United States Patent [19]

Blosse

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[45] **Sept. 3, 1974**

[54] **DEVICE FOR ACTUATING AN ALARM IN THE CASE OF BREAKING IN**

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[73] Assignee: **Bloscop,** Sannois, France

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[21] Appl. No.: **255,030**

[30] **Foreign Application Priority Data**

May 19, 1971 France 71.18129

[52] **U.S. Cl.**..... **340/274,** 200/61.62, 200/61.68

[51] **Int. Cl.** **G08b 13/08**

[58] **Field of Search** ..... 340/274, 276; 200/61.62, 200/61.67, 61.68, 61.81, 153 J, 100, 61.78

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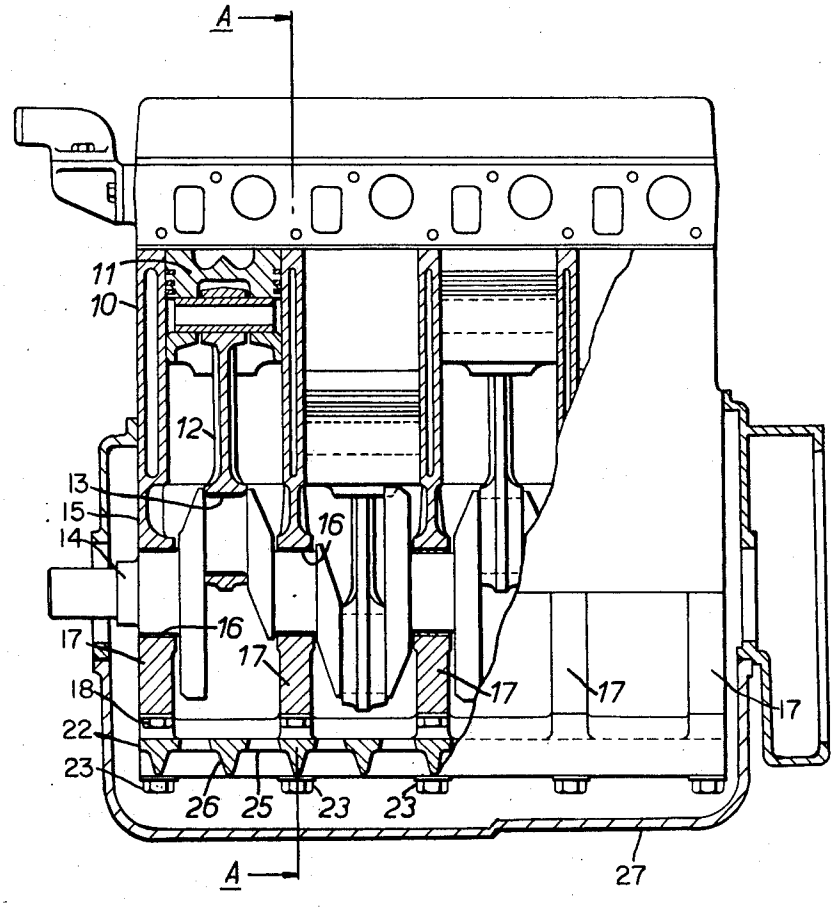
Primary Examiner—John W. Caldwell
Assistant Examiner—Scott F. Partridge

[57] **ABSTRACT**

Device for actuating an alarm in the event of a breaking into a premises by opening a door or the like. The device comprises a lock for locking the door, a detecting mechanism for detecting the opening of the door and connected through an arming mechanism to an alarm signal generator. The arming mechanism comprises a switch which is actuated directly by the bolt of the lock for either allowing or precluding actuation of the alarm. The switch is of the type having a pushbutton and is successively closed and opened and vice versa by successive depressions of the pushbutton effected by the bolt.

