

O. M. MÜLLER.
SELF IGNITING DEVICE.
APPLICATION FILED JUNE 26, 1908.

904,886.

Patented Nov. 24, 1908.

Fig. 1

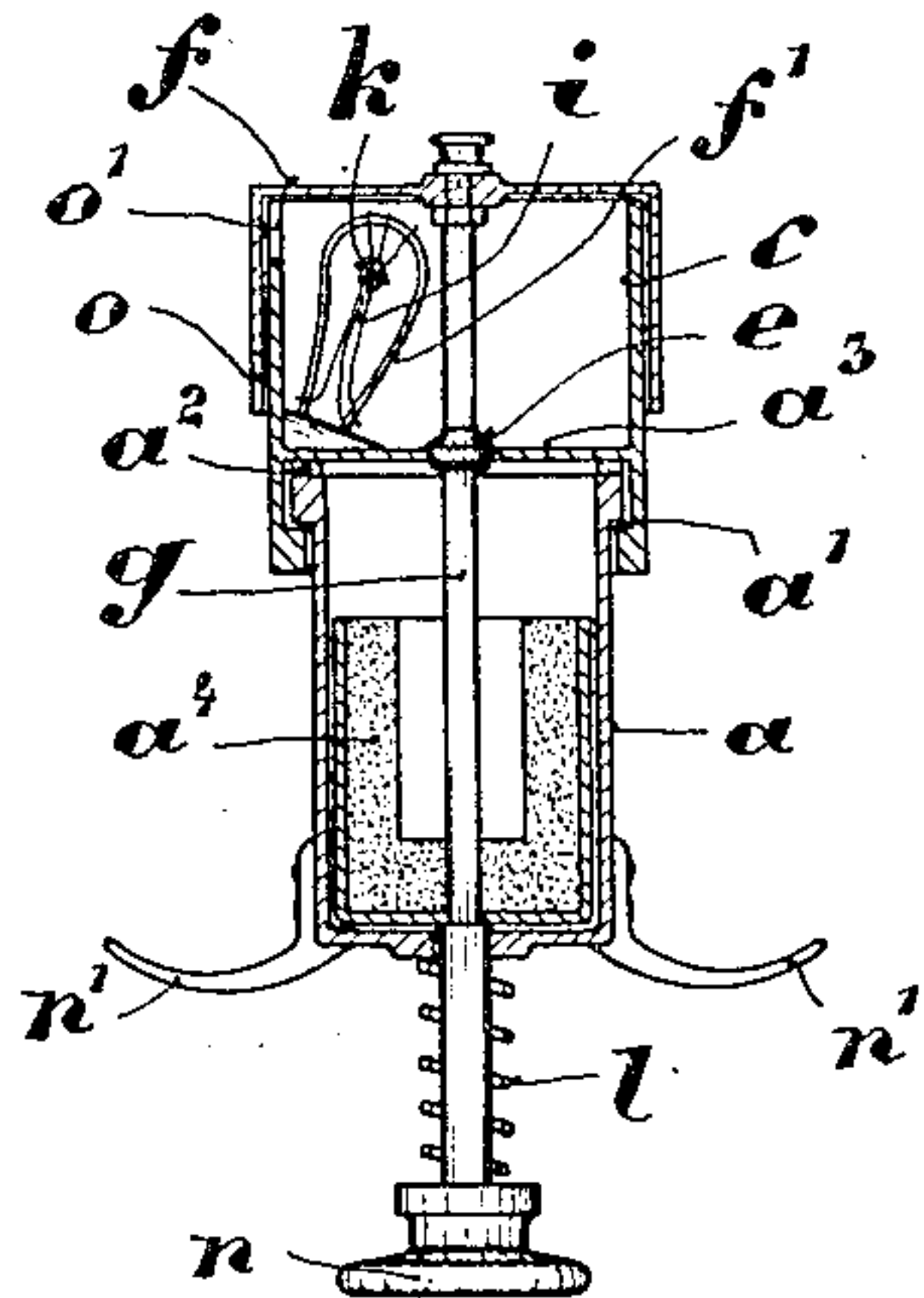


Fig. 2

