

No. 873,880.

PATENTED DEC. 17, 1907.

A. MEYER.  
GAS BURNER.

APPLICATION FILED FEB. 9, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

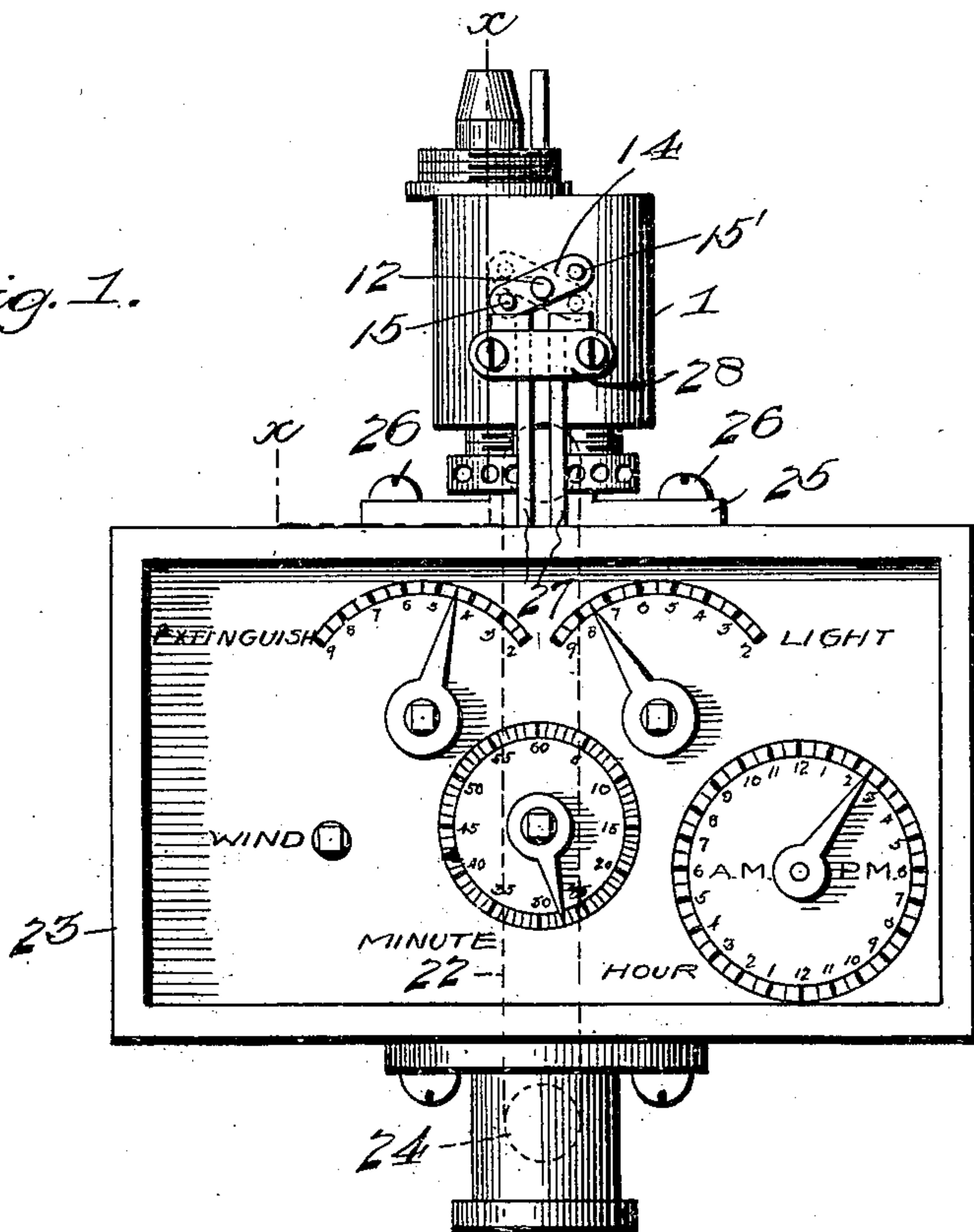
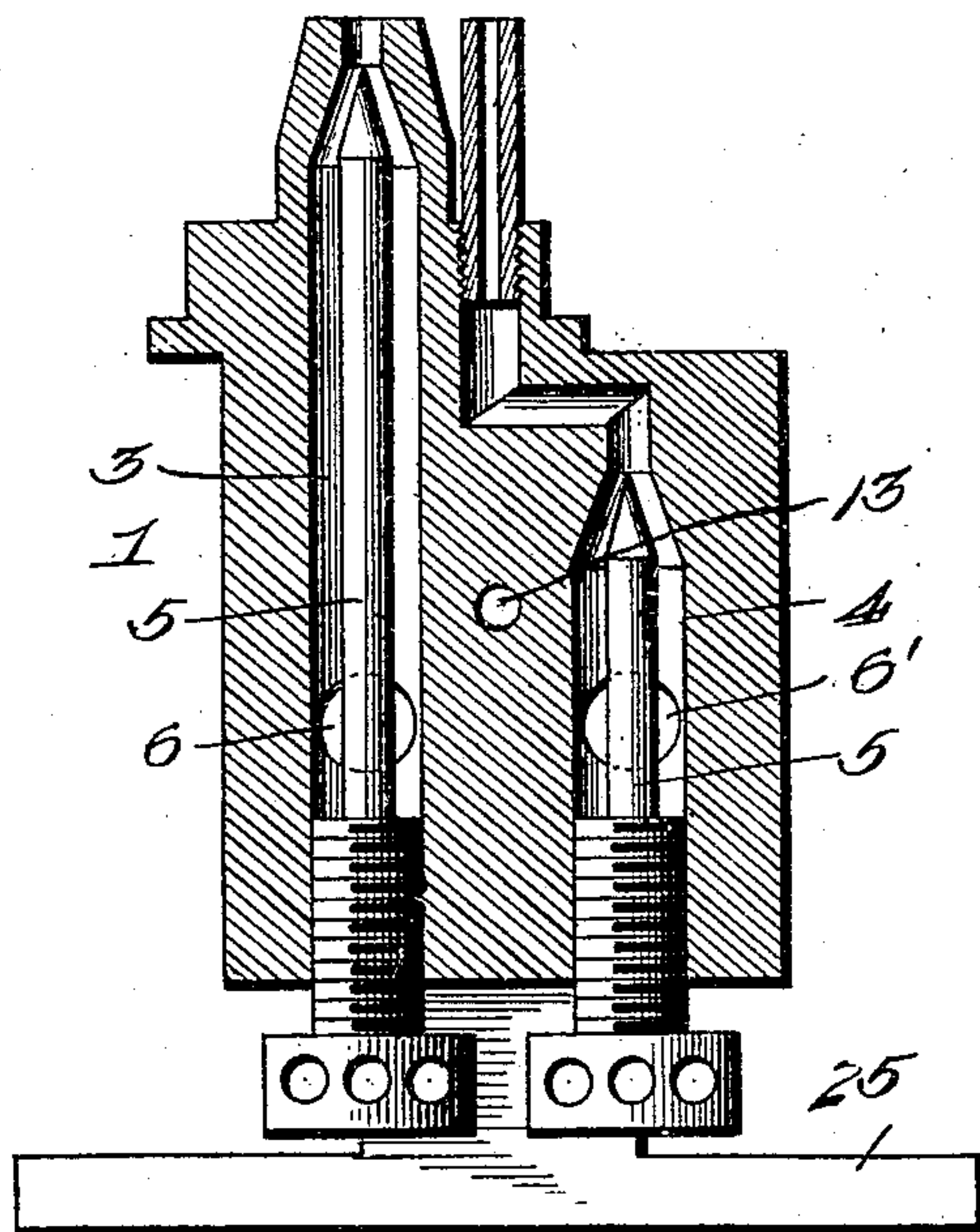