2 Claims, 3 Drawing Figures



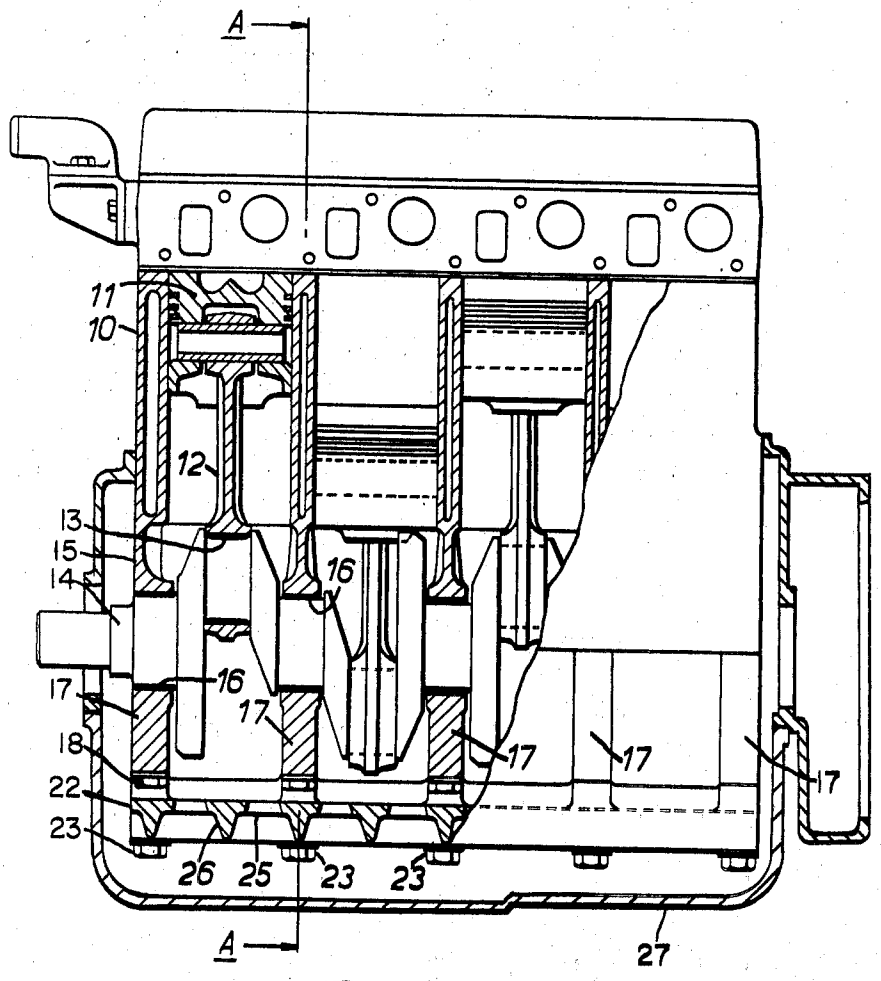


FIG. 1.

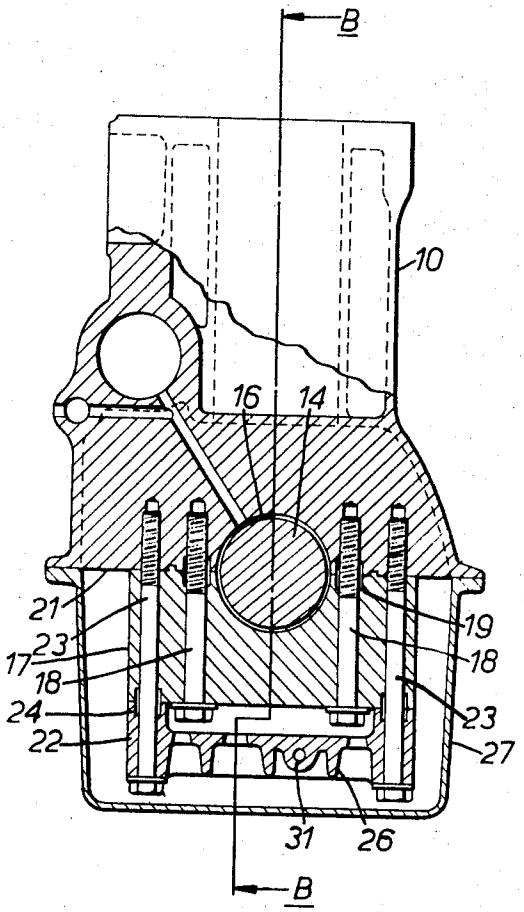


FIG. 2.

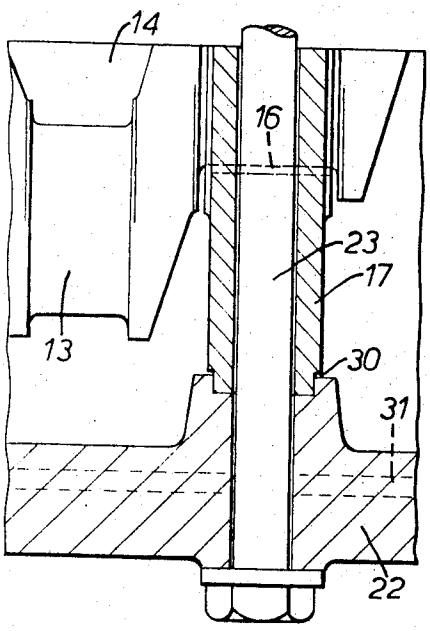


FIG. 3.

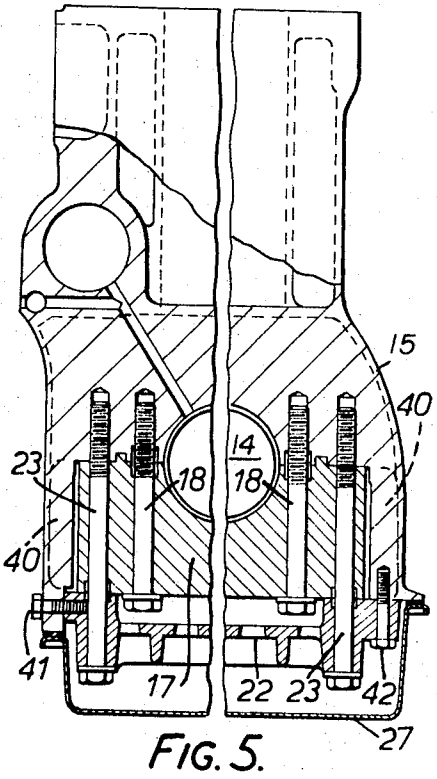


FIG. 5.

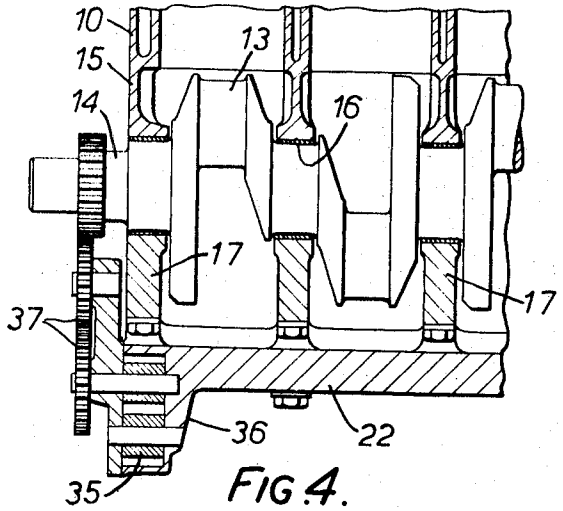


FIG. 4.

