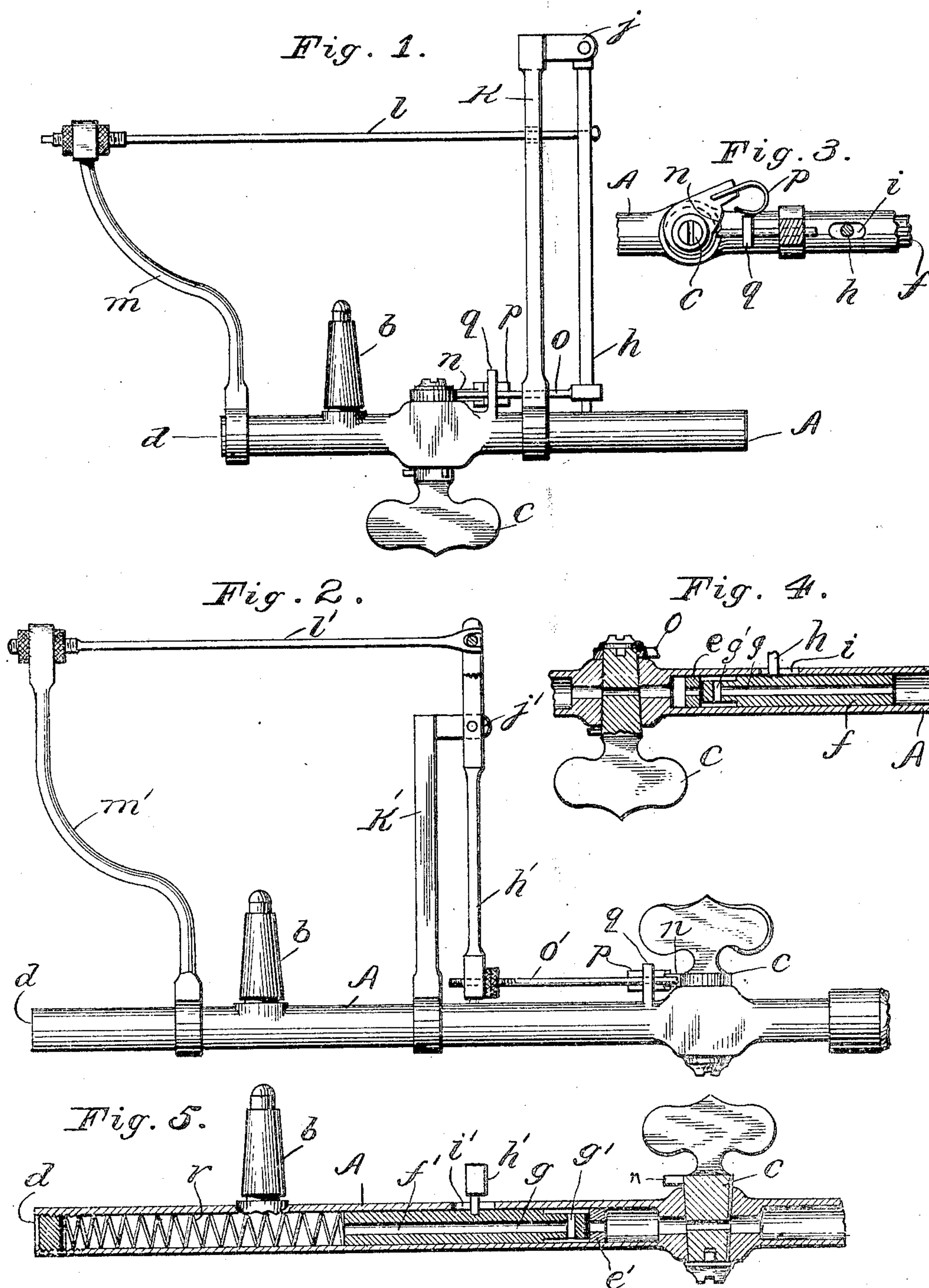


S. W. EKROOS.
SAFETY GAS BURNER.
APPLICATION FILED DEC. 1, 1904.

2 SHEETS—SHEET 1.



Witnesses
C. Sedgwick
Ernest Lundgren
T.