Fig. 2.



Witnesses

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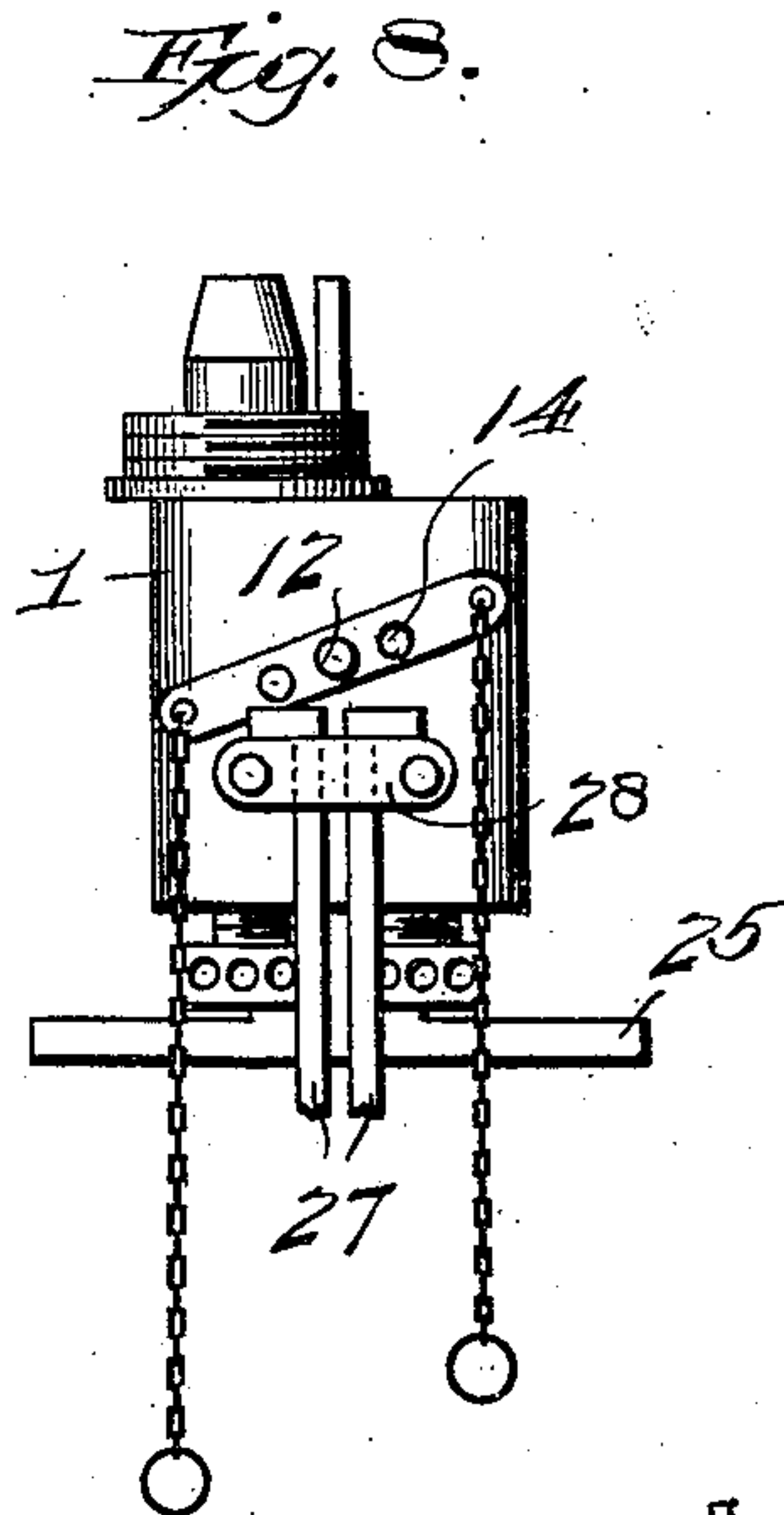