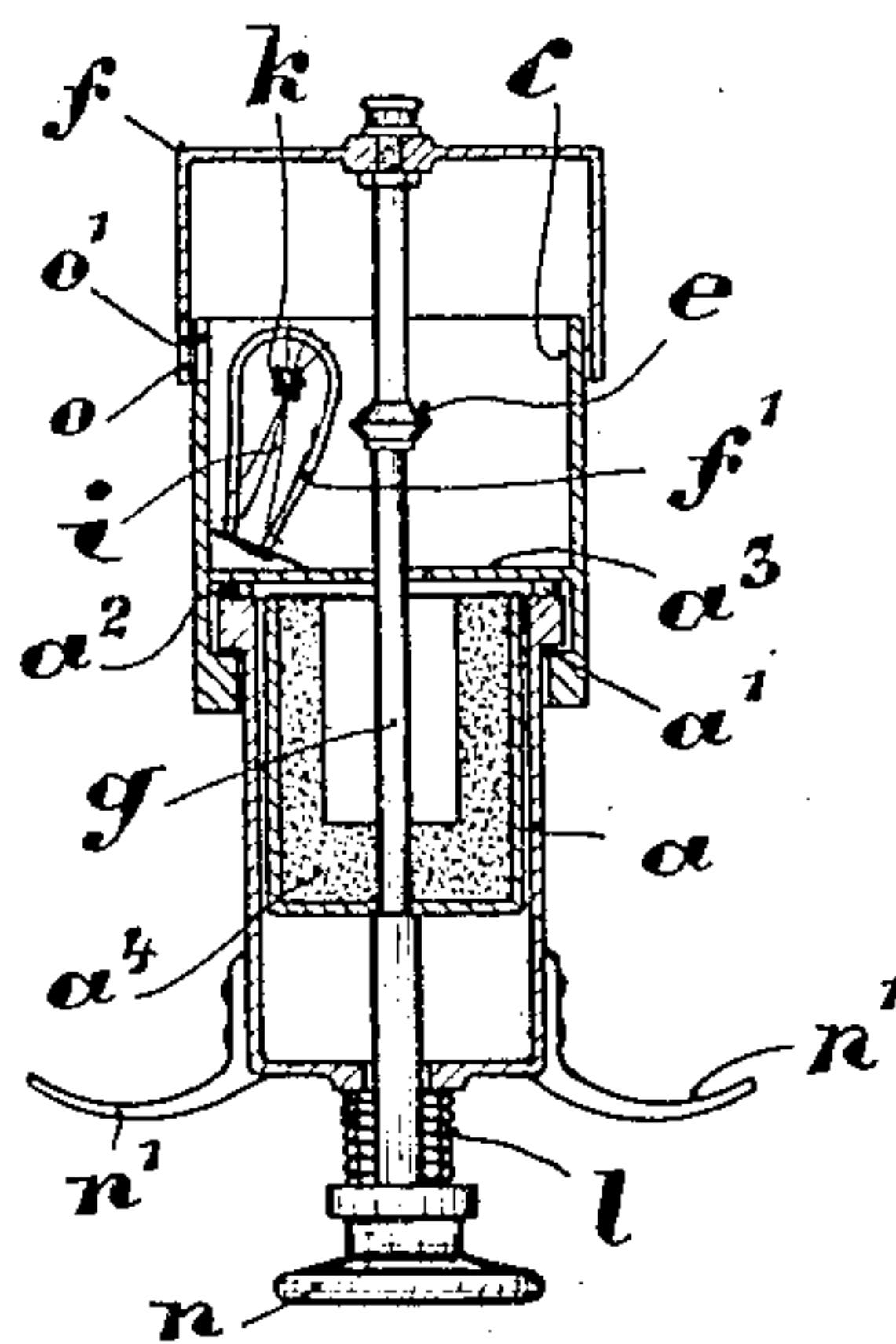


Fig. 3

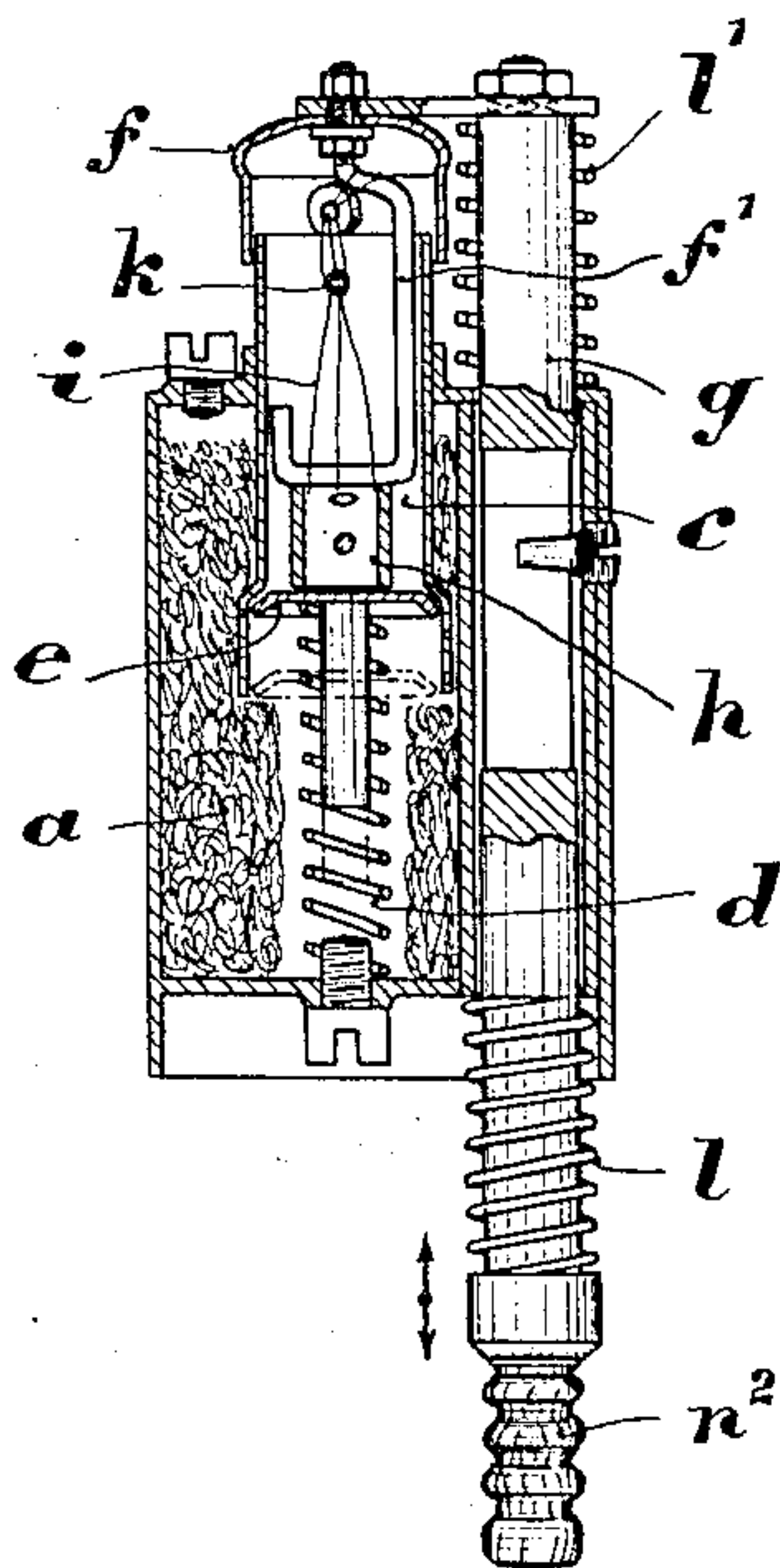
