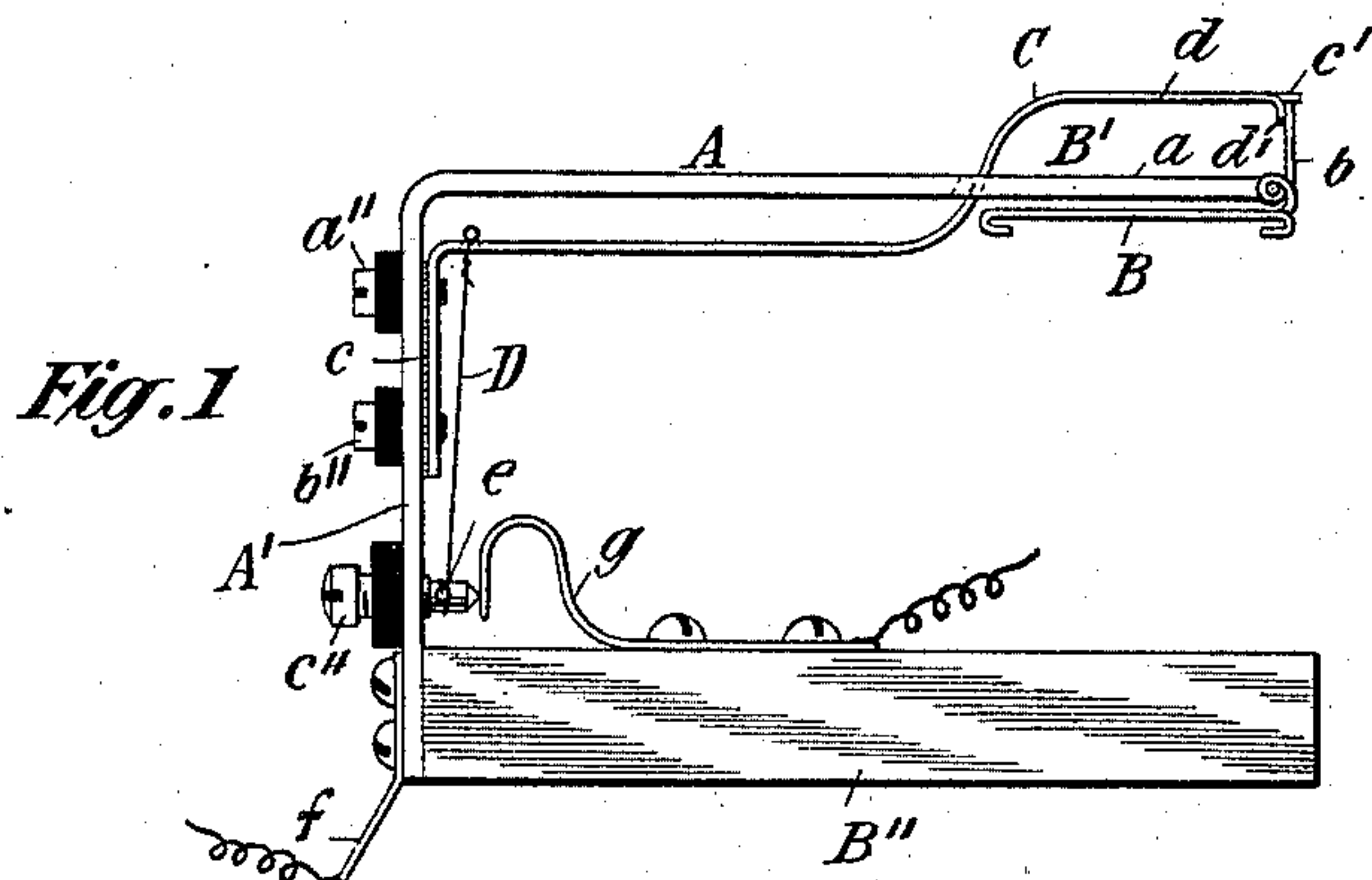


(No Model.)

J. KIPS.
ELECTRIC CUT-OUT AND ANNUNCIATOR.

No. 567,599.

Patented Sept. 15, 1896.



Witnesses:

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ELECTRIC CUT-OUT AND ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 567,599, dated September 15, 1896.

Application filed February 11, 1896. Serial No. 578,944. (No model.)

To all whom it may concern:

Be it known that I, JOHN KIPS, of the city, county, and State of New York, have invented certain new and useful Improvements in Electric Cut-Outs and Annunciators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which--

Figures 1 and 2 are vertical longitudinal sectional views of apparatus made according to my invention, and Fig. 3 is a plan view of the same. Fig. 4 is a vertical longitudinal sectional view showing additional portions of my invention; and Fig. 5 is a cross-section, on an enlarged scale, further illustrating one feature of my said invention.