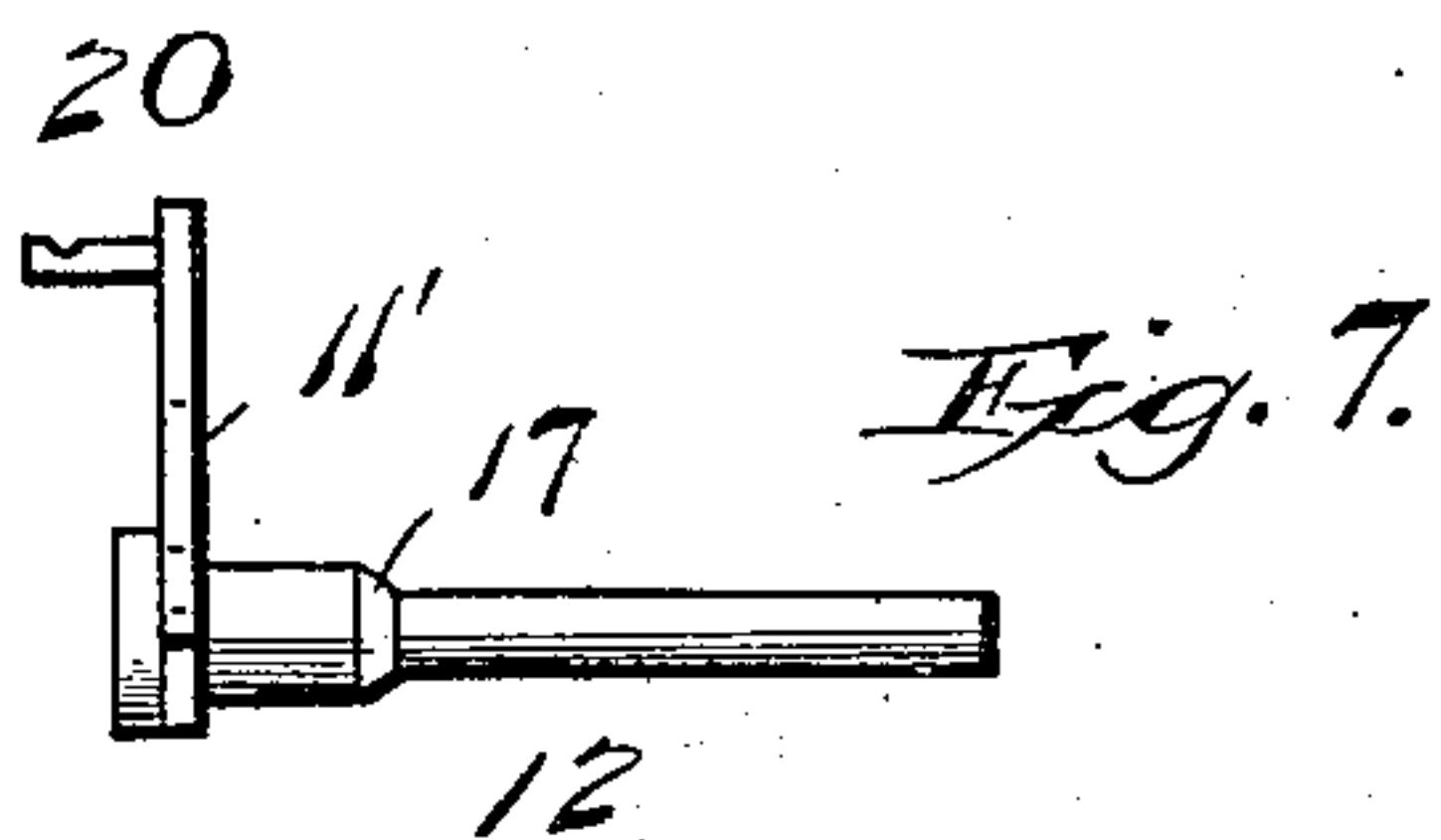
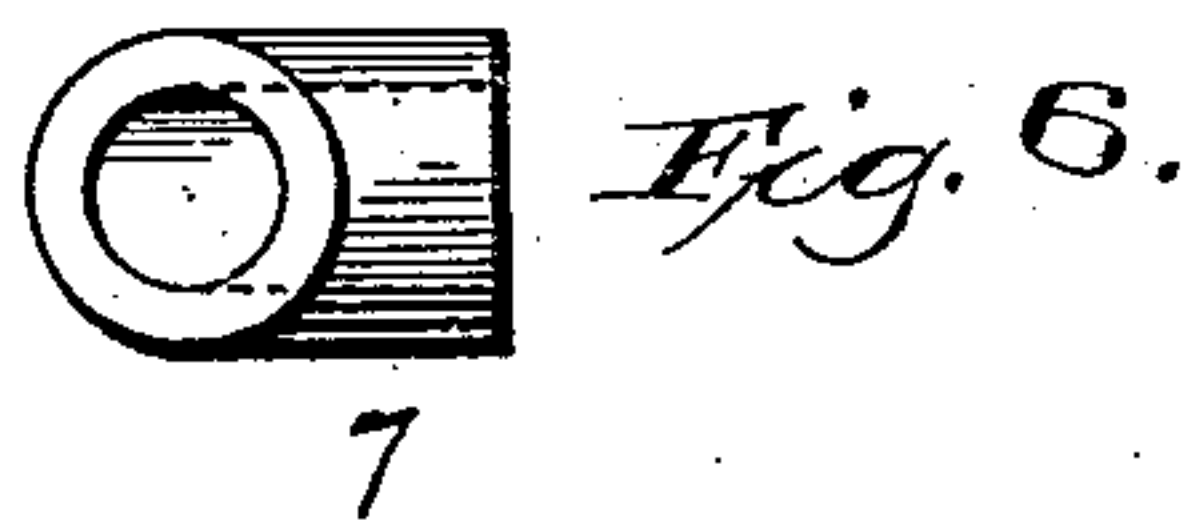