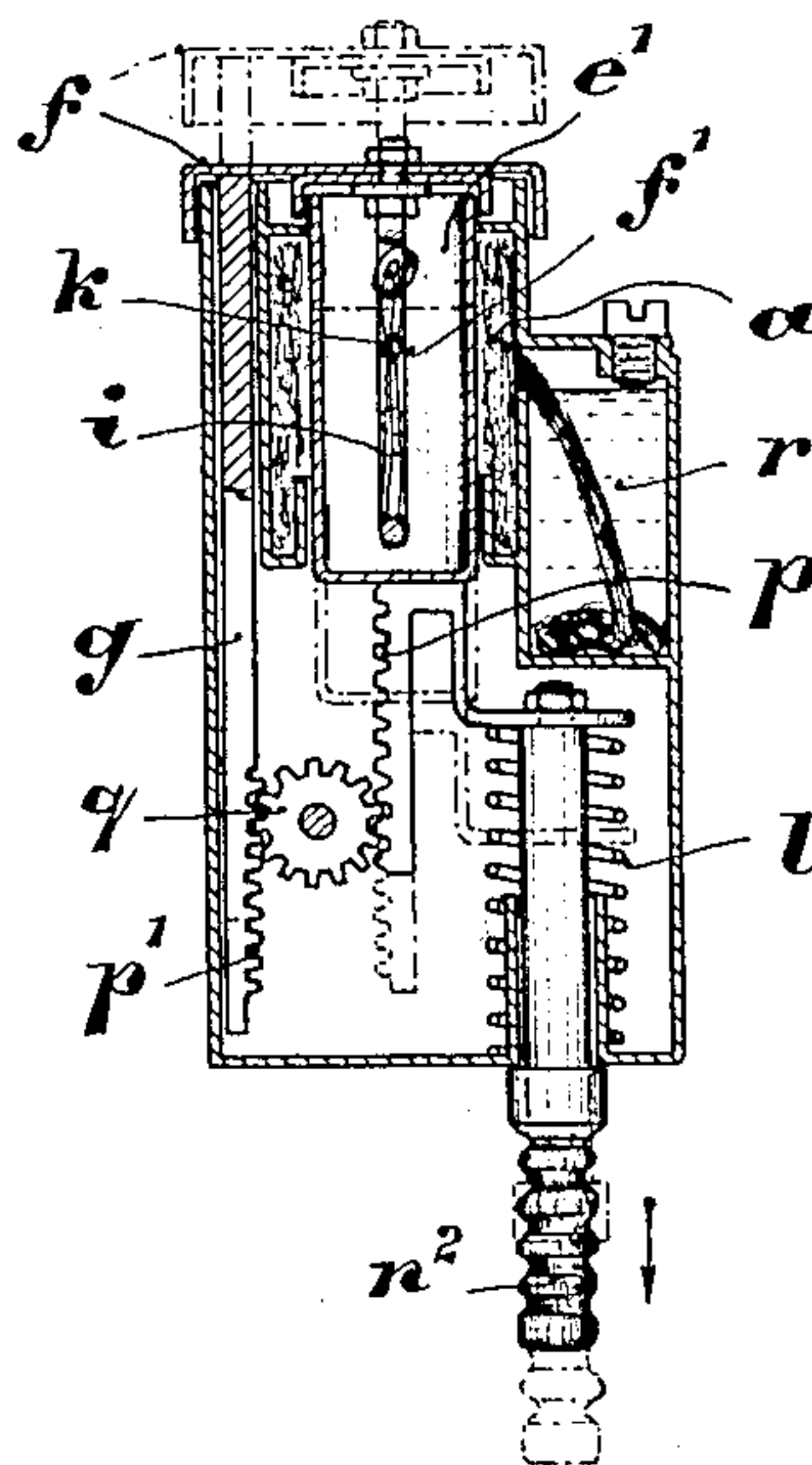


Fig. 4



Witnesses:
August Müller.
W. R. Schulz.

