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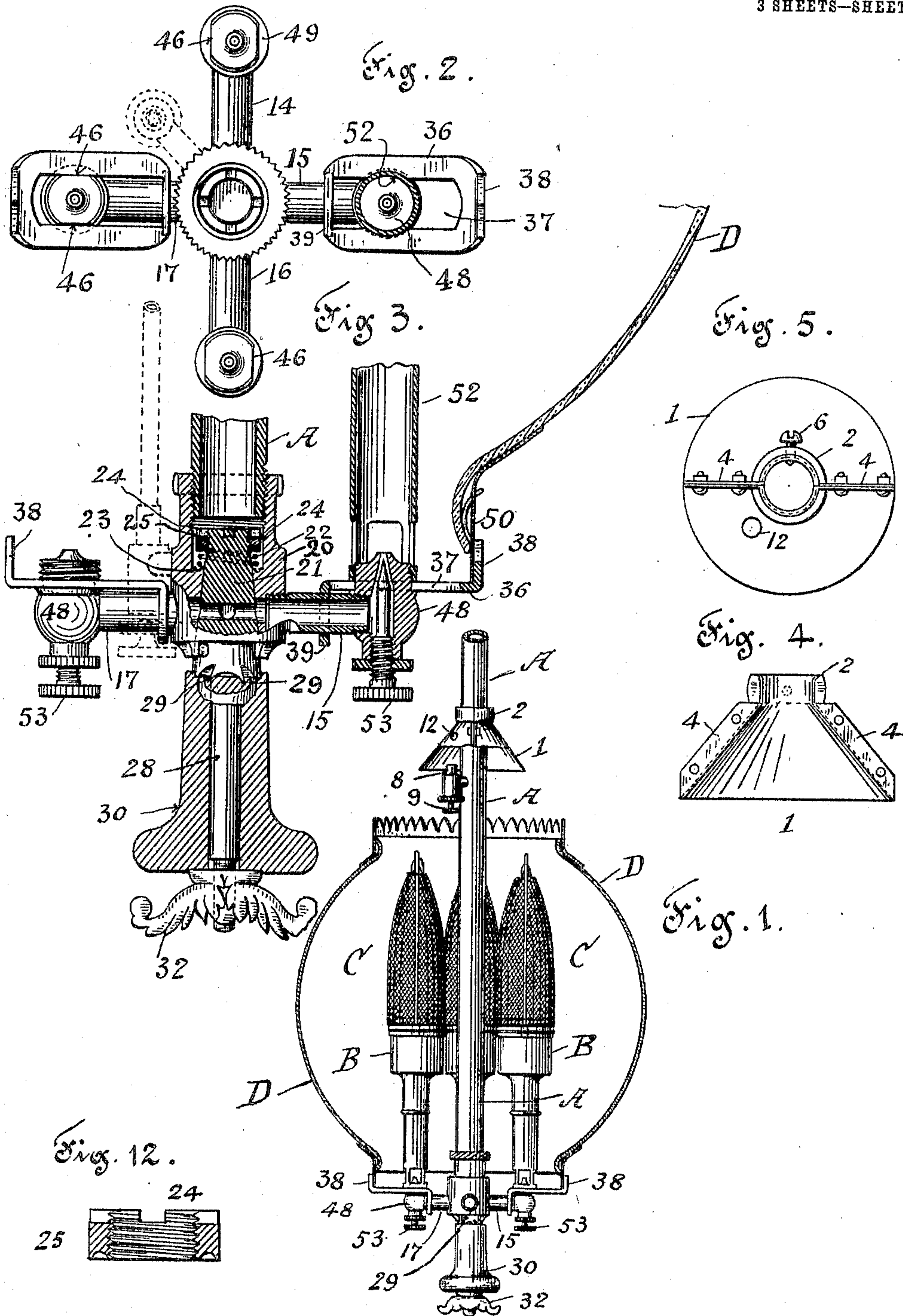
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R. SWIMMER & E. B. NEELEN.

GAS BURNER.

APPLICATION FILED NOV. 21, 1904.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 7.