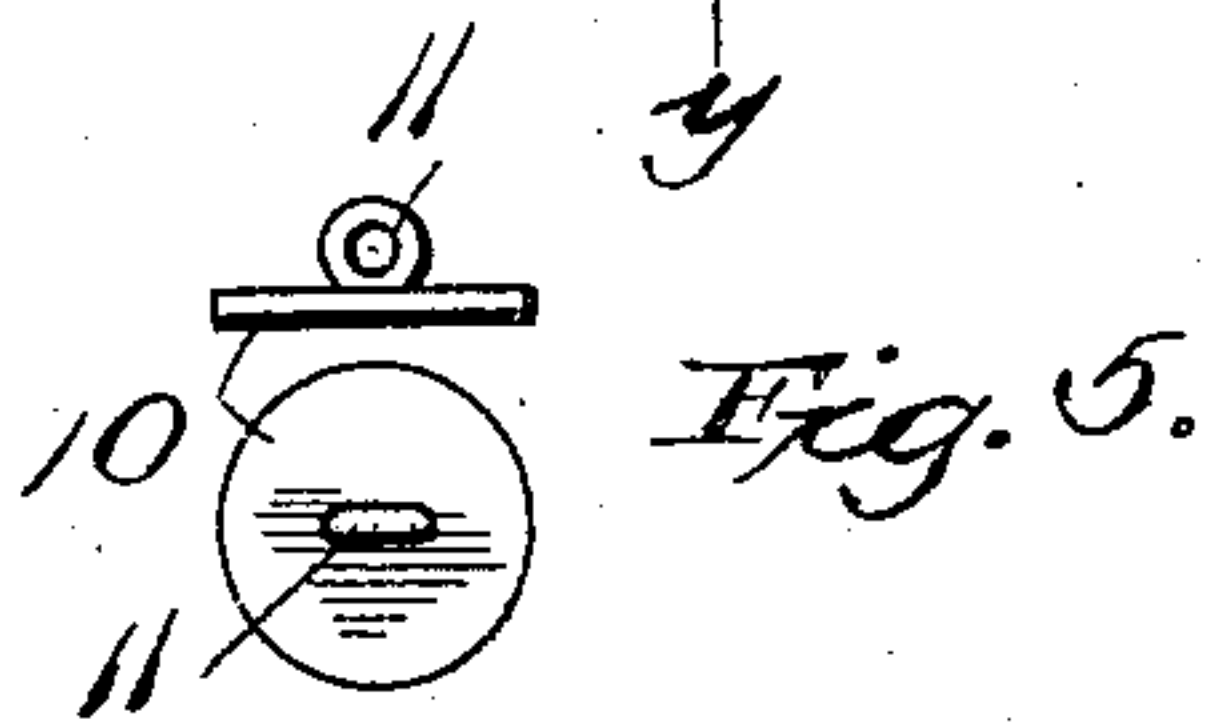
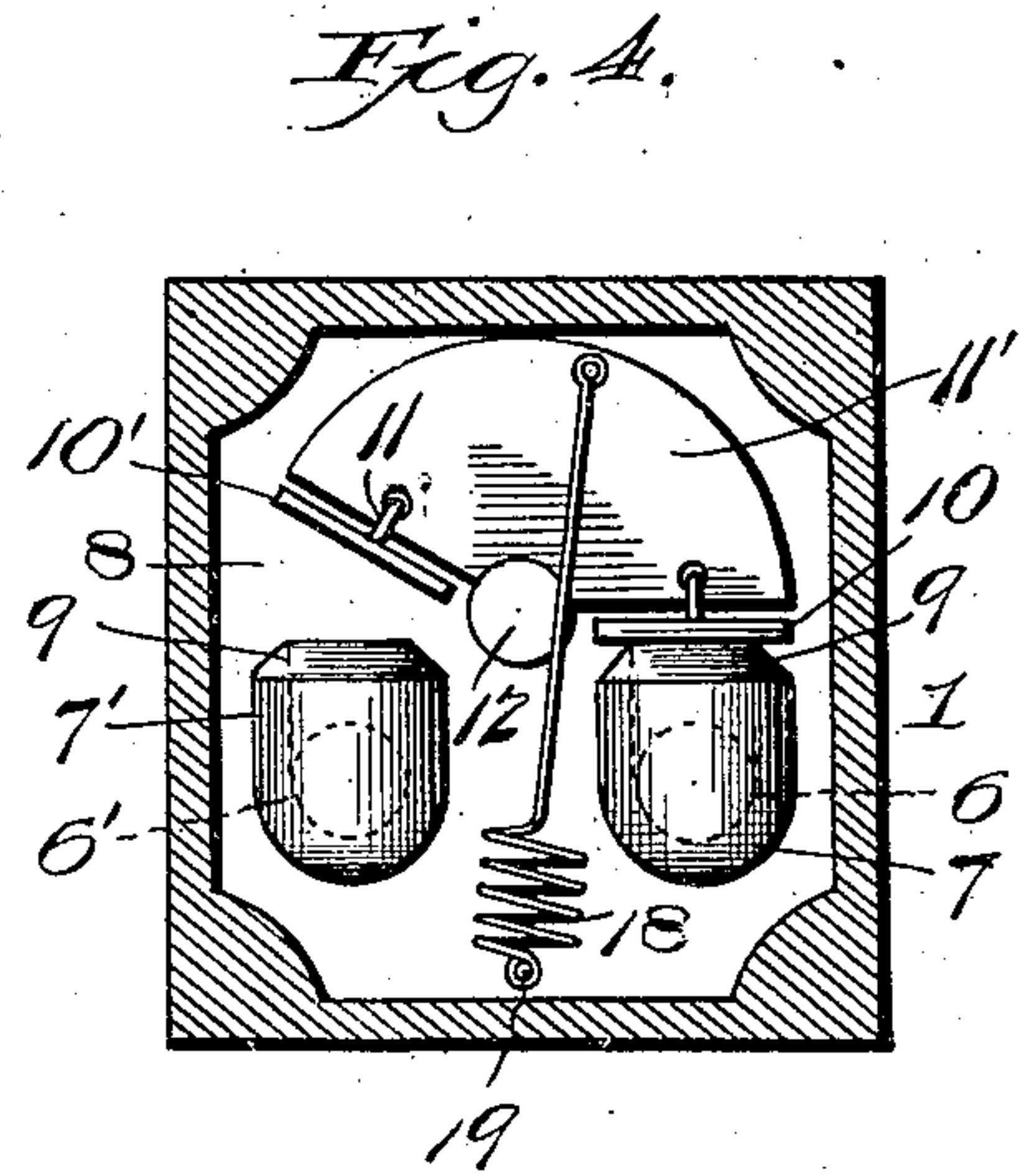
