No. 632,522. Patented Sept. 5, 1899.

A. FRANK.

GAS LIGHTING APPLIANCE.

(Application filed May 3, 1898.)

(No Model.)

Fig.1.

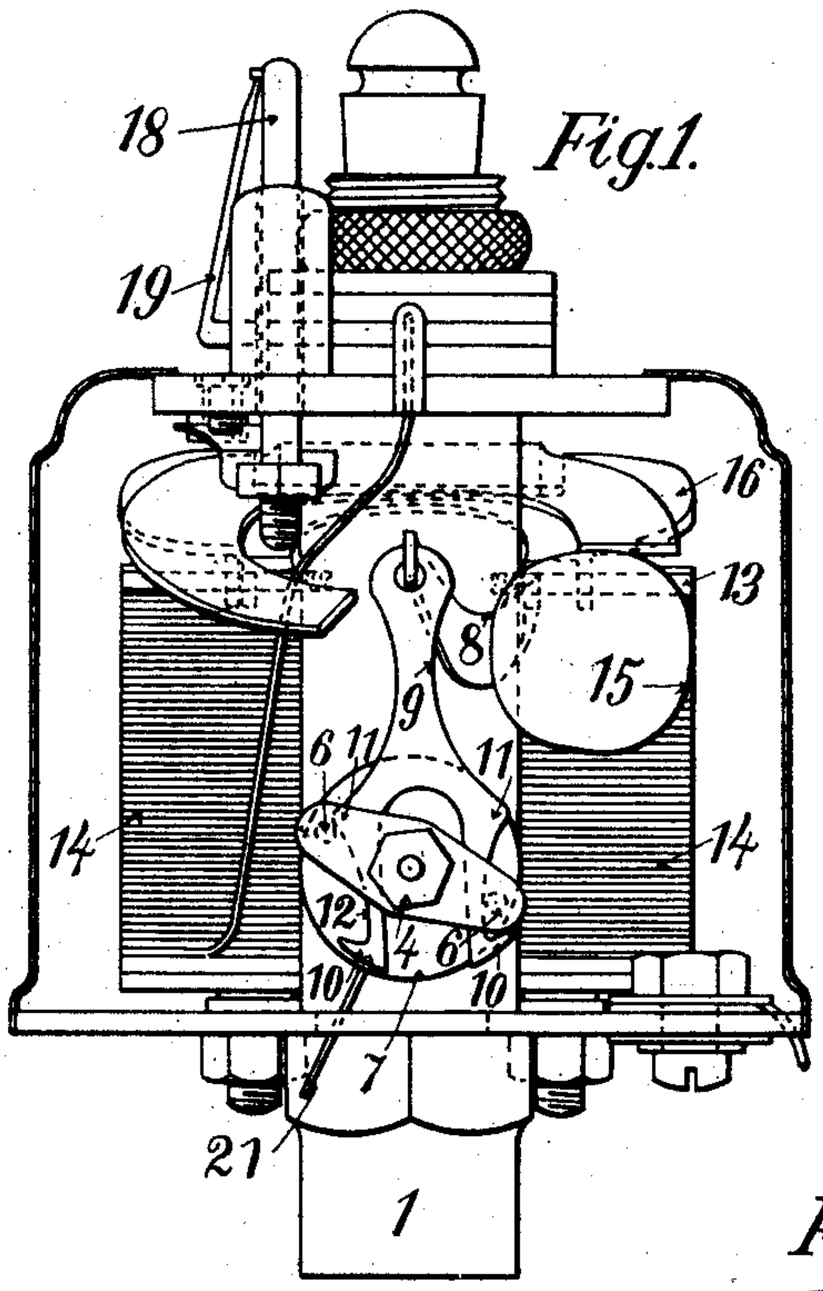


Fig.2.

