

No. 791,278.

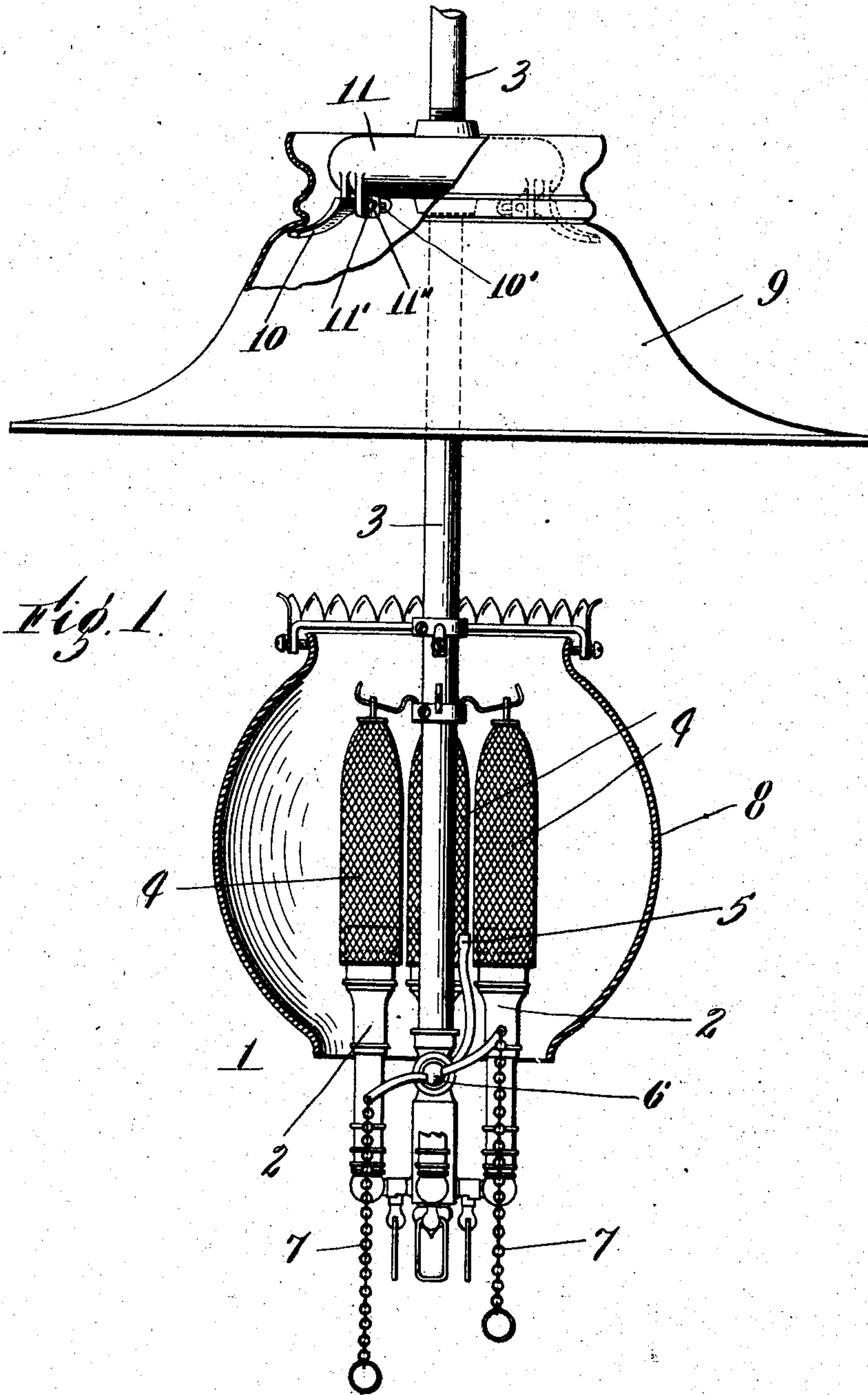
PATENTED MAY 30, 1905.