Inventor:
Otto Max Müller
by his attorney
Frankfort, Germany

UNITED STATES PATENT OFFICE.

OTTO MAX MÜLLER, OF GELSENKIRCHEN-SCHALKE, GERMANY.

SELF-IGNITING DEVICE.

No. 904,886.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed June 26, 1908. Serial No. 440,442.

To all whom it may concern:

Be it known that I, OTTO MAX MÜLLER, a citizen of the German Empire, and resident of 51 Kaiserstrasse, Gelsenkirchen-Schalke, Germany, have invented certain new and useful Improvements in Self-Igniting Devices, of which the following is a specification.

The invention relates to improvements in self igniting devices in which a constant supply of combustible gases is kept ready in a receptacle by a liquid which is easily converted into gas and which by contact action with finely divided sponge of platinum is ignited by the admission of air.

By this invention the hitherto detailed handling of such tinder boxes which required the opening of the receptacle containing the ignition pill and the gas developing receptacle, the introduction of ignition pills into the gas developing receptacle and their extraction is entirely superseded. Between the receptacle for the ignition pills provided with an air closure and the gas developing receptacle a movable cutting off mechanism is provided. The contact between the gases and the ignition pills is effected by opening this cutting off mechanism and the ignition by opening of the air closure.

In the drawings Figures 1 and 2 show a form of the invention, Fig. 1 illustrating it when not in use and Fig. 2 showing the arrangement when it is in use. Fig. 3 shows a modification of the arrangement in section and Fig. 4 a further modification likewise in section.

In all figures the same reference letters indicate the same or parts corresponding to each other.

In the receptacle *a* the tightly fitting cup shaped piston *a*⁴ is guided and is filled with material suitable for absorbing moisture (piece of wick); the latter is saturated with a liquid which is easily converted into gas (such as methylic alcohol or pyroxylic spirit). To receptacle *a*, is secured the bottom plate *a*³, of a gas developing chamber *c*, extending upwardly from receptacle *a*, and adapted to communicate therewith by a valve-controlled opening in plate *a*³. This plate *a*³, which constitutes the cover of receptacle *a*, is tightly secured thereto by a bayonet joint *a*¹, and a gasket *a*². In the receptacle *c* a wire hoop *f*¹ is fixed (and can be changed when needed) said hoop carries the platinum wires *i* on which the ignition

pellet *k* is fixed. The receptacle *c* is closed by a tightly fitting axially movable cover *f* against the outer air. Between the receptacles *a* and *c* is situated the cone-valve *e* in the cover *a*³. The piston *a*⁴ the valve cone *e* and the displaceable cover *f* are fixed in such a manner on a common spindle *g* that in the position of rest corresponding to the pressure of the spring *l*, the piston *a*⁴ in its lowest position, the valve cone *e* and the cover *f* are situated in closed position (Fig. 1). Now for the purpose of ignition if the spindle *g* is raised by thumb or finger pressure on the button *n* with two other fingers on the hoop *n*¹ the piston *a*⁴ is displaced and presses the accumulated gas through the valve simultaneously opening into the receptacle *c*. By this movement the opening *o* on cover *f* and corresponding opening *o*¹ in the receptacle *c* coincide and, according to the enlargement of the space allow air to flow in which mixes with the gas. The mixture is ignited by the ignition pill *k* and the flame produced penetrates through the openings *o* and *o*¹ outwardly (Fig. 2). When the pressure of the finger on the button *n* is relaxed the parts go back into position shown in Fig. 1 and the valve body *e* rests under spring pressure on its seat.