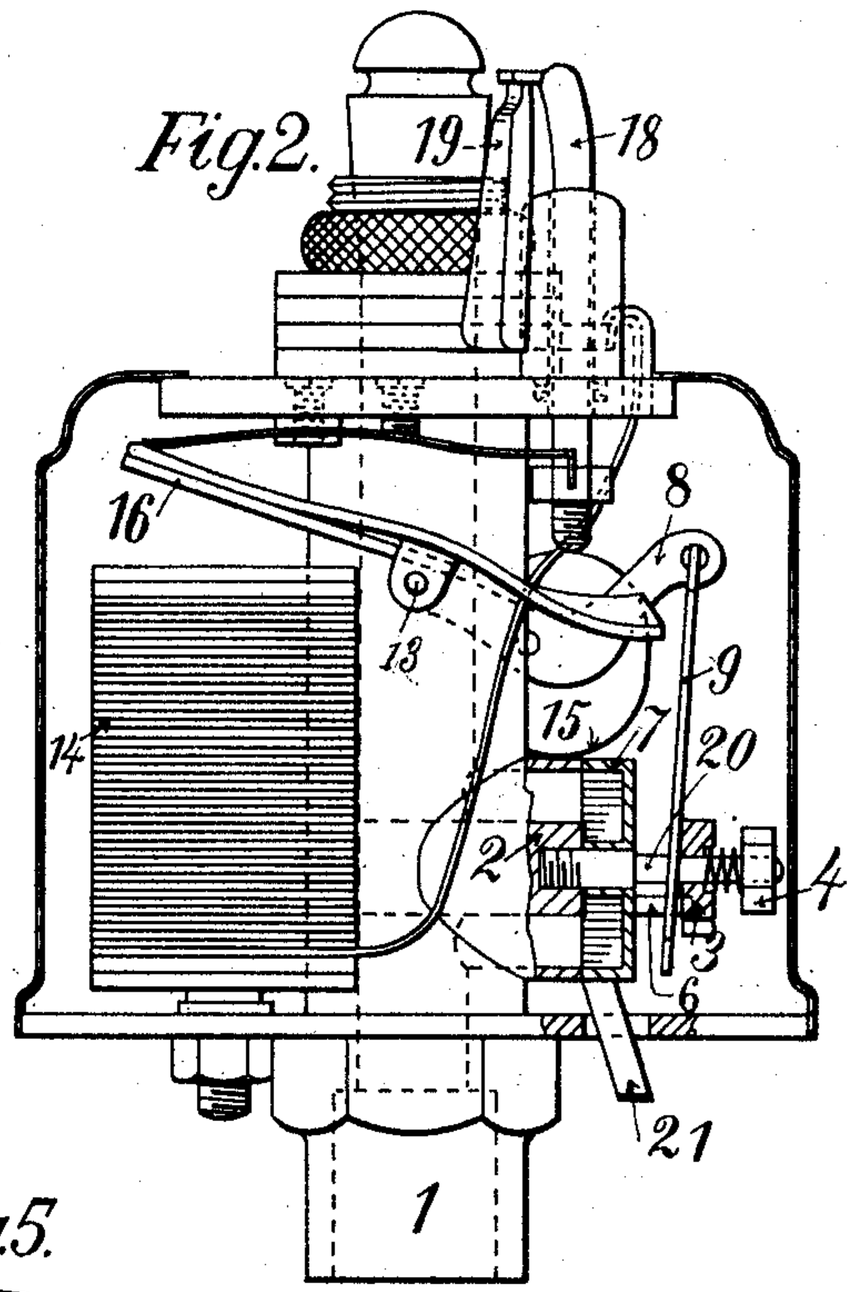


Fig.5.

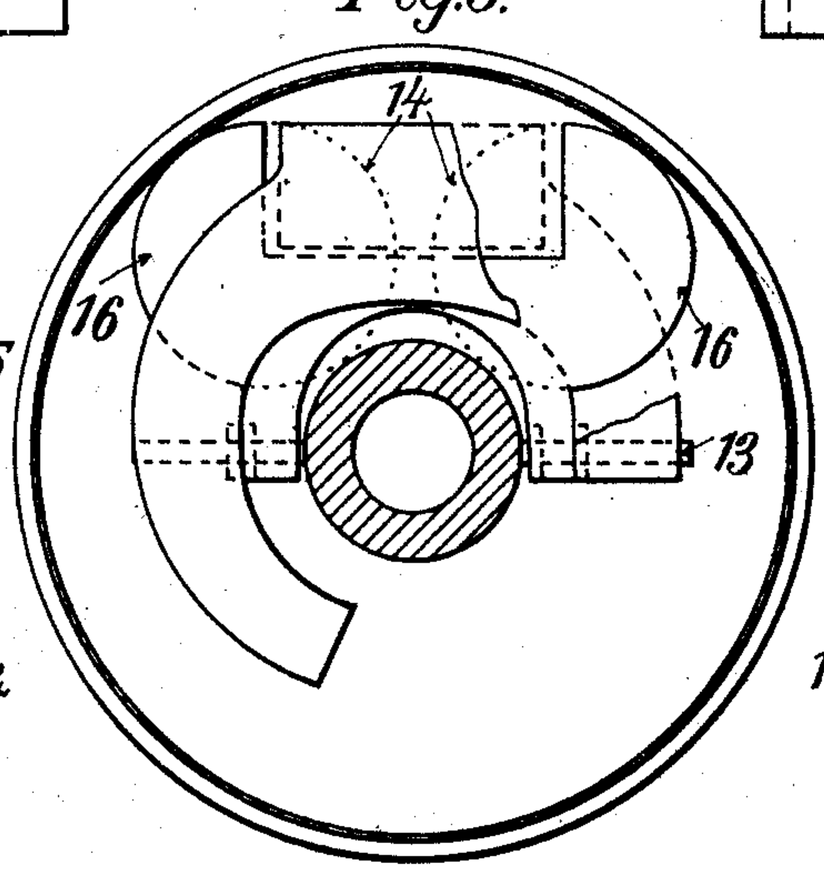


Fig.3.