DEVICE FOR ACTUATING AN ALARM IN THE CASE OF BREAKING IN

The present invention relates to a device for actuating an alarm signal in the case of the breaking in of a premises or other enclosure.

Such devices are known in the art. They usually employ a detecting mechanism responsive to the movement of the closing member closing the access to the premises or enclosure, an arming mechanism for allowing or neutralizing the actuation of the alarm by entitled persons from outside or inside the closing member, and an alarm signal generator placed near to, or remote from, the aforementioned detecting and arming mechanisms.

Two types of devices exist, namely those in which the device can be armed only from inside the premises or enclosure and those in which the device can be armed from either inside or outside.

In the latter case, the arming is effected preferably by means of a lock, latch or like apparatus which is independent or specially provided for this purpose or constitutes a locking means which also serves to lock the closing member in the closing position.

Now, in the arrangement known up to the present time, when the lock is intended both for locking the closing member and arming the device, there is provided, in some cases, between the latter and the lock a mechanical connection, for example of the cable or rod type, which is relatively complicated and expensive. Further, when the closing member is a door of an apartment or like premises, this mechanical connection impairs the appearance of the door. In other cases, the arming is achieved by means of a switch which is constituted by two fixed contacts embedded in the door frame, whereas the moving contact of the switch is formed by the bolt of the lock for closing the closing member. Such an arrangement has a serious drawback when fitting the standardized assembly on the door unit. Indeed, it is frequent, for example in the case of a door, that the closing member defines a clearance with the frame which may vary widely from one closing member to another. Consequently, the device can only be mounted by a specialist and this is a disadvantage in respect of an article intended to have a wide market by direct sale to the public.

An object of the present invention is to remedy these drawbacks of known arrangements.

The invention provides a device for actuating an alarm when breaking into a premises or enclosure defined by a wall or like enclosure having an opening capable of being closed by a closing member such as a door, window or the like, which closing member is lockable by means of locking means such as a lock, the device comprising a detecting mechanism responsive to the opening of said closing member and capable of actuating an alarm signal generator which is connected to the detecting mechanism through an arming mechanism which allows or precludes the actuation of the alarm, said arming mechanism being controlled by said locking means. The arming mechanism is an electric switch having successive actuations and a pushbutton, the latter being actuated directly through the moving element performing the locking function of said locking means.

These features afford a very compact detecting device whose connections between the various mechanisms are essentially ensured electrically by wires which may be easily hidden away. Moreover, the bolt of the locking means does not directly participate in the establishment of the electrical circuit.

Preferably, the switch having successive actuations is disposed in a case constituting a keeper and the movable bolt element of the locking means acts on the pushbutton of the switch in the closing position of the locking means.

Further features and advantages of the invention will be apparent from the ensuing description with reference to the accompanying drawings.

In the drawings:

FIG. **1** is an elevational view of an alarm actuating device according to the invention associated with a bolt or a safety lock of a door;

FIG. **2** is a plan view, partly in section taken on line **2—2** of FIG. **1**, of the device shown in FIG. **1**, and

FIG. **3** is an elevational view, partly in section, of a modification of the device according to the invention.

The device shown in FIGS. **1** and **2** is associated with a door P, for example of an apartment, the latter constituting the enclosure to be protected. However, it must be understood that the invention is not intended to be limited by the presently-described example and that the enclosure may be, for example, a premises, an area defined by a wall or fence, a house, or individual building, a drawer, a refrigerator, or an automobile vehicle.

Similarly, the closing member may be other than a door, for example a window or portal.

Mounted on the frame H of the door is a case **1** having a double function. It first acts as a keeper for a lock V of conventional type whose bolt A is horizontally slidable.

The case **1** also acts as a housing for an arming mechanism **2** and a part of a detecting mechanism **3.**

The lock V has preferably two locking positions. In the first position, the bolt is introduced into the keeper, that is the case **1,** through a slot or notch **4** provided in the conventional manner in the wall adjacent the edge of the door P. In the second position of the lock V, the bolt A extends still further into the case **1** so that its leading edge **5** comes in contact with a pushbutton **6** of the arming mechanism **2.**

The latter is constituted by an electric switch of known type having successive positions or actuations, that is to say, the switch comprises two fixed contacts and a moving contact, the latter being capable of occupying two stable positions which are occupied in succession after two successive depressions on the pushbutton **6.** In one of the positions, the moving contact is applied against the fixed contacts whereas in the other position the switch is opened, the moving contact being disengaged from the fixed contacts. The fixed contacts of this switch are electrically connected to two connecting screws **7** and **8** outside the housing of the switch. The housing is fixed to the case **1** by screw and nut means **9.**

The effect of the bolt A of the lock V on the arming mechanism will be understood. By placing the bolt A twice in the extreme outer locking position the pushbutton **6** is depressed twice and successively opens and closes the switch or inversely.