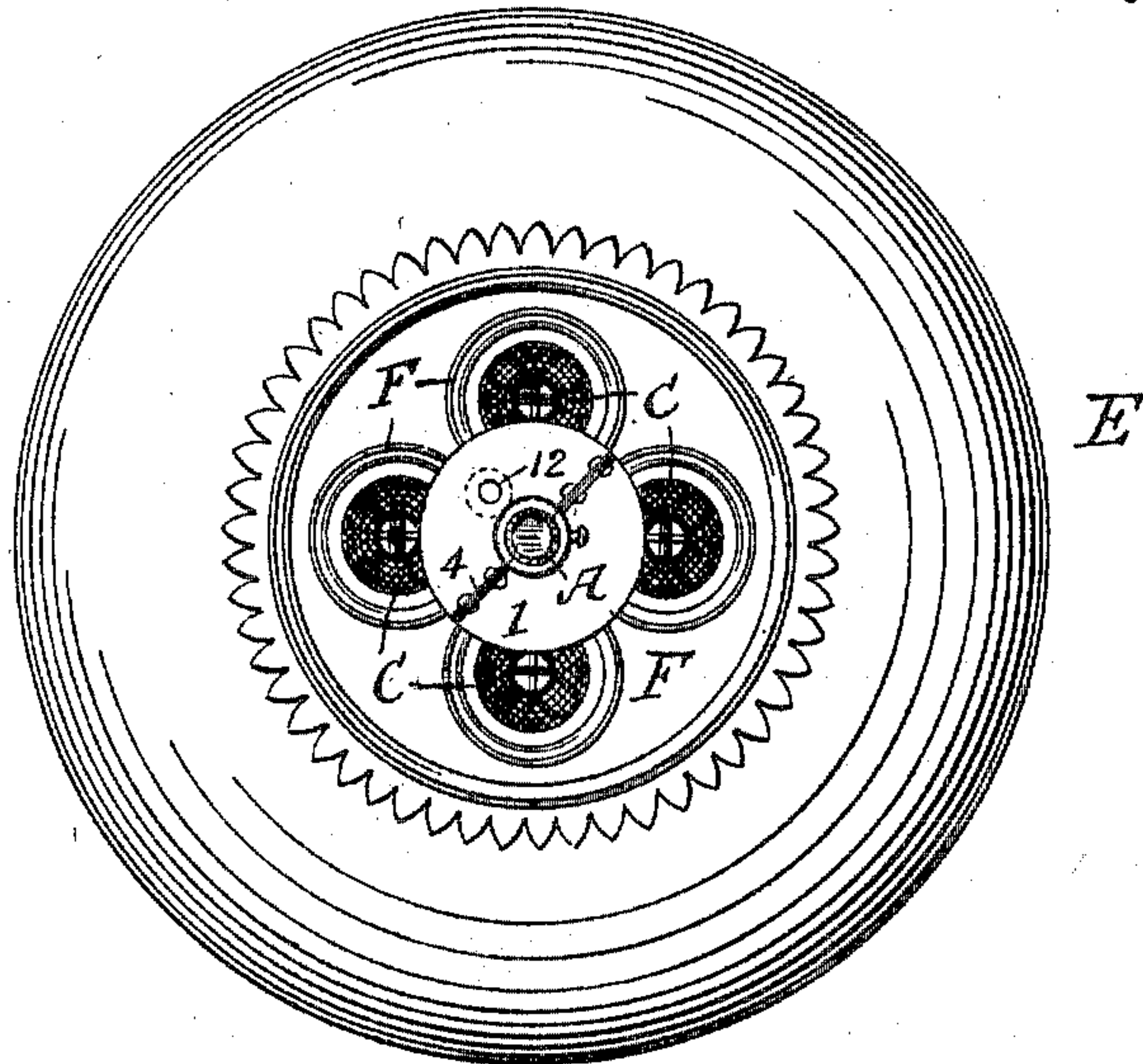