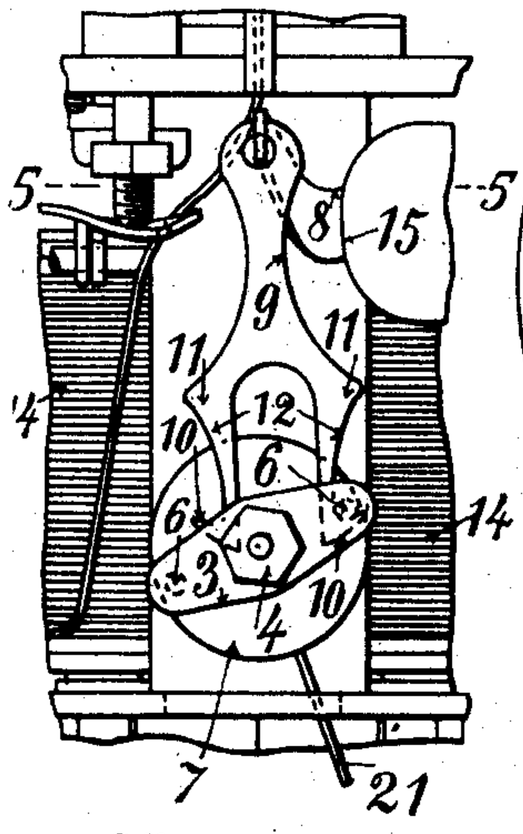
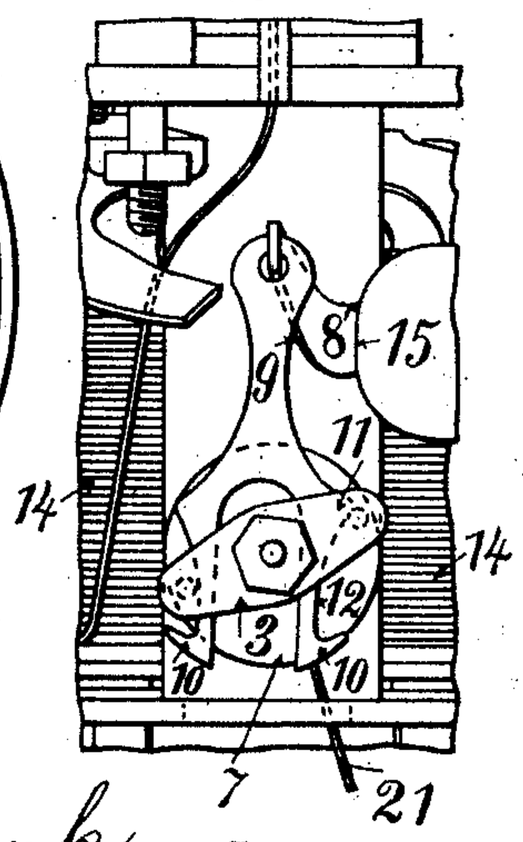


Fig.4.



Witnesses
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UNITED STATES PATENT OFFICE.

ADOLPH FRANK, OF NEW YORK, N. Y.

GAS-LIGHTING APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 632,522, dated September 5, 1899.

Application filed May 3, 1898. Serial No. 679,613. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH FRANK, of New York, county and State of New York, have invented certain new and useful Improvements in Gas-Lighting Appliances, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings, wherein—

Figure 1 is a sectional view, partly in elevation, of my improved valve-operating and igniting apparatus. Fig. 2 is a similar view at right angles to Fig. 1. Figs. 3 and 4 are detail views showing the valve-operating pawl in different positions in action. Fig. 5 is a horizontal sectional view on lines 5 5, indicated in Fig. 3.

My invention relates to gas-lighting appliances; and it consists of the hereinafter-described improvement of the kind of devices as described in United States Patent to E. Schmidt, No. 571,288, dated November 10, 1896, whereby the necessity of employing a spring for shifting the pawl operating the valve is obviated, and the lighting apparatus is thus rendered more effective and more reliable in operation and less liable to disarrangement.