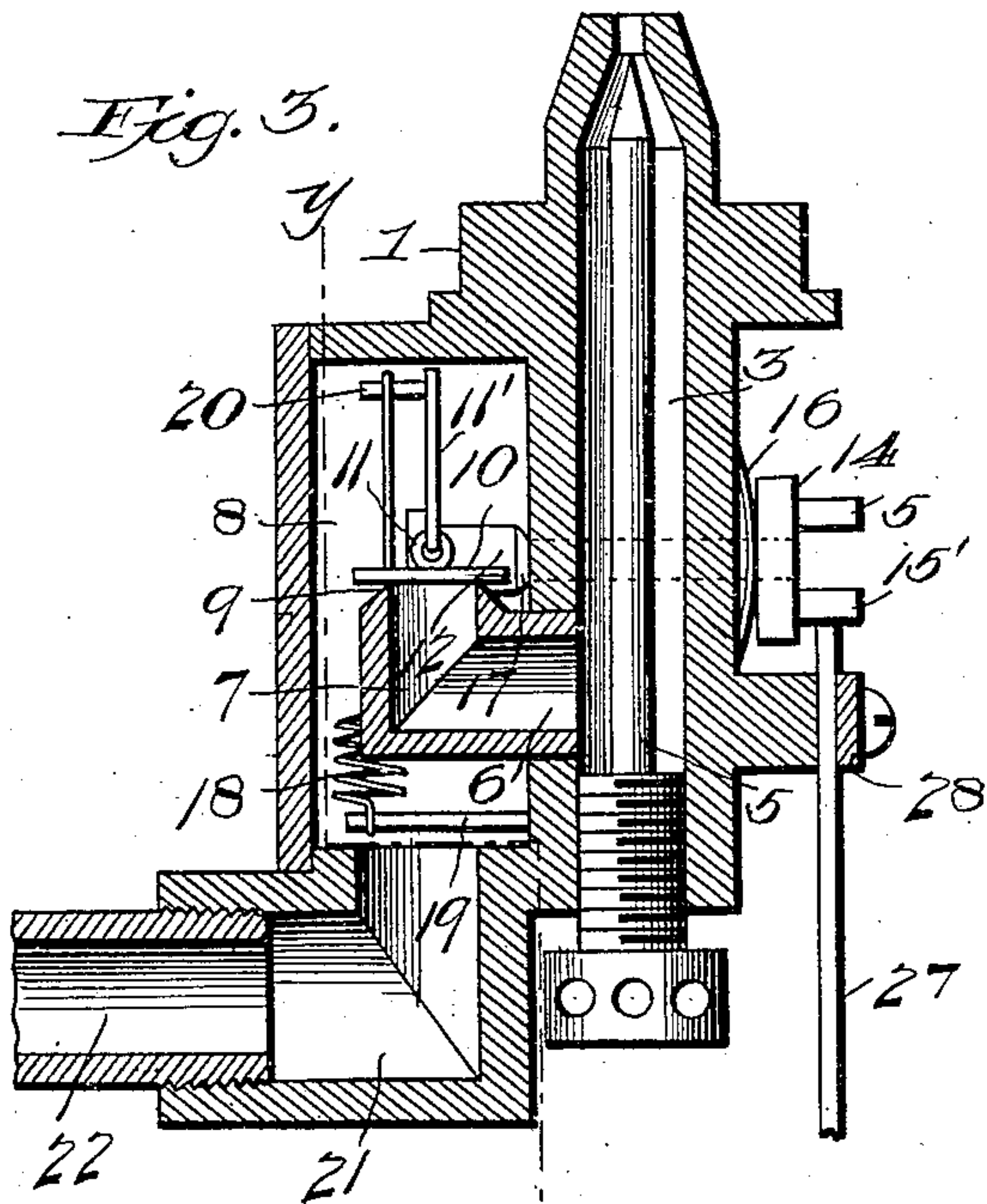
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## GAS-BURNER.