C. C. MALTON.

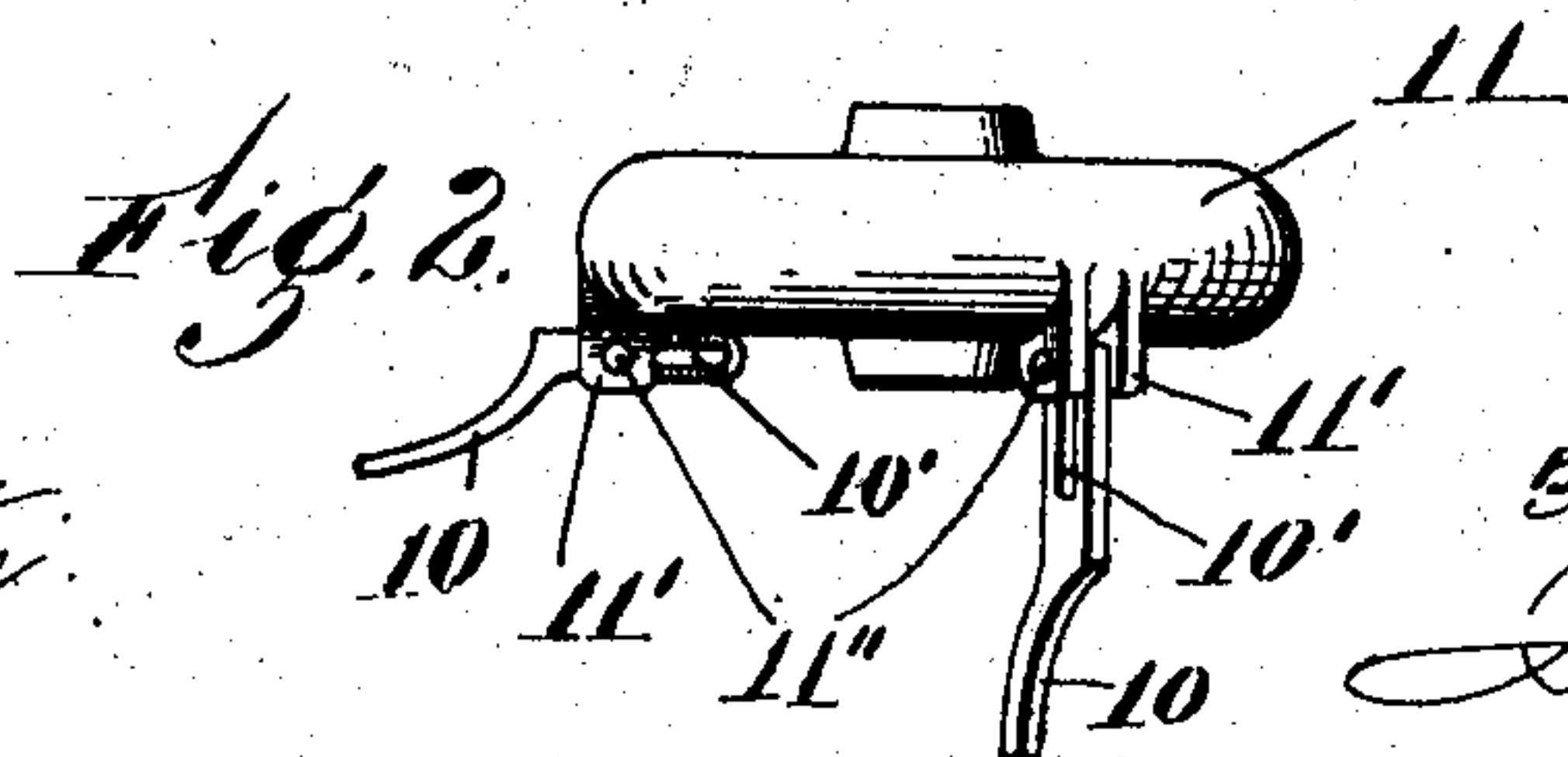
PREHEATING CHAMBER FOR GAS LAMPS OR GAS HEATERS.