The apparatus illustrated in the drawings consists of the burner-tube 1, adapted to be screwed upon a gas-fixture and provided with an oscillating valve 7, governing the flow of gas to the burner. Lever 3, set movably on stem 20 of the plug 2 and held thereon by screw-nut 4, is connected by pins 6 to valve 7. Double pawl 9 is suspended from the end of lever 8 and by its hooks 10 engages alternately the pins 6. The space between the lever and the valve allows the pawl 9 an absolutely free motion, and its connection to lever 8 allows it to swing freely.

A similar construction of the device was used heretofore; but a fine spring was required to be attached to the valve and connected to the rod of the pawl to shift the pawl oppositely to the turn of the valve to enable the corresponding hook 10 of the pawl to engage by the next action the other pin 6, and thereby turn the valve at each stroke in an opposite direction. Such an arrangement is described in the United States Letters Patent above referred to. The disadvantage of such an arrangement is that the spring, which is the most essential element of the device, must be necessarily made very fine, and consequently is speedily used up. It softens easily by the heat of the burner and still more often becomes disarranged, bent, or broken by the handling of the apparatus. The proper operation of this spring is most essential to the working of the apparatus. It must be most minutely adjusted, and when bent or otherwise disabled this otherwise very convenient lighting apparatus is worthless for practical use. My invention tends to remedy this defect by obviating the necessity of using the spring. For this purpose I have shaped the double pawl to form the laterally-projecting shoulders 11 and have curved the edges 12 so that when the pawl descends from its highest position, as shown in Fig. 3, the edge 12 of the pawl will glide on the pin it previously engaged by the hook, and thereby the pawl will be shifted toward the other pin. By the next upward motion of the pawl 9 its corresponding hook 10 will engage that other, now lower-situated, pin 6 and by pulling it upwardly turn the valve 7 in opposite direction. These operations are shown successively in Figs. 1, 3, and 4. In the first position, Fig. 1, the valve is closed and the operating-pawl 9 is slid down to the right, the hook 10 of the right arm being beneath the pin 6. In Fig. 3 the next following operation is illustrated. Pawl 9, being pulled upwardly by the lever 8, engages now with its hook 10 the right-side pin 6 and, pulling it upwardly, turns the valve 7 to the right and opens the passage for the gas through the burner-tip. In Fig. 4 the lever 8 is dropped to its normal position of rest. By comparing Fig. 4 with Fig. 1 it will be seen that in both figures the pawl in moving downwardly is shifted oppositely to the turn of the valve.

Pawl 9 is suspended from lever 8, fulcrumed on pivot 13, and is operated by the action of the electromagnets 14. Weight 15, attached to the forward end of the lever 8, to which fork 9 is attached, draws it downwardly when the electromagnets cease to operate. The action of the electromagnets 14, drawing the rear end 16 of the lever 8 downwardly, lifts the pawl 9 and turns the valve. Lever 8 acts

also as alternating contact-piece for the electric circuit passing through the wires into the igniter 18 and 19, igniting the gas when the electric circuit is broken and again closed at every operation of the lever 8, opening and closing the valve. Valve 2 may also be operated by hand, moving finger 21 accordingly, but in such case the automatic igniter would not operate.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of an oscillating valve provided on its outer end with diametrically opposite located projections adapted to be engaged by pawls, a double pawl movably mounted above the valve and having outwardly-diverging hooks and projecting shoulders above the hooks and the edges connecting the shoulders with the hooks curved conformably to the required shifting motion of the pawl, and means for reciprocally moving the pawl.

2. The herein-described device for operating an oscillating valve, comprising a two-armed lever, secured to the valve, pins, secured one in each end of the lever, a double pawl movably suspended above the valve and having outwardly and oppositely diverging hooks, outwardly and oppositely projecting shoulders above the hooks, and the edges connecting the shoulders with the hooks shaped to gradually shift the pawl, when dropping, oppositely to the turn of the valve, and means for reciprocally moving the pawl.

3. In combination with a gas-lighting device, comprising a burner-tube, a tip set in the burner-tube, an electric igniter mounted in near proximity to the tip, electric conductors to and from the igniter, and an oscillating valve set transversely in the burner-tube and provided on its outer end with projecting pins set diametrically opposite each other, of an oscillating contact-piece fulcrumed to the burner-tube above the valve and in position to connect on one end with the electric conductor to the igniter, an electromagnet set underneath this end and a weight and a double pawl pivotally attached to the other end of the oscillating contact-piece, the pawl having outwardly-diverging hooks adapted to engage with the pins set in the oscillating valve, projecting shoulders above the hooks and the edges connecting the shoulders with the hooks suitably curved to shift the pawl alternately from one pin to the other.

In witness that I claim the improvements described in the foregoing specification I have signed my name in the presence of two subscribing witnesses.

ADOLPH FRANK.

Witnesses:

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