The detecting mechanism B comprises an L-section member **10** which is not disposed in the case **1** but fixed on the edge of the door P so that the flange **10^a** of the

member is capable of acting on the free end of a resiliently yieldable metal strip **11** which is mounted horizontally in the case **1** against the rear wall **12.** This strip has preferably a foldable free end portion which permits, when mounting or fitting the device on the door, regulating its operative length so as to adapt it to the clearance between the keeper and the edge of the door. The member **10** is maintained in position by two screws **13** which extend through oblong apertures **14** arranged to permit adjustment of the member in the horizontal plane. Likewise, the resiliently yieldable strip **11** is fixed in the case **1** by screw and nut means **15** which extend through an oblong aperture **16** allowing adjustment of the strip **11** in the horizontal plane.

Thus it is possible to take into account tolerances and differences which might exist in different doors or other existing closing members, by previously adjusting the positions of the member **10** and the strip **11.**

The strip **11** is capable of acting on a switch **17** through a curved strip **18** and a curved spring **19** which ensures a sudden operation of the switch in the well-known manner.

In the position of the door P shown in FIG. **2,** the flange **10**^{a} of the member **10** bears against the strip **11** which urges the curved strip **18** in such manner that the moving contact **17**^{a} is disengaged from the fixed contact **17**^{b} of the switch under the action of the spring **19.**

On the other hand, when the door P is opened, the flange **10**^{a} is disengaged from the strip **11** and releases the strip **18** under the action of the spring **19.** The latter also urges the moving contact **17**^{a} against the fixed contact **17**^{b} by a sudden action.

The switch or arming mechanism **2** and the switch **17** are electrically connected in series and connected by two wires **20** and **21** to an alarm signal generator **22** the diagram of which is shown in FIG. **1.** This generator is preferably placed at a distance from the door P in a place hidden from view. It comprises a source of voltage **23** supplying power to a circuit consisting of a siren **24** or like apparatus, a relay coil **25,** a closing contact **26** actuated by the relay coil **25,** and an on-off switch **27** which could be actuated by a key. The closing contact **26** is connected in series with the series circuit of the switch **2** and switch **17.**

In a modification, the switch **17** and the L-sectioned member **10** may be replaced by a switch having a magnetic control for example of the type having blades under a glass ampoule, the magnet being mounted on the door and the switch being placed on the keeper or in another suitable place.

The device according to the invention operates in the following manner:

Let it be assumed that an entitled person is in the apartment and desires to leave the apartment and arm the device. This person opens the door by opening the lock V in the usual manner. In this way, the switch **17** is closed but the switch **2** is not yet closed and the generator **22** is not brought into operation. Closure of the door brings about the opening of the switch **17** and the person, now outside the apartment and desiring to arm the device, bring the bolt A of the lock V to the extreme closing position by means of his key which he engages in the usual manner in the lock V for closing the door P. In doing so he acts on the pushbutton **6** and therefore closes the switch **2.**

In order to maintain the door P locked, the person then returns the lock A to the first closing position.

If, under these conditions, an offender attempts to open the door, the member **10** is disengaged from the strip **11** so that the switch **17** closes in the manner described hereinbefore. At this moment, the circuit of the generator **22** is closed, the siren **24** is actuated and the relay coil **25** closes the contact **26.** Thus the siren continues to operate even if the offender cuts the wires **20** and **21** or destroys the switches enclosed in the case **1.**

On the other hand, the entitled person, when he returns and desires to enter the apartment, can by means of his key once more disconnect or disarm the device by first bringing the lock to its extreme closing position so as to open the switch **2.** He can then unlock the lock for opening the door P.

Note that the arming and disarming of the device according to the invention can be effected from within the enclosure.

FIG. **3** shows a modification in which the generator is disposed in the same case as the arming and detecting mechanisms **2** and **3.** For this purpose, there is provided a case **28** of larger size than the case **1** and closed by a cover **29** in which is provided a lock **30.** Moreover, it can be seen that the case contains all the elements of the generator. The lock **30** permits opening the case **28** for stopping the alarm, for example by withdrawing the source of voltage **23.** In this arrangement, no on-off switch is provided outside the case which may be actuated by the offender.

The embodiments described hereinbefore have been given only by way of examples. For example, it is possible to provide the detecting mechanism in a place other than that shown in FIGS. **1–3,** for example at the top of the door P.

The advantage of the embodiment shown in FIGS. **1** and **2** is that it may be employed with an existing lock, only the keeper being replaced by a case **1** containing the arming and detecting mechanism.

Having now described by invention what I claim as new and desire to secure by Letters Patent is:

1. A device for actuating an alarm in the event of a breaking into premises, ground enclosed by a wall or like enclosure having an opening capable of being closed by a closing member, such as a door, window or the like, said device comprising locking means for locking the closing member in the closing position of the closing member, the locking means having a movable member and an associated keeper, said movable locking member being movable between a withdrawn position from said keeper and two locking positions within said keeper, a detecting mechanism responsive to the opening of said closing member, an alarm signal generator, means operatively connecting the detecting mechanism to the generator and comprising an arming mechanism having a switch capable of being actuated directly by the locking member of said locking means, when moved to one of said locking positions, for selectively allowing and precluding actuation of the alarm, said switch being of the type having a push button with an associated moving contact and two fixed contacts, said moving contact being urged into contact with said two fixed contacts, to complete a circuit through said switch, by a movement of said locking member, against said pushbutton and to the one of the locking positions of said locking member to its fully extended position,

said moving contact being retained in this position when said locking member is withdrawn from contact wherein said pushbutton to the other one of the locking positions wherein said locking member is within said keeper, and said moving contact being disengaged from said two fixed contacts on a next movement of said locking member from said other one of the locking positions to said one of the locking positions, and wherein the detecting mechanism comprises a second electric switch disposed within said keeper and a thrust means which is carried by the closing member and is capable of opening the second switch when the closing member closes said opening.