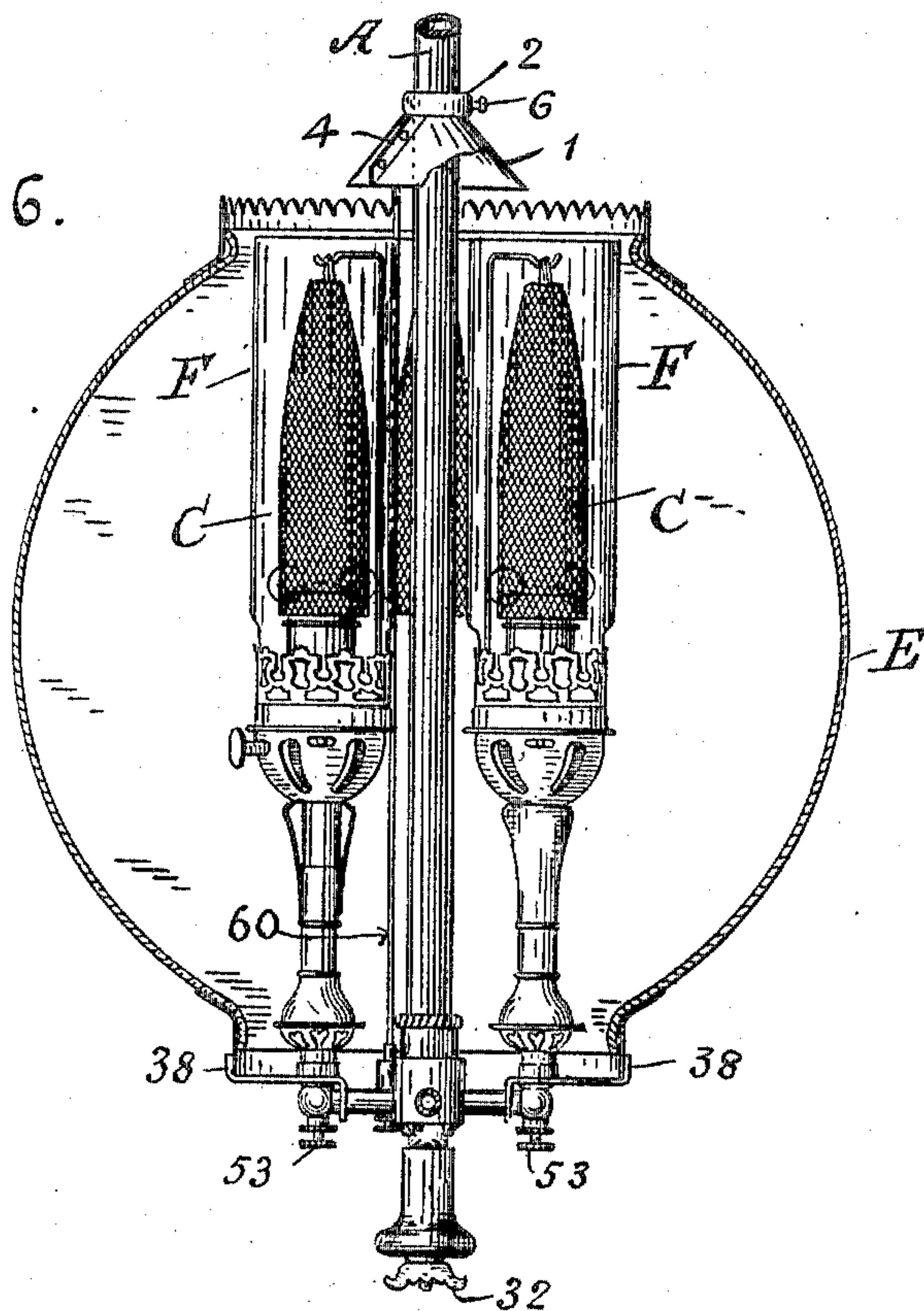