In the form according to Fig. 3 the arrangement is modified only inasmuch as in this case the ignition pill is moved with a cover *f* outwardly. For this purpose the wire hoop *f*¹ is fixed on the cover *f* which as heretofore carries the ignition pill *k* situated on the extended platinum wires *i*. The cover *f* also on the spindle *g* can be displaced against the pressure of the spring *l* by the handle *n*². The cutting off arrangement of the chamber *c* is formed by the valve *e* capable of opening into the gas developing receptacle *a*, said valve being constantly pressed on its seat by the spring *d*. In order to make use of this form of the invention I proceed in the following manner. When the spindle *g* is pulled down for the first time against the pressure of the spring *l*¹ the valve plate *e* is pressed down by means of the stop *h*, so that the gases developed in the space *a* can enter the chamber *c*. Now if the movement immediately afterwards is reversed, that is to say the spindle *g* moved upwardly against the pressure of the second spring *l* it opens the cover *f* and lifts up at the same time the incandescent ignition pill *k* out of the chamber *c* so that the combustible vapors now

mixed with air can be ignited by it. When the spindle *g* is released this arrangement also returns automatically into the closing position.

5 The form of the invention represented in Fig. 4 corresponds in principle to the construction according to Fig. 3 with the simple difference that in the former case both operations to be taken in hand take place arbi-
10 trarily one after the other while in Fig. 4 they are carried out simultaneously. On the spindle *g* a cover *f* is again fixed which carries the ignition pill *k* in the hoop *f'* with the ignition wires *i*. The closing chamber
15 for this is now constructed in such a manner that the valve is formed as a kind of piston slide *e'* which tightly fits against the cover *f*. The valve *e'* is attached to a handle *n²* and is kept continually pressed upwardly by the
20 spring *l*. The shell *e'* and the spindle *g* are in positive connection by their teeth *p* and *p'* and the small tooth wheel *q* in such a manner that they always make reverse move-
25 ments. The gas developing receptacle is here arranged as an annular space filled with wick around the shell *e'* and receives its continual saturation by the combustible liquid from the supply receptacle *r* into which a part of
30 the wick dips. By pulling down the handle *n²* the shell *e'* goes down with it, so that the ignition pill *k* is situated freely in the gasification space; at the same time the cover *f* is moved upwardly and takes the ignition pill with it, so that exactly as in the first case the
35 formation of a gas and air mixture and the ignition can take place.

The arrangements described are only to be considered as forms of the invention and it must be understood that alterations can be

made in the parts without deviating from the principle of the invention. The simple for-
40 mation of these tinder boxes or ignition devices and their convenient use makes them very suitable in place of pocket match boxes and for cigar lighters and the like, also for
45 the well-known interior ignition of miners' safety lamps. As is evident from the drawings the exterior measurements can be so easily altered that it is quite possible to con-
50 struct same directly in the miners' lamps at present in use instead of the friction ignition arrangement generally employed.

What I claim is:—

1. A device of the character described, comprising a gas generating chamber, a gas
55 developing chamber, an inclosed pellet, an axially movable cover on the gas developing chamber, a cut off organ intermediate gas generating chamber and gas developing
60 chamber, and means for axially displacing the cover and simultaneously actuating said cut off organ, substantially as specified.

2. A device of the character described, comprising a gas generating chamber, a gas
65 developing chamber, an inclosed pellet, a cover on the gas developing chamber, a cut off organ intermediate gas generating chamber and gas developing chamber, and a
70 plunger operatively connected to the cover and adapted to actuate said cut off organ, substantially as specified.

Signed by me at Frankfort-on-the-Main, Germany this 6th day of June 1908.

OTTO MAX MÜLLER.

Witnesses:

JEAN GRUND,
CARL GRUND.