This invention relates to that class of electric devices intended to automatically signal or announce at one place or locality an elevation of temperature at another; and it comprises certain new and useful combinations of parts whereby I provide a very simple, economical, and easily-constructed apparatus, by the use of which an increase of heat, whether from combustion or from concentration of electric energy, may be instantly and automatically indicated, either visually or audibly, or both, at another place or places with very great promptness and certainty, my said invention being applicable to the purposes of a self-acting fire-alarm, an automatic cut-out for electric light and power wires, a battery-protector, and to other uses of like character.

A is a bent standard, composed of any suitable metal. For facility in the attachment of other parts this standard is slotted, as shown at *a*, Fig. 3. Its lower end *A'* is attached to a suitable wooden or other practically non-conducting base or support *B'*, which may be placed in any suitable position with reference to said standard. To the opposite end *B'* of the standard *A* is pivoted a tag or visual signal device *B*, which has a tongue *b*, bent at an angle thereto, as shown in Figs. 1, 2, and 4. Attached at one end to the standard *A*, as at *c*, but insulated therefrom, is a metallic spring *C*, the tension of which tends to move its free motion in an outward direction. The opposite or free end *d* of this

spring passes up through the slot *a* of the standard, so that said end is brought above the adjacent end of the latter. From this free end *d* of the spring *C*, and between the stops *d'*, projects a stud *c'*, and adjacent to said stud is a stop *d'* at one or both sides of the slot *a*. The stud *c'* and stop or stops *d'* are so arranged with regard to the tongue *b* of the tag that when the latter is obscured by folding up at the under side of the standard the end of the tongue is brought under and at right angles to the stud *c'*, which latter holding upon the end of the tongue retains the tag in its desired or obscured position, the tongue being prevented by the stop *d'* from passing back in one direction, while the part of the standard above the tag prevents it from moving in the other. Extended from the spring *A*, at a point near its inner end, to a metallic contact-piece *e* is a metallic wire *D*, which is kept under more or less tension by the resiliency of the spring.

The parts being in the position just described with the end of the tongue *b* underneath and held in position by the free extremity of the spring *C*, and consequently with the tag *B* in its closed or obscured position, an electric current transmitted to the standard *A* passes along the same to the tongue *b* of the tag, thence to the spring *C*, and thence to and through the wire *D*, then from the latter to a suitable conductor arranged to complete an electric circuit. The passage of the current elongates the wire *D*, and as the latter is attached to the spring *C* near its inner end with the outer portion of said spring operating as the long arm of a lever it follows that the degree of upward movement allowed to the spring by the elongation of the latter at its point of attachment to the spring is multiplied at the extremity of the latter, in other words, at the stud *c'* and stops or stop *d'*, thereby permitting the spring to move in an outward direction from the tongue *b* to bring the stop or stops *d'* therefrom, thus permitting the tag to fall by gravity and be thus displayed as a signal indicating the passage of electricity in or through the wire. To reset the tag for renewed operation, it is only necessary to swing it upward to its closed position, the stop or stops *d'* yielding to permit the passage of the

tongue and closing behind the latter when it has reached its proper position with regard to the stud c' . The spring may be attached to the bent standard by any suitable means, preferably by insulated bushings at $a'' b''$. The contact-piece e may be provided integral with an adjustable screw c'' , passed through a similar non-conducting bushing. To provide for the circuit through or from a suitable source of electric energy, a metallic contact piece or wire f is provided in electrical contact with the foot of the standard A, and a resilient curved metallic contact-plate g is provided in connection with the contact-piece e , the latter being pressed against said plate to any desired degree by adjusting the screw c'' . It is of course to be understood that the proportions of the parts and their positions with regard to each other may be varied somewhat according to the special purpose to which the apparatus is to be applied. For visual signal or indicating purposes any suitable word, symbol, figure, letter, or device may be provided upon the tag. For audible signaling or indication a suitable contact-piece arranged by descent of the tag when it falls to open or close, as the case may be, the circuit if a burglar-alarm apparatus is to be used. Such a contact-piece is shown at E in Fig. 2. The tag in its descent coming in contact with this contact-piece transmits an actuating-current to any suitable sounding apparatus. As the various forms and modifications of the latter are well known in the art to which my invention relates, no specific description thereof is here thought necessary. It will be observed that the fall of the tag cuts out the current through the spring c , the standard A, and the wire D, and that consequently the resistance of the wire cannot interfere with the currents brought into play in the audible or burglar alarm when the latter is set in operation by the descent of the tag. It is, of course, to be understood that for simple signal or annunciator purposes no current is intended to pass through the wire, except in the event of intentionally turning on such current, which may be done by any of the usual or suitable means used for similar purposes in the art. For use as a cut-out or as a battery-protector the parts are, of course, to be so proportioned by the exercise of a proper degree of mechanical judgment that a current not exceeding a given strength or intensity may pass normally through the wire without elongating it to the point at which it will effect the falling of the tag, but when exceeding the predetermined point will, by the further elongation of the wire, discharge the tag, as hereinbefore explained.