Fig. 6.



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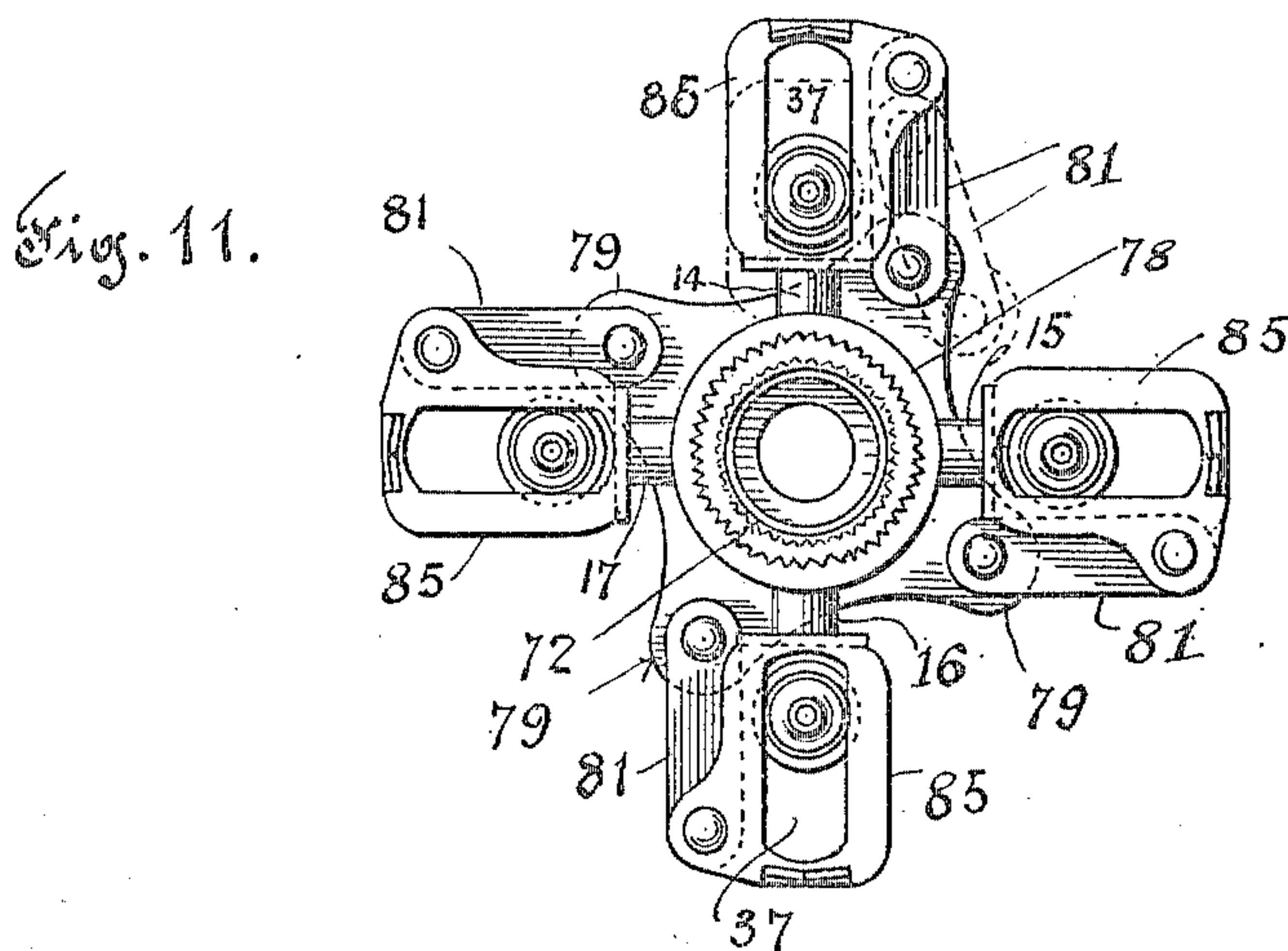
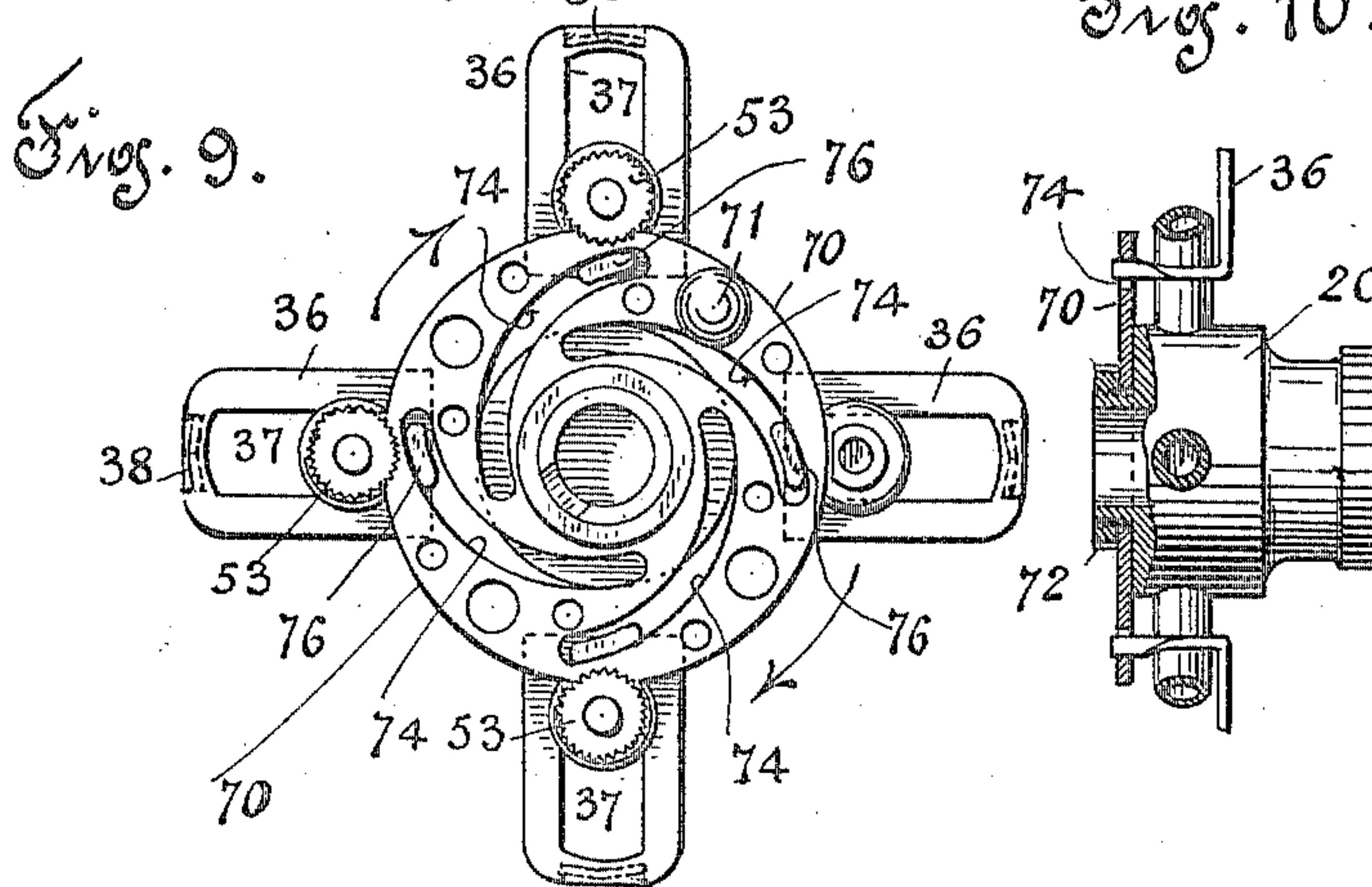
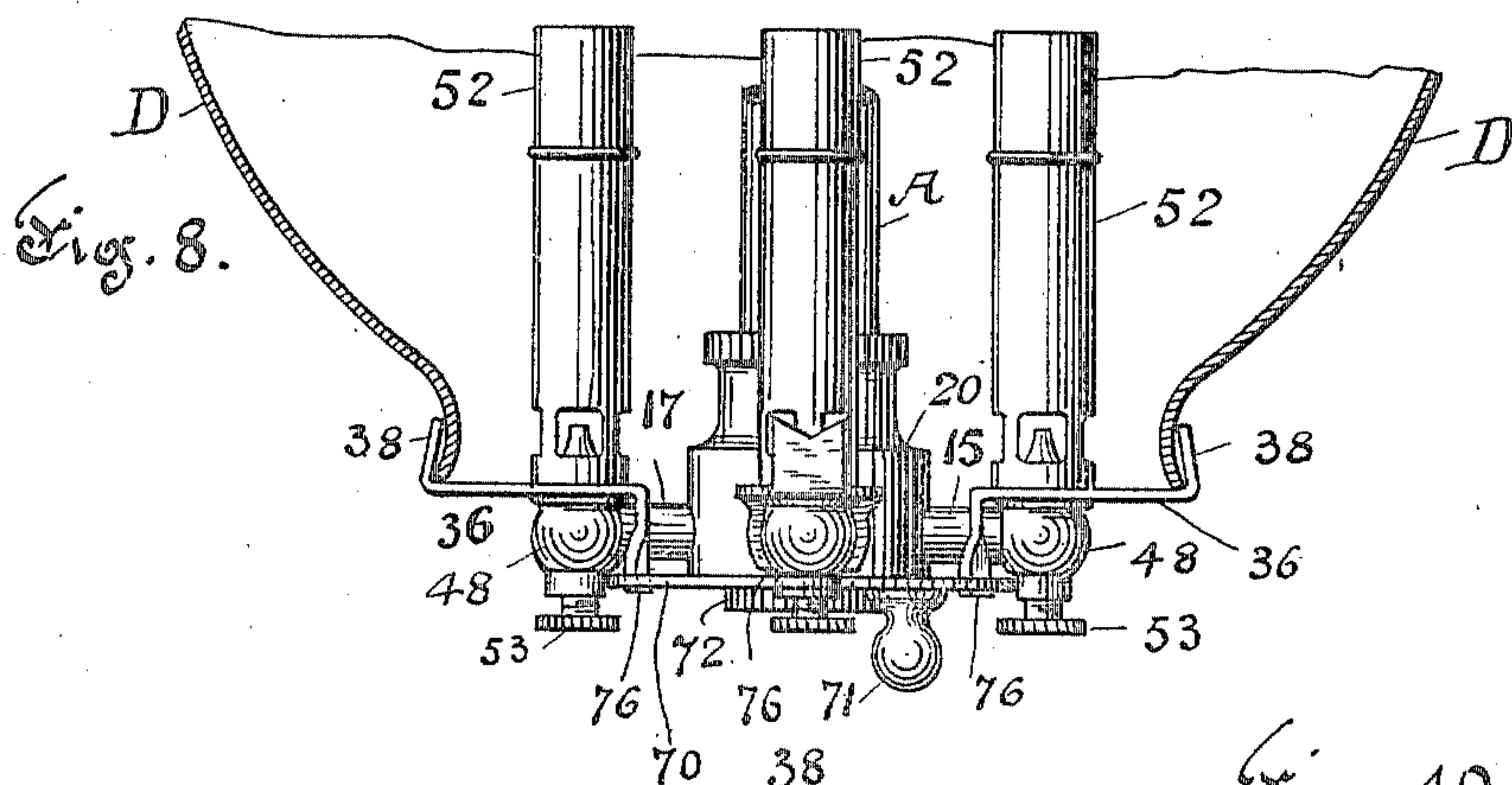
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ROBERT SWIMMER, OF NEW YORK, N. Y., AND EDWARD B. NEELEN, OF
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GAS-BURNER.