No. 873,880.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed February 9, 1906. Serial No. 300,351.

*To all whom it may concern:*

Be it known that I, AUGUST MEYER, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have  
5 invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

This invention relates to improvements in gas burners, and more particularly to a  
10 burner especially adapted to be operated by a clockwork or time mechanism, the burner being particularly intended for use upon street lamps.

While the burner about to be described  
15 may of course be operated by hand, yet as before stated, it is especially designed to be operated by a time mechanism, and particular attention has been paid to the construction of the burner with a view of providing a  
20 valve and other operating parts that will require a minimum amount of power to operate it, or such power as can be practically derived from a clockwork or time mechanism of simple construction.

25 The burner belongs to that class of burners in which a by-burner or "pilot lighter" is employed to maintain a small flame for the purpose of igniting the main volume of gas as it issues from the main passage of the burner.

30 The main object of this invention is to provide a burner, the valve and other operating parts of which will be of simple construction and require a minimum amount of power and degree of movement of parts for its efficient operation, the parts being so constructed that friction and liability to stick,  
35 as a result of gas deposits or other causes, are practically eliminated.

In my application filed November 4, 1905  
40 Serial No. 285,891, I fully illustrated and described a novel clockwork mechanism in connection with a burner of construction different from the burner about to be described, which mechanism may be equally well adapted  
45 to operate this burner.

In Figure 1, of the drawings forming a part of this application, a clockwork or time mechanism is shown in connection with the burner, which mechanism corresponds to  
50 that illustrated in detail in my application referred to. However those parts of both burners which directly cooperate with the elements of the time mechanism are the same, that is to say this burner, as well as  
55 the burner of my former application, is pro-

vided with a rock shaft adapted to be rocked at pre-determined intervals by devices actuated through the clockwork or time mechanism to accomplish the operation of the valves to light and extinguish the lamp. 60

In the drawings illustrating the invention: Fig. 1 is a front elevation of the burner, showing in connection therewith in front elevation, a clockwork or time mechanism, or such of the parts thereof as is necessary to show the connection between said  
65 mechanism and that part of the burner operated upon or actuated by the mechanism, to light and extinguish the lamp. Fig. 2, is a longitudinal central section through the  
70 burner body, showing the main and "pilot" gas passages, and the ports or openings through which communication is established between the gas chamber and said passages. Fig. 3, is a transverse section taken on about  
75 line  $x-x$ , of Fig. 1. Fig. 4 is a section taken about on line  $y-y$  of Fig. 3 showing the valves in elevation, one position of the valves being shown in dotted lines. Fig. 5,  
80 is a side elevation and plan of one of the valves. Fig. 6, is a top plan view of one of the conduits which form valve seats for the valves, and through which the gas passes, which gas is supplied from a suitable source to the main and "pilot" passages in the  
85 burner. Fig. 7, is a side elevation of the rock shaft to which the valves are attached, and Fig. 8, is a front elevation of the burner showing a slight modification adapting it to be operated by hand, either when the burner  
90 is used in connection with the time mechanism, or alone.