Inventor
Sigurd W. Ekroos.
By his Attorney A. O. Thayer

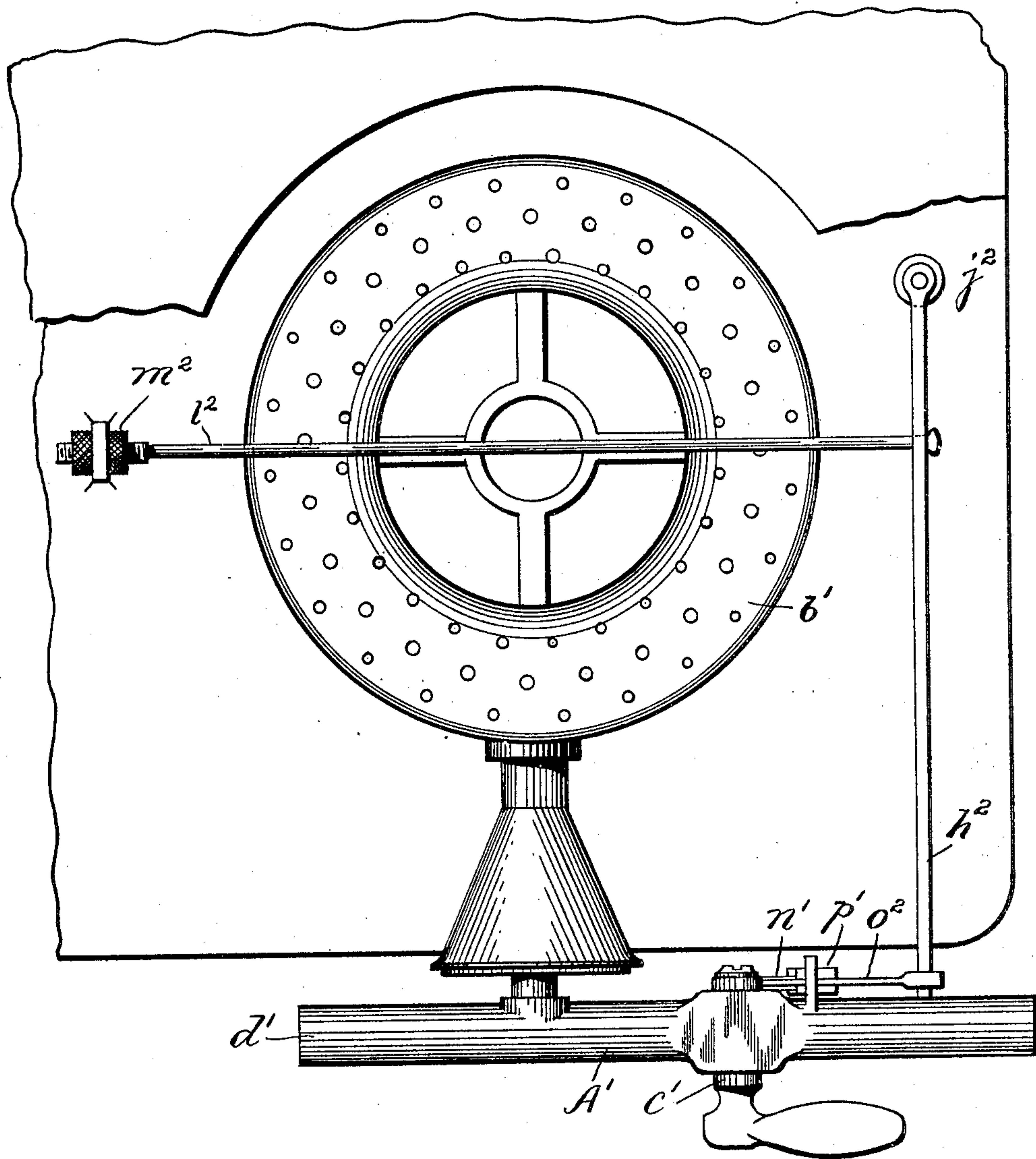
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PATENTED JAN. 2, 1906.

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Fig. 6.



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UNITED STATES PATENT OFFICE.

SIGURD W. EKROOS, OF NEW YORK, N. Y.

SAFETY GAS-BURNER.

No. 808,825.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed December 1, 1904. Serial No. 234,995.

To all whom it may concern:

Be it known that I, SIGURD W. EKROOS, a subject of the King of Sweden and Norway, and a resident of the borough of Brooklyn, New York city, State of New York, have invented certain new and useful Improvements in Safety Gas-Burners, of which the following is a specification.

My invention relates to means for automatically closing the gas-duct when the flame is blown out or otherwise unintentionally extinguished; and it consists of the improved contrivances hereinafter described whereby such closure is effected, reference being made to the accompanying drawings, in which—

Figure 1 is an elevation of the apparatus of my invention in one form of construction. Fig. 2 is an elevation of the same in a modified form of construction. Fig. 3 is a plan view of part of the apparatus of Fig. 1 with some of the parts in horizontal section. Fig. 4 is a longitudinal vertical section of the gas-pipe and the gas-controlling valve and stop-cock of Fig. 1. Fig. 5 is a longitudinal vertical section of the gas-pipe and the gas-controlling valve and stop-cock of Fig. 2. Fig. 6 is a plan view showing the application of my improved apparatus to a gas-stove burner.