No. 811,970.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed November 21, 1904. Serial No. 233,696.

To all whom it may concern:

Be it known that we, ROBERT SWIMMER, a resident of the borough of Manhattan, in the city of New York, State of New York, and EDWARD B. NEELEN, a resident of the village of Lyndhurst, in the county of Bergen, State of New Jersey, citizens of the United States of America, have 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 especially for cluster lights. Cluster lights—that is, lights having a number of gas-burners, usually four grouped together—have come into quite general use with incandescent mantles and have presented difficulties not found in lights with single gas-burners, which difficulties have not heretofore been successfully overcome. This invention aims to overcome them by the constructions and arrangements hereinafter described, and, first, it provides in cluster lights a gas deflector or condenser in connection with a pilot-burner, so that when the gas is turned on to the several mantle-burners it will be ignited by the pilot-light at the condenser, and the flame will instantly flash down to and ignite the gas at all the burners. Heretofore it has been very difficult to get a pilot-light to ignite all the burners of a cluster. While some of the burners would light up, others would not, and when chimneys have been used with the mantles it has been impossible to get one pilot to simultaneously ignite all the burners. This invention, however, overcomes the difficulty and insures the instantaneous ignition of all the burners.

Again, this invention provides devices for holding and keeping the plug of the gas-cock tight to its seat under all conditions of use and wear, so that they will always remain gas-tight, while being easy to open and close.

Other features of the invention are the adjustable globe-holders of very cheap, simple, and effective construction whereby any size of globe can be used and means for simultaneously adjusting the several arms of the holder by a single simple rotary movement.

Finally, the main gas-cock is arranged with a handle of material which is a non-conductor of heat which may be grasped without burning the hand, and provision is made for holding this firmly on the metal stem of the

gas-cock and in connection with a key whereby in case of necessity the cock can be turned by the well-known chandelier turn-key.