Referring to the drawings: The numeral 1 indicates the burner body which has two passages therethrough, 3 and 4; the passage  
95 3 being for the passage of the main volume of gas, or that which is intended for the lighting volume; and that designated by 4 being for the gas supplying the "pilot." Each passage is closed at its bottom by screw  
100 plugs forming parts of needle valves 5, by which the flow of gas and its pressure may be regulated.

The numerals 6 and 6' are ports opening into the burner passages, the port 6 being for  
105 the admission of the main or lighting volume of the gas and 6' for the gas supplying the "pilot". Fitted into these ports are conduits 7 and 7' which extend a short distance into a gas chamber 8, formed at the rear side  
110



of the burner. Each conduit has a passage therethrough as shown, for the obvious purpose of permitting the gas at proper times to pass from the chamber 8 to one or the other of the burner passages. The conduits are tapered at the ends within the chamber, as indicated at 9, and form valve seats for two disk valves 10 and 10'. The valve 10 operates in connection with and controls the supply of gas to the main burner passage, while the valve 10' operates similarly with relation to the conduit 7'. The valves are preferably in the form of thin disks, and each is provided with an eye 11 by means of which they are loosely connected to a thin segmental plate 11', which in turn is rigidly connected to a rock shaft 12, which passes through and has a bearing in an opening 13 in the body. To the front end of the rock shaft a rocker arm 14 is rigidly attached. This arm is provided with two short pins 15 and 15', for a purpose which will presently become apparent. Interposed between the rocker arm 14 and the front surface of the casting is a thin leaf spring 16, which exerts a tendency to keep the slightly tapered or beveled portion 17 of the rock-shaft snugly against a corresponding seat in the rear wall of the burner body.

The numeral 18, designates a light spring having its lower end attached to a pin 19 in the chamber 8, and its upper end looped over a short pin 20 carried by the segmental arm 11'. This spring is for the purpose of holding the valves properly seated upon their seats, and acts in addition to the gas pressure which would also have a tendency to seat the valves. The spring is so arranged that when the rock-shaft is rocked until the pin 20 passes the center of the shaft, said spring will instantly seat the valve intended to be closed, and hold it properly seated until the reverse operation takes place.

Connected to the lower part of the burner body, and which may form a part thereof, is a gas connection 21, internally threaded for the reception of a gas-pipe 22, which in the arrangement herein shown, and more particularly in dotted lines Fig. 1, passes around the clockwork or time mechanism casing 23, and is led into another gas connection 24, by which last connection the whole device is adapted to be attached to the gas-pipe supplying the gas to the street or other lamp.

In Fig. 1, the burner is shown provided with a bracket 25 by which, and by means of screws 26 it is attached to the upper side of the casing 23. The numeral 27, designates two rods which are suitably guided in a bracket 28 on the front of the burner body. These rods are identical in construction and function with those shown in my application hereinbefore referred to, and they are actuated by the clockwork or time mechanism at

pre-determined intervals or times. These rods move vertically and the movement of one or the other brings it into engagement with one or the other of the pins 15 or 15' on the rocker arm 14, for the obvious purpose of causing the valve, through the medium of the rock shaft 12, to be operated to establish communication between one or the other of the burner passages and the chamber 8, as the exigencies of the case may require.

It is highly desirable in burners of this character that the "pilot lighter" be extinguished when the lighting volume of the gas is turned on, and that it remain extinguished while the lamp is lighted, as thus a considerable amount of gas is saved where a great number of burners are involved as in the case where a city is lighted. It is important too that the burner and its parts be so arranged that the "pilot" will be invariably lighted from the dying flame of the main burner as it is being extinguished. When this burner is used in connection with the time mechanism, for which it is more particularly designed, the movement of the rock-shaft and valves can be regulated to the greatest nicety, closing one of the valves and opening the other, quite slowly or in fact with any degree of rapidity that the efficient operation of the device may require. With a comparatively slight movement of the rock-shaft and valves, consuming probably five seconds, the flame of either the main or "pilot" burner will be caused to die slowly, giving either the one or the other as the case may require, ample time to light.

In my application No. 285891, I describe and illustrate a means for accomplishing a slow movement of the rods 27, when the hour is reached at which the lamp is to be lighted or extinguished. In that application the movement of the rods at pre-determined times is accomplished by means of or with the aid of cams, and it merely becomes a question of shaping the operative cam surface to produce the desired movement of the rods.

As before stated the casing 23 contains a clockwork or time mechanism having suitable dials and indicators thereon denoting the time when the lamp is to be lighted and extinguished and to denote the time of the day. These features are all fully described in my application hereinbefore referred to and need no further description here.

In operation, with the parts as shown in full lines in the drawing, communication between the chamber 8 and the "pilot" passage is established, in which the "pilot lighter" will be burning, while the main burner passage is closed. When the rock shaft is rocked toward the "pilot lighter", the valve 10 will be lifted from its seat, establishing communication between the chamber 8 and the main burner passage, while the



valve 10' will be seated upon its seat cutting off communication between said chamber and the "pilot" passage, and the spring 18 which has been slightly tensioned, or rather  
 5 has had its tension slightly increased by the movement of the shaft, will when it has passed the center of the shaft, exert a sudden downward pull upon the segmental plate 11', and thus cause the valve 10' to be properly  
 10 seated.