I have ascertained that by coating the wire D with tin I diminish the radiation of heat therefrom when the wire is subjected to the electric current, and by this means the prompt elongation of the wire under the action of said current and an increase in the degree of such elongation are materially pro-

moted. Said wire should therefore be of iron, provided by any appropriate means with a substantial coating or covering of metallic tin. This is illustrated in a somewhat exaggerated scale in Fig. 4, in which the tin coating or covering h is shown as surrounding the wire D.

To meet those conditions in which the current is strong enough to destroy or impair the wire D if transmitted in its entirety there-through, I provide the construction shown in Fig. 4. In this a bolt a^4 extends through a non-conducting bushing from the spring C to the opposite side of the standard A, and is insulated with the latter. With this is connected the conductor g . From this bolt a^4 to the screw c'' extends a metallic clip b^4 , thereby establishing conductivity between the conductor g and the wire D. The standard has attached to it the conductor f , as hereinbefore explained. The tag being in its raised or obscured position, and the current entering the apparatus through the conductor f passes along the standard to the tongue b of the tag, thence along the spring C to the bolt a^4 . From this bolt the major portion of the current passes to the opposite conductor g , which is, of course, in due relation with the conductor f and the source of electrical supply to complete the circuit. Simultaneous with this a minor portion or fraction of the current is shunted or diverted from the spring C to and through the wire D, and thence through the screw c'' and clip a^4 to the conductor g . This fraction of the current of course elongates the wire D, and actuating the spring C to release the tag the fall of the latter, by destroying electrical connection between the spring C and the standard A, breaks the entire circuit—in other words, cuts out the whole current, this being effected by a proportion of the current which is incapable of injuring the wire D, although the current itself, in its entirety, is of a potency which would destroy or injure the wire if attempted to be passed through the same.

What I claim as my invention is—

1. The combination with the bent metallic standard A, having the slot, a , a non-conducting support therefor, the tag pivoted to the standard and constructed with the tongue, b , and the insulated spring, C, provided with a stop, d' and a stud, c' , of the wire, D, held under tension by the spring, and arranged to release the tongue of the tag from the stop or stops and the stud of the spring, by its elongation when subjected to an electric current, substantially as and for the purpose herein set forth.

2. The combination with the metallic standard, A, having the slot, a , a non-conducting support therefor, the tag, B, pivoted to the standard and constructed with the tongue, b , and the spring, C, provided with stops, d' , at opposite end of the slot, a , and with a stud, c' , between said stops, insulated bushings, a'' , b'' , for attaching the spring to the standard,

a contact-piece, *e*, a wire, *D*, extended from said contact-piece to the spring and held under tension by the latter, and a screw, *c''*, for adjusting said contact-piece in relation with
5 a contact-plate, *g*, forming part of an electric circuit, substantially as and for the purpose herein set forth.

3. The combination with the insulated standard, *A*, the tag pivoted to said standard
10 and constructed with a tongue, *b*, and the insulated spring, *C*, arranged to act upon the tongue of the tag, of a wire held under tension by the spring and provided with a coating or covering of tin to prevent radiation of
15 heat from said wire and thereby increase the full elongation thereof under the action of an electric current to permit the spring to act to release the tongue and consequently the tag, all substantially as herein set forth.

20 4. The combination with the insulated metallic standard, *A*, the tag pivoted to said standard and constructed with a tongue, *b*, and the insulated spring, *C*, provided with a stop or stops, *d'*, of the wire, *D*, held under
25 tension by the spring and arranged to release

the tongue of the tag when elongated of means for conducting the major part of an electric current through the standard, spring, and tongue apart from the wire, and means for shunting a minor part of said current through
30 the wire to elongate the same to release the tongue to drop the tag, substantially as and for the purpose herein set forth.

5. The combination with the insulated metallic standard, *A*, the tag pivoted to said
35 standard and constructed with the tongue, *b*, and the insulated spring, *C*, of the wire, *D*, held under tension by the spring and arranged to release the tongue of the tag when elongated, of a conducting-bolt, *a⁴*, connecting the
40 spring, *C*, with a conductor, *g*, a conducting device, *c''*, and conducting-clip, *b⁴*, connecting the wire, *D*, with said conductor, *g*, all substantially as and for the purpose herein set forth.

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Witnesses:

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HENRY S. READ.