Other useful and novel features of the invention will be evident from the description hereinafter given.

Referring to the drawings which accompany the specification to aid the description, Figure 1 is a broken sectional elevation of a cluster of incandescent burners and mantles without chimneys equipped with the invention. Fig. 2 is a plan, on larger scale, of a cluster of four burners without the Bunsen tubes. The adjustable globe-holders are shown on two of the burners. Fig. 3 is a broken sectional elevation on the scale of Fig. 2. Fig. 4 is an elevation of one-half of the gas condenser or deflector, and Fig. 5 is a plan view of said condenser. Fig. 6 is a broken sectional elevation of the invention applied to a cluster incandescent-gas light with chimneys, and Fig. 7 is a plan of the same. Fig. 8 is an elevation, and Fig. 9 a view from below, of the preferred means for simultaneously adjusting all the arms of the globe-holder, Fig. 10 being a broken section and elevation of certain parts of the same as seen from the left of Fig. 9. Fig. 11 is a plan view of modified means for the same purpose. Fig. 12 is a detail, on large scale, of the retaining-ring and spring for holding the plug to its seat.

Referring to Figs. 1 to 5, inclusive, A being the gas-pipe, B B a cluster of incandescent gas-burners connected thereto, and C C incandescent mantles on said burners, the gas-condenser 1 is arranged a little above the said mantles. It is conveniently supported on the pipe A and can be made of any suitable shape, which is preferably that of a conical frustum with collar 2, and of such diameter as to project over the tops of the mantles, as shown. Said condenser is preferably made in two parts with meeting flanges 4 4, which are bolted together. A set-screw 6 in said collar 2 provides for fixing the condenser at any desired point on pipe A. The pilot-tip 8 enters just up into said condenser and may either be a short nipple with regulating-valve 9 and secured to the pipe A just below the condenser 1, as shown in Fig. 1, or a long tube rising from the body of the main cluster-burner, as in Fig. 6. When no chimneys are

used, the short pilot is preferable; but with chimneys the long pilot is more convenient. A hole 12 is provided in the said condenser 1 over the tip of the pilot-tube. When gas is turned on to the burners, it rises and collects or "condenses" in the said condenser 1 and almost instantly reaches the constantly-burning flame of the pilot, being facilitated in this by the draft through hole 12. Instantly the flame flashes around the condenser and down the gas-streams to the several burners, igniting all practically simultaneously. The said several gas-burners B B are clustered around tube A and preferably on diametrical pipes 14 15 16 17, arranged ninety degrees apart, Fig. 2, and are all controlled by one main gas-cock 20, the conical plug 21 of which is suitably ported for the four burners. Said plug is held gas-tight to its seat by the spring 22, positioned on the inner end of said plug between the shoulder 23 of said body 20 and the threaded ring 25, which is recessed on its under side for said spring 22, whereby the coils of said spring are held clear of the plug 21, and the bottom of the chamber in body 20 is similarly recessed for the same purpose, and said ring 25 is slotted on its face to receive a tool, so that it can be readily turned home to produce any desired tension of the spring. By this construction said spring 22 draws the conical plug tightly to its conical seat in all conditions of wear, and leakage is effectually prevented, while the plug can be turned at all temperatures.

On the stem 28 of said plug 21 is fitted a knob or handle 30 of a material which is a non-conductor of heat and preferably wood, and prongs 29 are provided on the end of said plug, which are forced into the wood when the nut 32 is turned home, whereby the knob 30 is held tightly on the stem, notwithstanding the shrinking of the wood. This arrangement of a non-conducting knob and a device to fix same firmly on a metal gas-cock which is exposed to great changes of temperature is very useful, for metal handles in such positions become intensely hot when the burners are lighted, so that the hand is liable to be burned in turning off the gas. To provide for a common case, where the clusters are hung too high to be reached by a short person, the said nut 32 may be formed as a key, as seen in Fig. 3, so that it can be turned by the ordinary chandelier turn-key.