2. A device as claimed in claim **1** further comprising a resiliently yieldable strip mounted on said keeper and with one end of said strip extending laterally away from said keeper, said thrust means being a member fixed on said closing member to cooperate with said one end of said strip, an intermediate portion of said strip being associated with said second electric switch, whereby, when said closing member is moved away from its position for closing the opening, said movable strip is allowed to move and said second electric switch is closed.

* * * * *

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,833,899 Dated September 3, 1974

Inventor(s) Jean Charles Joseph Blosse

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Cancel the illustrative figure on the cover sheet and the 3 sheets of drawings and substitute Figures 1, 2 and 3, as shown on the attached sheets.

Signed and sealed this 15th day of October 1974.

(SEAL)
Attest:

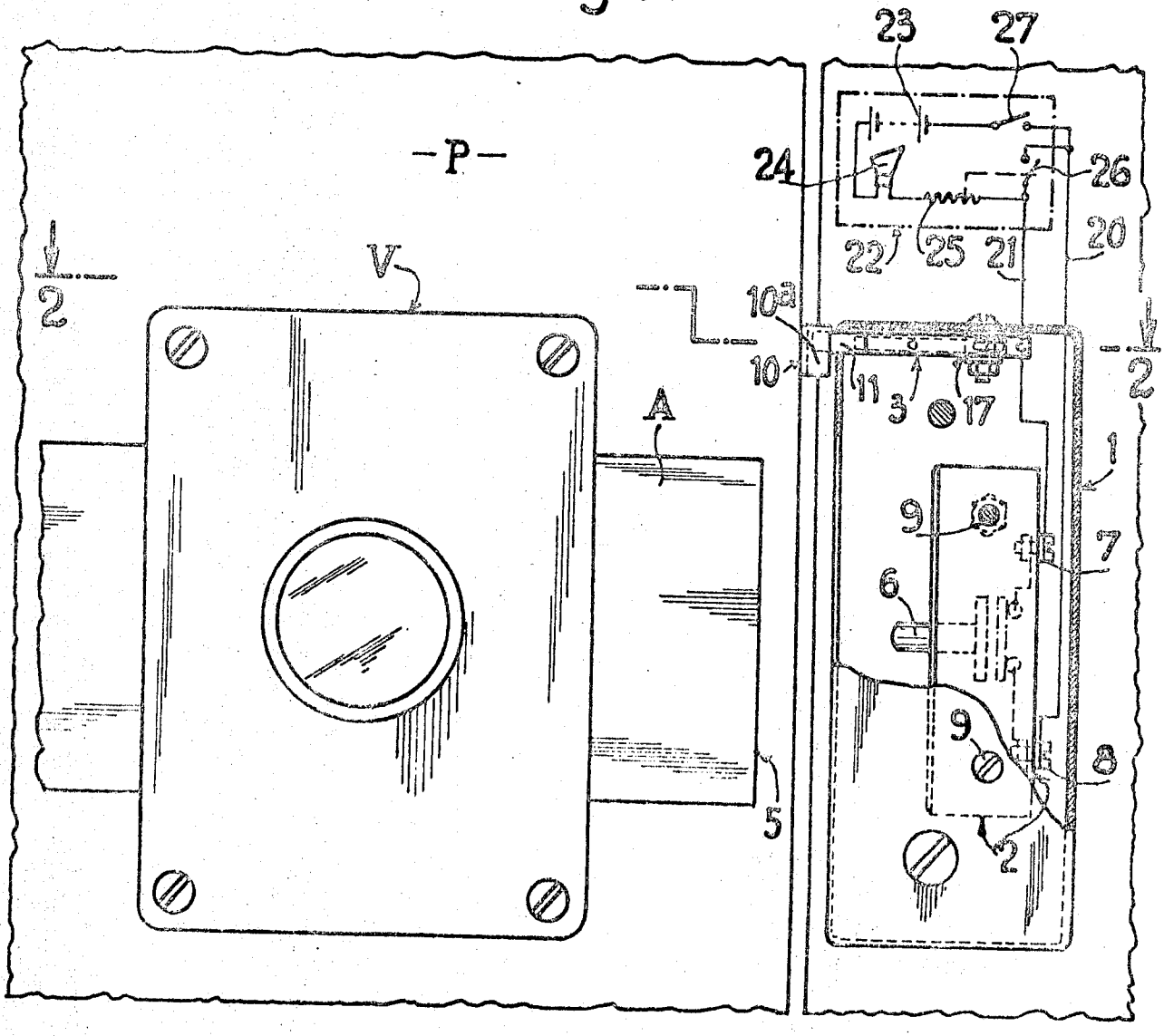
McCOY M. GIBSON JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents

FORM PO-1050 (10-69)