#### Claims.

1. A gas burner having main and pilot passages, a chamber located to one side of said passages, conduits leading from said passages and having suitable valve seats in the  
 15 chamber, a rock shaft mounted in one side of the burner body and having one end thereof projecting beyond the body and the other end thereof carrying a valve located in the chamber and adapted to operate in conjunction with the valve seats to alternately open and close said passages.

2. A gas burner having main and pilot passages therethrough, a chamber located to one  
 25 side of said passages, gas conduits leading from said passages and terminating in valve seats in the chamber, a rock shaft mounted in the burner with one end extending into the chamber and the other beyond the  
 30 burner body, loosely mounted valves carried by the rock shaft and adapted to operate in conjunction with the valve seats to alternately open and close the passages.

3. A gas burner having main and pilot passages therethrough, a chamber communicating with said passages, conduits leading from  
 35 said passages and terminating in suitable valve seats in said chamber, a rock shaft mounted in one side of the burner body and having one end thereof projecting beyond the body and the other end thereof carrying a valve located in the chamber, and adapted to operate in conjunction with the valve  
 40 seats to alternately open and close said passages.

4. A gas burner having main and pilot passages therethrough, a chamber communicating with said passages, gas conduits leading from said passages and terminating in valve  
 50 seats in the chamber, a rock shaft mounted in the burner body with one end extending into the chamber and the other end beyond the burner body, and loosely mounted valves carried by the rock shaft and adapted to operate in conjunction with the valve seats to  
 55 alternately open and close said passages.

5. A gas burner having main and pilot passages therethrough, a chamber located to one side of said passages, gas conduits leading  
 60 from said passages and having valve seats in the chamber, a rock shaft mounted in the burner body with one end extending into the chamber and the other beyond said body, disk valves carried by the rock shaft and  
 65 adapted to operate in conjunction with the

valve seats to alternately open and close said passages.

6. A gas burner having main and pilot passages therethrough, a chamber communicating with said passages, gas conduits leading  
 70 from said passages and terminating in horizontal valve seats, a rock shaft mounted in the burner with one end extending into the chamber and the other beyond the burner body, a plate or arm secured to the rock  
 75 shaft within the chamber, and valves loosely suspended from said plate or arm and adapted to operate in conjunction with the valve seats to alternately open and close the passages.  
 80

7. A gas burner having main and pilot passages, a chamber located to one side of said passages, conduits leading from said passages and terminating in the chamber and provided with suitable valve seats, a rock shaft  
 85 mounted in the burner body with one end in the chamber, and the other extending beyond the burner body, loosely mounted valves carried by the rock shaft and adapted to operate in conjunction with the valve  
 90 seats, to alternately open and close said passages, a rocker arm carried by the rock shaft outside of the burner body, in combination with a suitable mechanism adapted to operate the valves through the rocker arm at pre-  
 95 determined intervals or times for lighting and extinguishing purposes.

8. A gas burner having main and pilot passages, and a chamber located to one side of said passages, conduits leading from the pas-  
 100 sages and terminating in suitable valve seats in the chamber, a rock shaft mounted in one side of the burner body and having one end thereof projecting beyond the casing and the other end thereof carrying a valve located in  
 105 the chamber and adapted to operate in conjunction with the valve seats to alternately open and close said passages, in combination with a suitable mechanism adapted to operate the valve through the rock shaft at pre-  
 110 determined intervals or times for lighting and extinguishing purposes.

9. A gas burner having main and pilot passages, a gas chamber, conduits connecting the chamber and said passages and ter-  
 115 minating in suitable valve seats in the chamber, loosely mounted valves within the chamber adapted to alternately seat upon the valve seats therein, and means for operating said valves to alternately open and  
 120 close the conduits.

10. A gas burner having main and pilot passages, a gas chamber, conduits connecting said chamber and passages and having  
 125 horizontal valve seats within the chamber, loosely suspended valves within the chamber adapted to alternately seat upon the valve seats, and means without the chamber to alternately operate the valves within the  
 130 chamber to open and close the conduits.



11. A gas burner having main and pilot passages, a gas chamber, conduits connecting the chamber and said passages and terminating in valve seats in the chamber, a  
5 rockable device within the chamber, loosely mounted valves carried by said device and adapted to alternately open and close the conduits and means for operating said device and valves from without the chamber,  
10 for the purpose set forth.
12. A gas burner having main and pilot passages, a gas chamber, conduits connecting the gas chamber and said passages and terminating in suitable valve seats in the  
chamber, loosely mounted valves within the 15 chamber and adapted to alternately seat upon the valve seats therein, to alternately open and close said conduits, in combination with a suitable mechanism adapted to operate the valves at predetermined intervals or 20 times for lighting and extinguishing purposes.
- In testimony whereof I affix my signature in presence of two witnesses.
- AUGUST MEYER.
- Witnesses:  
Jos. T. ROSSEL,  
G. N. MEISEL.