The globe-holder is composed of adjustable arms 36, preferably one for each burner-pipe 14, 15, 16, and 17, and punched and bent up of sheet metal. Each said arm 36 has a horizontal body provided with a slot 37, which is guided on the flattened sides 46 of the burner-tips 48, a bent-up outer end 38, into which fits the bottom rim 50 of the globe 51, and a bent-down inner end 39, which is perforated to fit on the corresponding burner-tube 14, 15, 16, or 17. Said burner-tips 48 are flat-

tened on opposite sides to form the guides for the said globe-holder arms and also seats 49, on which said arms rest, as shown in Figs. 2 and 3. Thus when the Bunsen tubes 52 are threaded on the tips 48 the globe-holder arms are held between said tubes and said seats 49 and may be adjusted for globes of different sizes, 53 being the usual regulating needle-valve at each burner.

Referring to Figs. 6 and 7, when chimneys are used with the mantles the condenser will be preferably of such diameter as to extend about half-way out over such chimney, and a long pilot-tube 60, which extends up from the pilot-burner regulating-cock 62 to just about the said condenser, as in Fig. 6, is preferable to a short pilot-tube, as in Fig. 1. In other respects the construction of the burner and its parts is similar to those hereinbefore described. For convenience in adjusting the said globe-holders it is desirable to provide means whereby all the said arms 36 can be adjusted simultaneously, and we prefer that shown in Figs. 8, 9, and 10, wherein 70 is a cam-plate rotating on the flanged and shouldered sleeve 72, which is threaded into the bottom of the said valve-body 20, said valve-body 20 with its plug-stem handle and key being all as hereinbefore described, but said plug-stem handle and key, as well as other parts hereinbefore described, being omitted from Figs. 8, 9, and 10. Said plate 70 is provided with eccentric cam-grooves 74, one for each arm 36, and said arms 36 are each provided with downwardly-bent and suitable inclined tongues 76, which fit in said grooves 74. Thus by turning said plate 74 by the knob 71 in one direction said arms 36 are all simultaneously moved outward and turning said plate 70 in the opposite direction all said arms 36 are simultaneously moved inward, and thus by simple movements all the arms may be adjusted for putting on, removal, and support of any globe.

Referring to Fig. 11, 78 is a rotary plate turning on a sleeve 72, threaded into the bottom of the valve-body, as hereinbefore described. The arms or corners 79 of said plate 78 are pivotally connected by links 81 with the arms 85 of said globe-holders, said arms 85 being slotted and guided on the burner and in general arranged and constructed like the aforesaid arms 36, except for their connection with said links 81. Thus by rotating said plate 78 in one direction all said arms 85 are moved outwardly, and by rotating said plate 78 in the opposite direction all said arms 78 are drawn inwardly simultaneously for adjustment to a globe.

Now, having described our improvements, we claim as our invention—

1. In gas-lighting apparatus the combination with a plurality of burners one of which is constantly ignited of means to deflect the gas from a burner which is not ignited to the

flame of the burner which is constantly ignited, substantially as described.

2. In a gas-lighting apparatus the combination with a constantly-ignited pilot-burner and main burners of means to deflect gas from the main burners to the pilot-flame, whereby all the main burners are simultaneously ignited, substantially as described.

3. In a gas-burner, the combination with a constantly-ignited pilot-burner and main burners of a gas-deflector provided with a vent, substantially as described.

4. In a cluster gas-light, the combination with a plurality of burners, of a globe-holder consisting of a plurality of slotted and bent arms adjustably guided on said burners, substantially as described.

5. The combination in a gas-light of burners provided with a plurality of pipes and tips and said tips having flattened sides and seats, and slotted and bent globe-holder arms seated on said seats and on said pipes, substantially as described.

6. The combination in a gas-cock of a body having a conical bore, a conical plug seated therein, a spring on the inner end of said plug

and a confining-ring provided with a recess for said spring, substantially as described.

7. The combination in a gas-cock, of a body 20 provided with a conical bore and recessed spring-chamber, a conical ported plug 21 seated in said bore, a spring 22 on the inner end of said plug and bearing on the said body 20, and a recessed confining-ring 25 on said plug, substantially as described.

8. The combination in gas-lighting apparatus of a main supply-pipe, a plurality of burners connected therewith and provided with guide-seats, a rotatable adjusting device mounted on said main supply-pipe, a plurality of adjustable globe-holding arms guided on said seats, and operative connections between said arms and said adjusting device, whereby all said arms are simultaneously adjusted, substantially as described.

Signed at New York city, August 8, 1904.

ROBERT SWIMMER.
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Witnesses:

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