USCOMM-DC 60376-P69
U.S. GOVERNMENT PRINTING OFFICE : 869-930

Fig. 1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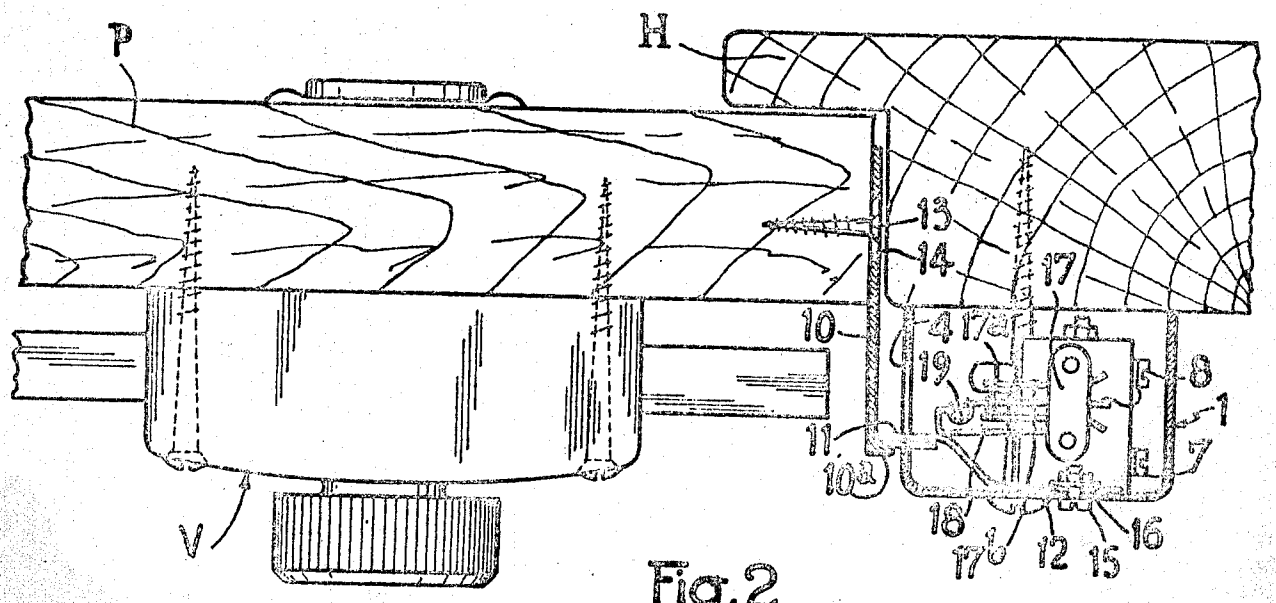
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Fig. 2

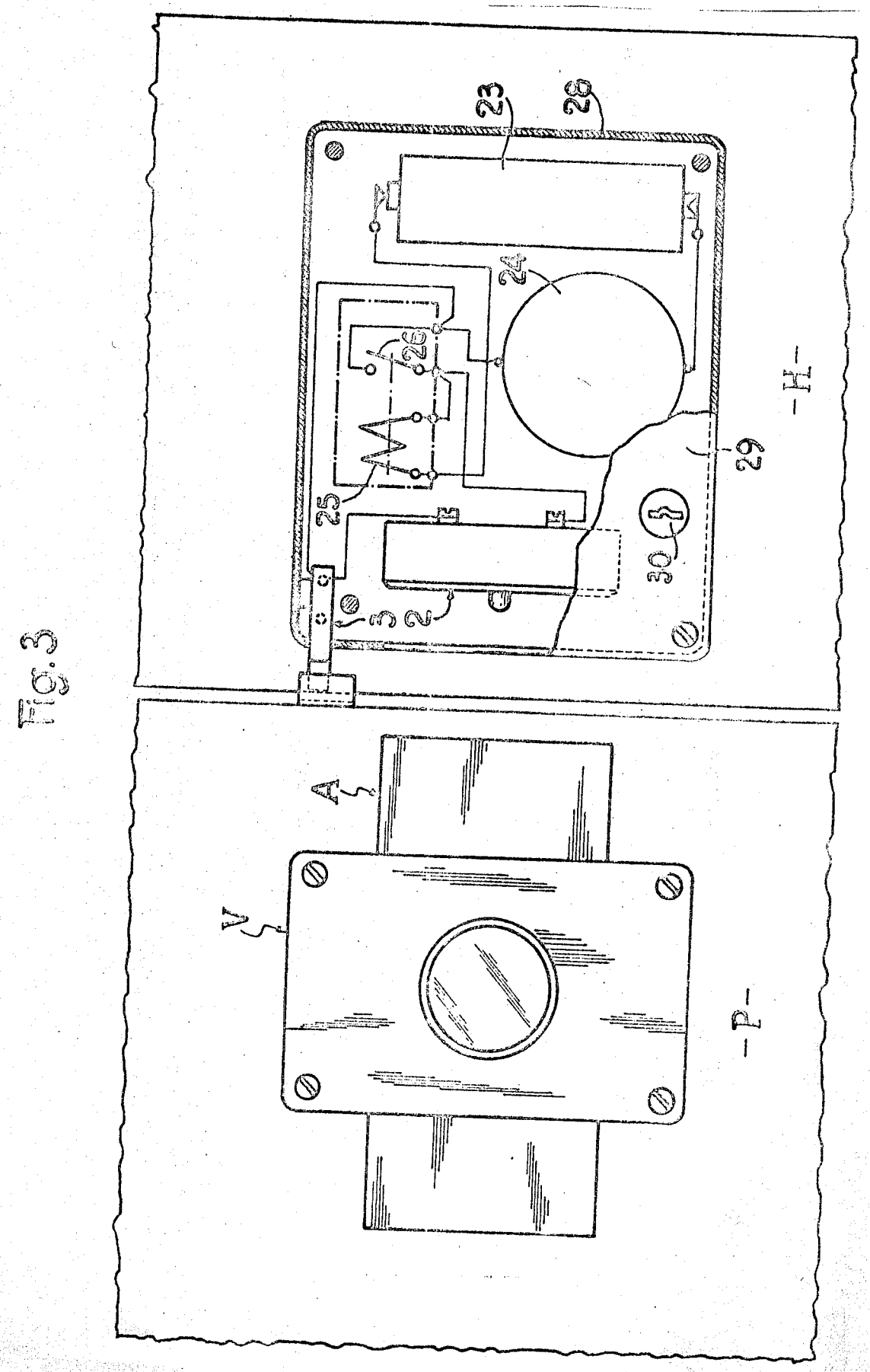

Fig. 3

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CERTIFICATE OF CORRECTION

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Inventor(s) Jean Charles Joseph Blosse