APPLICATION FILED JAN. 4, 1905.

2 SHEETS—SHEET 1.



*Fig. 1.*



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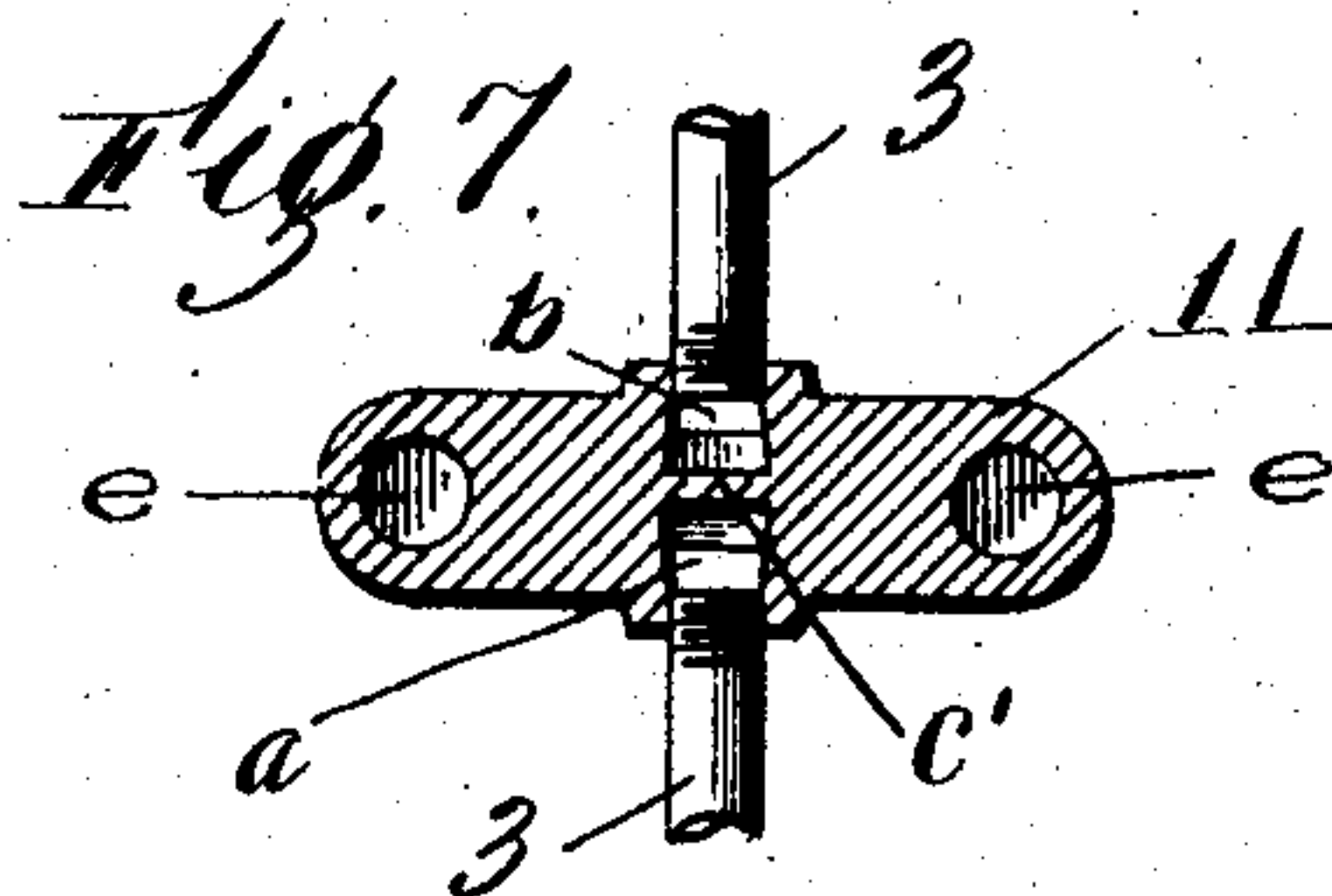