A represents the gas-pipe having the burner *b* and the gas-cock *c*, said pipe being preferably arranged in a horizontal position and the burner being applied at some distance from the dead end *d* of the said pipe. In the gas-pipe in advance of the cock *c* and the burner *b* is a valve-seat *e*, and in connection with this seat is a valve *f* to close on said seat when the flame is unintentionally extinguished and stop the flow of gas while the cock remains open. The said valve has a passage *g* through it for allowing the gas to flow after being opened. Said valve is fitted to slide gas-tight in the pipe *A* and has a lever *h* connected to one side through a slot *i* of the pipe, said lever being fulcrumed at its opposite end to a support *j*, carried by a standard *k*, set upright on the gas-pipe, said standard being in Figs. 1, 3, and 4 between the slot *i* and the burner *b*. Below the fulcrum of this lever *h* it is connected by a thermostatic rod *l*, extending over the burner *b*, so as to be heated by the gas-flame, to a tension-post *m*, supported on the gas-pipe, said post *m*, rod *l*, and the valve being so related to the seat *e* that when the flame is not burning and the thermostatic rod is contracted said rod draws

the valve onto the seat and stops the flow of the gas.

A cam *n* is applied to the gas-cock above the pipe *A*, and a thrust-rod *o* is arranged with relation to said cam and the lever *h* so that when the cock is turned to open the gas-duct and let on the gas the thrust of said rod *o* on said lever *h* opens the valve, which allows the gas to flow to the burner and be ignited. The cock is then held open a short time by the operator for allowing rod *l* to expand, which then allows the valve *f* to remain open for continuation of the flame as long as required.

The gas-cock carries a bow-spring *p*, which is tensioned by contact with a stud *q* when the cock is opened, so as to release the cam *n* from thrust-rod *o* when the cock *c* is released by the operator, and thus avoid obstruction to the closing of the valve by tension of the contracting thermostatic rod *l* when the flame is extinguished.

In Figs. 2 and 5 the valve *f'* and its seat *e'* are arranged between the burner *b* and the cock *c*, and the lever *h'* is fulcrumed at *j'* between its extremities. The thermostatic rod *l'*, supported on the standard *m'*, is caused by the flame to thrust on the upper arm of lever *h'* for holding the valve *f'* free from its seat *e'* as long as the flame is ignited. To allow the valve to be opened by the thrust-rod *o'* and the cam *n* on the cock *c*, the upper arm of lever *h'* is connected with the thermostatic rod *l'* by a loose joint, as shown in Fig. 2. A spring *r* is employed in the dead end of the gas-pipe to close the valve when released by the contraction of the thermostatic rod *l'*. In both arrangements the cock is to be held open for a short time for allowing the expansion of the thermostatic rods as a condition permitting the open condition of the valves while the gas burns and as a condition insuring the closing of the valves when the flame is extinguished.

My improved apparatus is alike applicable to gas-stove burners, as I have represented in Fig. 6, where the gas-pipe *A'* contains the valve, same as in the other figures, but not shown, because it is unnecessary to repeat it, said valve being in like manner connected to a lever *h²*, having its fulcrum at *j²*, to which lever a thermostatic rod *l²* is connected, which has connection at *m²* with a fixed support, said rod passing over the burner *b'* for being heated, and the gas-cock *c'* has a cam *n'*, coacting with a like thrust-rod *o²* for shifting the lever

h^2 to open the valves, with a bow-spring p' to release the cam from the thrust-rod. The gas-pipe is closed at the dead end d' and has a branch b^2 communicating with the burner b' .

5 What I claim as my invention is—

1. The combination with the gas-pipe, burner and gas-cock, of the valve located in the gas-pipe and at one side of the burner, means to open said valve and temporarily hold
10 it open through the instrumentality of the gas-cock when the latter is opened, an exterior thermostat subject to the gas-flame and connected with the valve for maintaining the open condition of said valve while the flame con-
15 tinues, and means for automatically closing said valve when the flame is extinguished.

2. The combination with the gas-pipe, burner, and gas-cock, of the valve located in the gas-pipe and at one side of the burner,
20 means to open said valve and temporarily hold it open through the instrumentality of the gas-cock when the latter is opened, an exterior thermostat subject to the gas-flame and connected with the valve for maintaining the open
25 condition of said valve while the flame continues, and a spring for automatically closing said valve when the flame is extinguished.

3. The combination with the gas-pipe, burner, and the gas-cock, of the valve located
30 in the gas-pipe and at one side of the burner, an exterior thermostat subject to the gas-flame for maintaining the open condition of

said valve while the flame continues, means to open said valve and temporarily hold it open through the instrumentality of the gas-cock 35 when the latter is opened, and means for automatically closing said valve when the flame is extinguished, the said means for opening said valve and temporarily holding it open comprising the cam on the gas-cock, thrust- 40 rod, and the valve-opening lever which is connected with the thermostat.

4. The combination with the gas-pipe, burner and the gas-cock, of the valve located in the gas-pipe and at one side of the burner, 45 an exterior thermostat subject to the gas-flame for maintaining the open condition of said valve while the flame continues, means to open said valve and temporarily hold it open through the instrumentality of the gas-cock 50 when the latter is opened, and means for automatically closing said valve when the flame is extinguished, the said means for opening said valve and temporarily holding it open comprising the cam on the gas-cock, thrust- 55 rod, and the valve-opening lever which is connected with the thermostat, and the spring for releasing the cam from the thrust-rod.

Signed at New York this 25th day of November, 1904.

SIGURD W. EKROOS.

Witnesses:

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A. P. THAYER.