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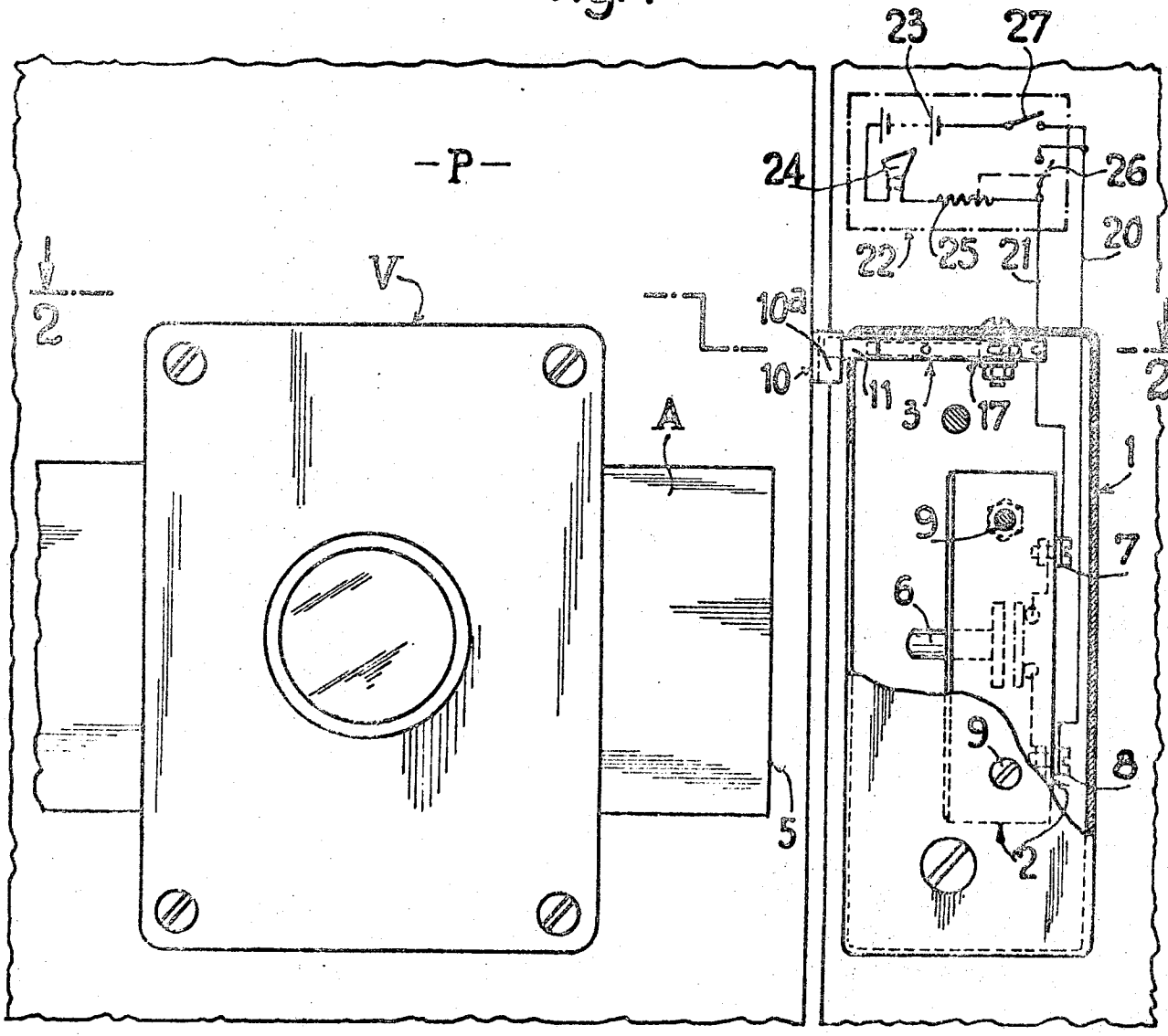
Fig. 1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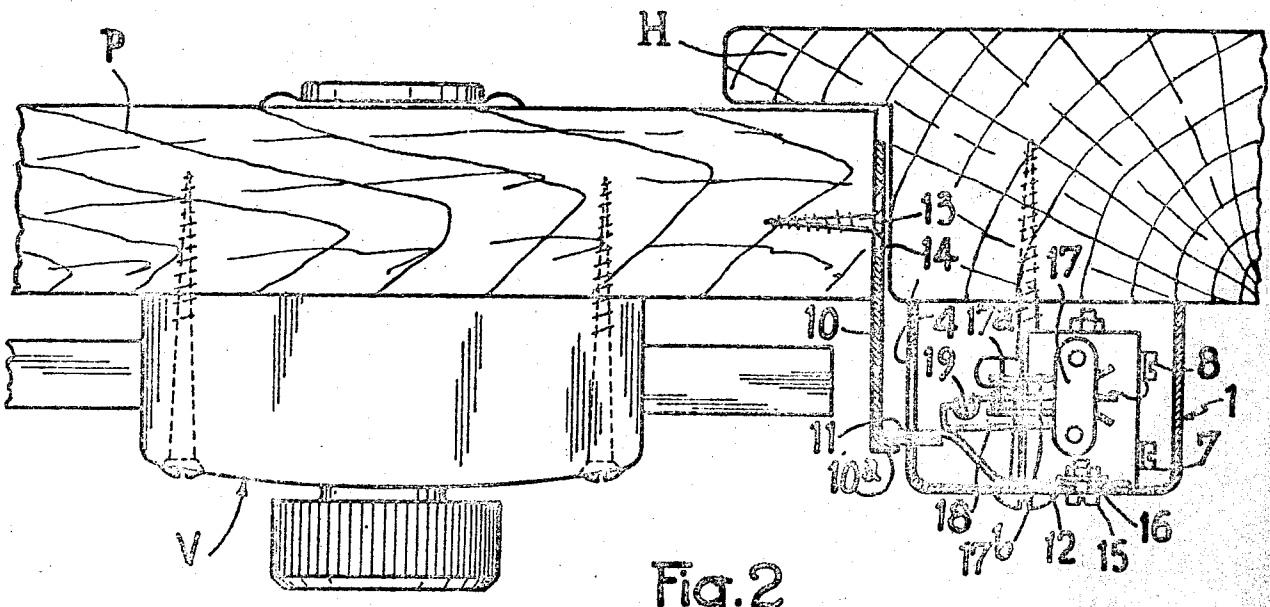
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Fig. 2

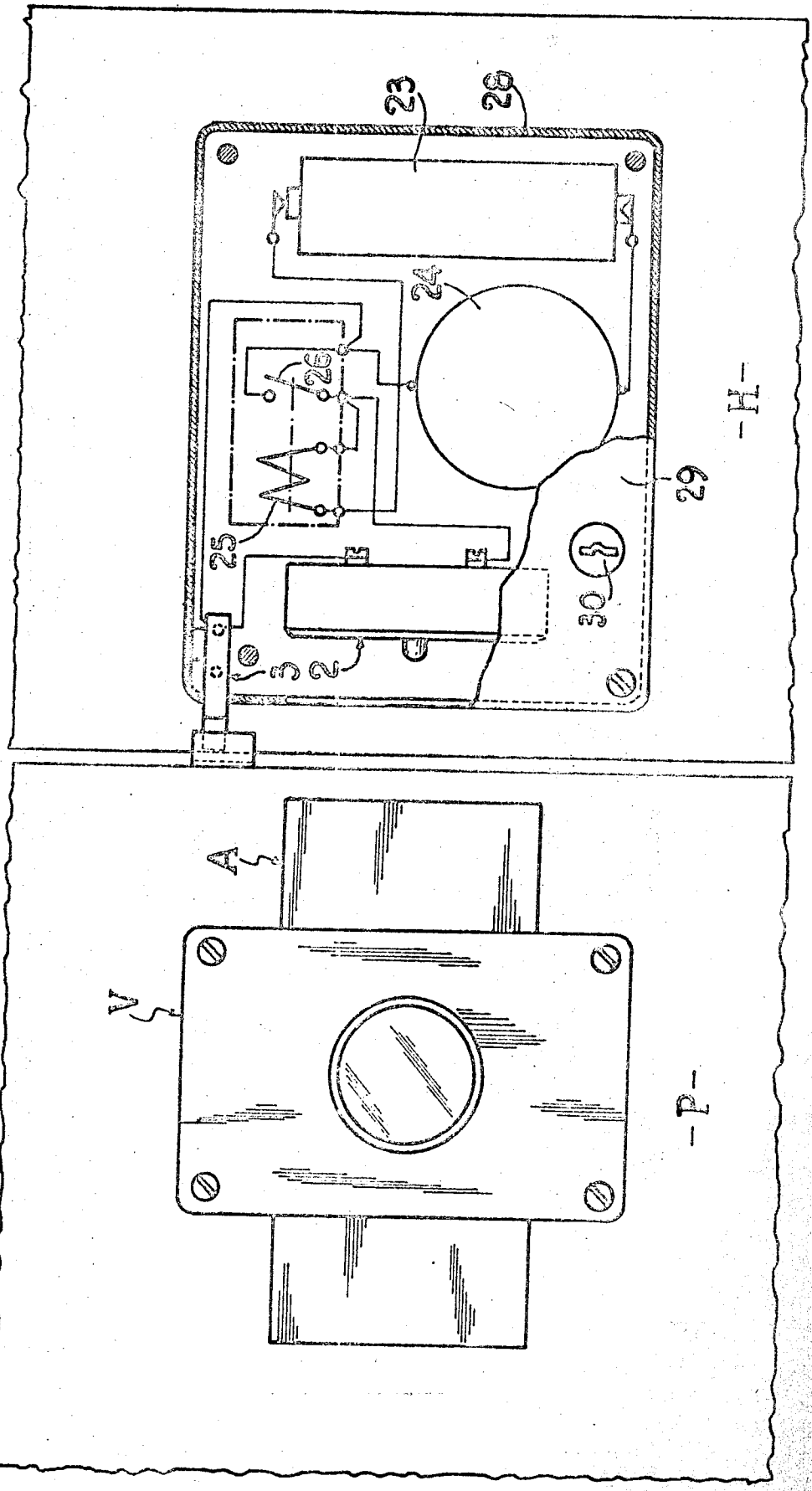

Fig. 3