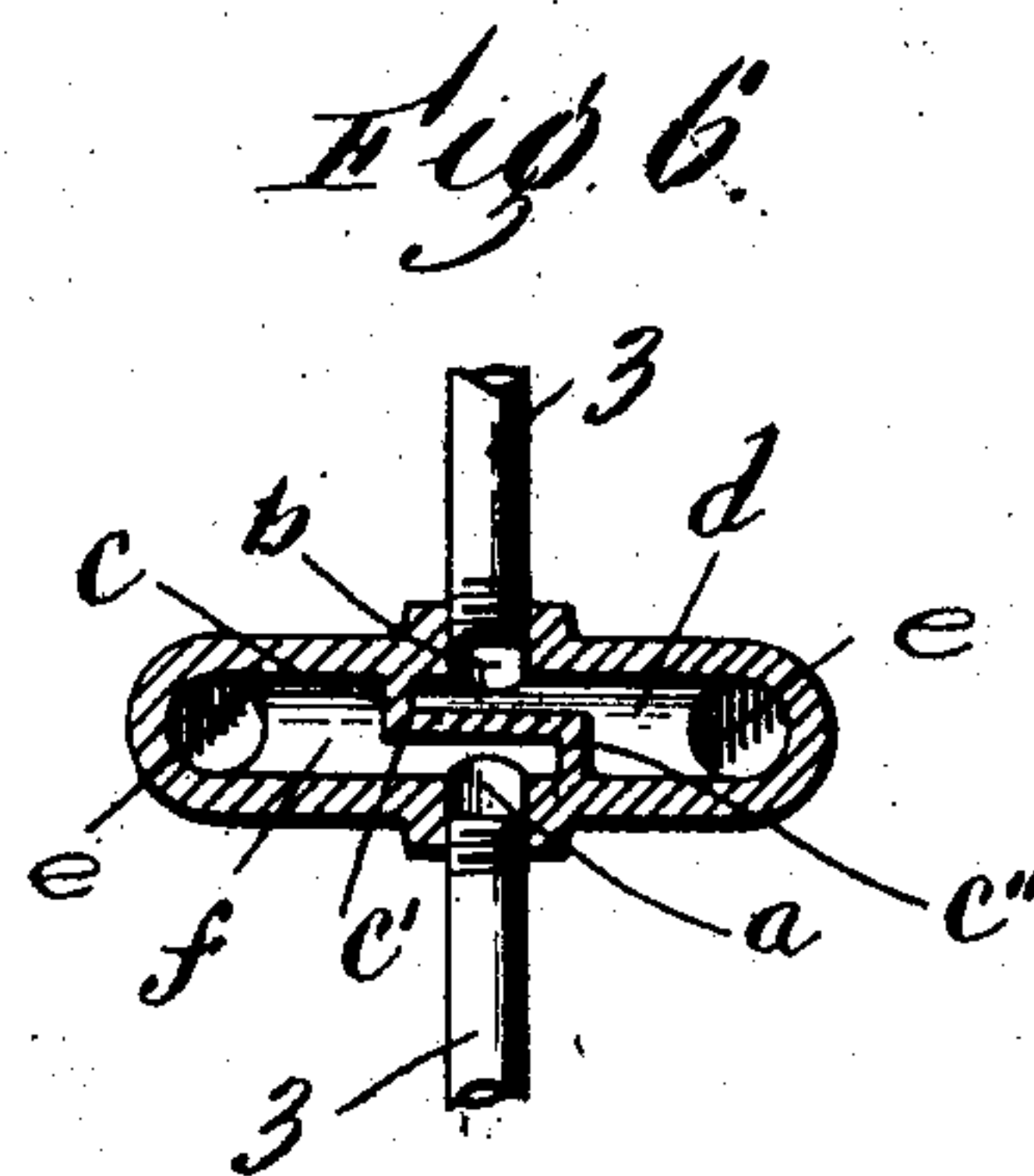
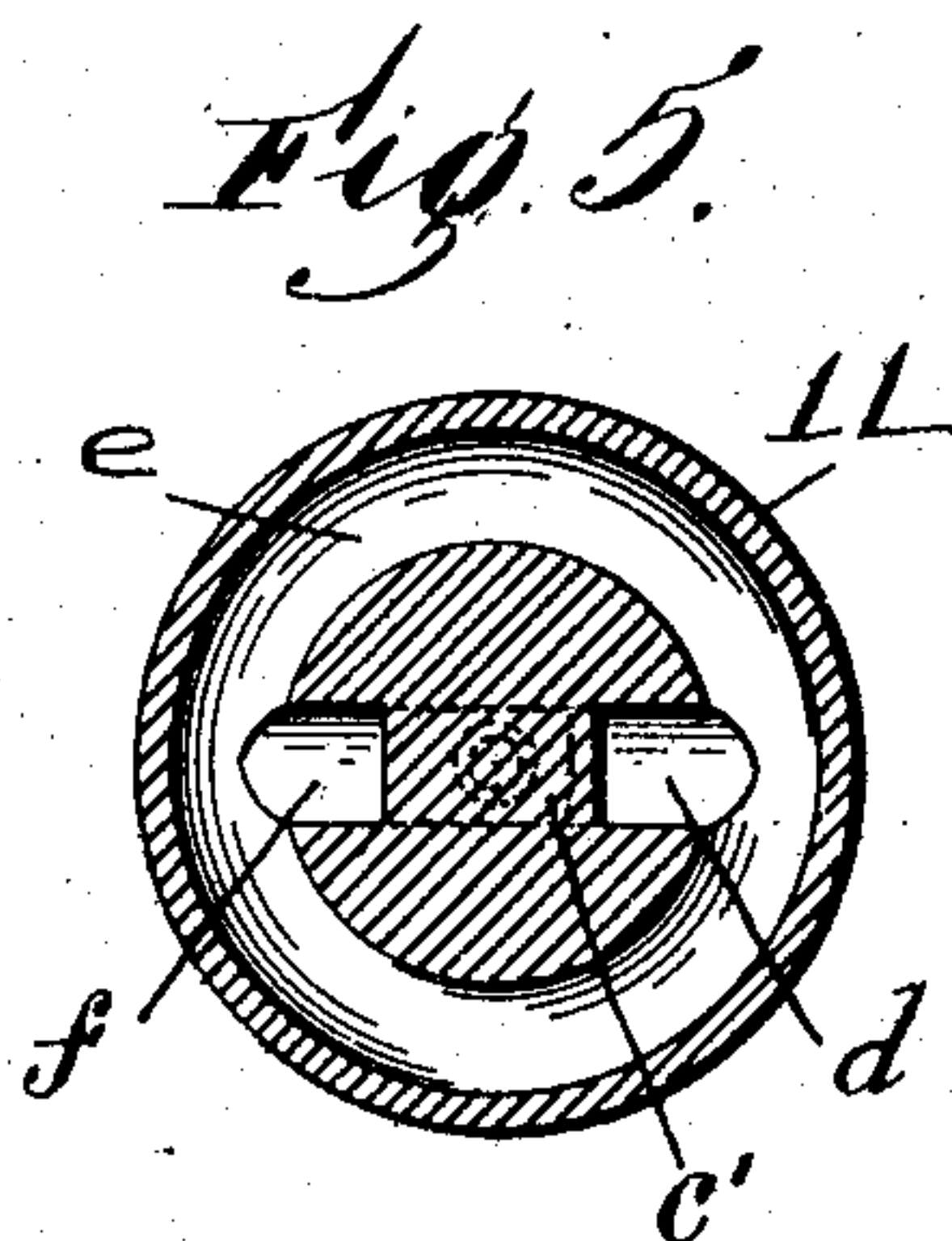
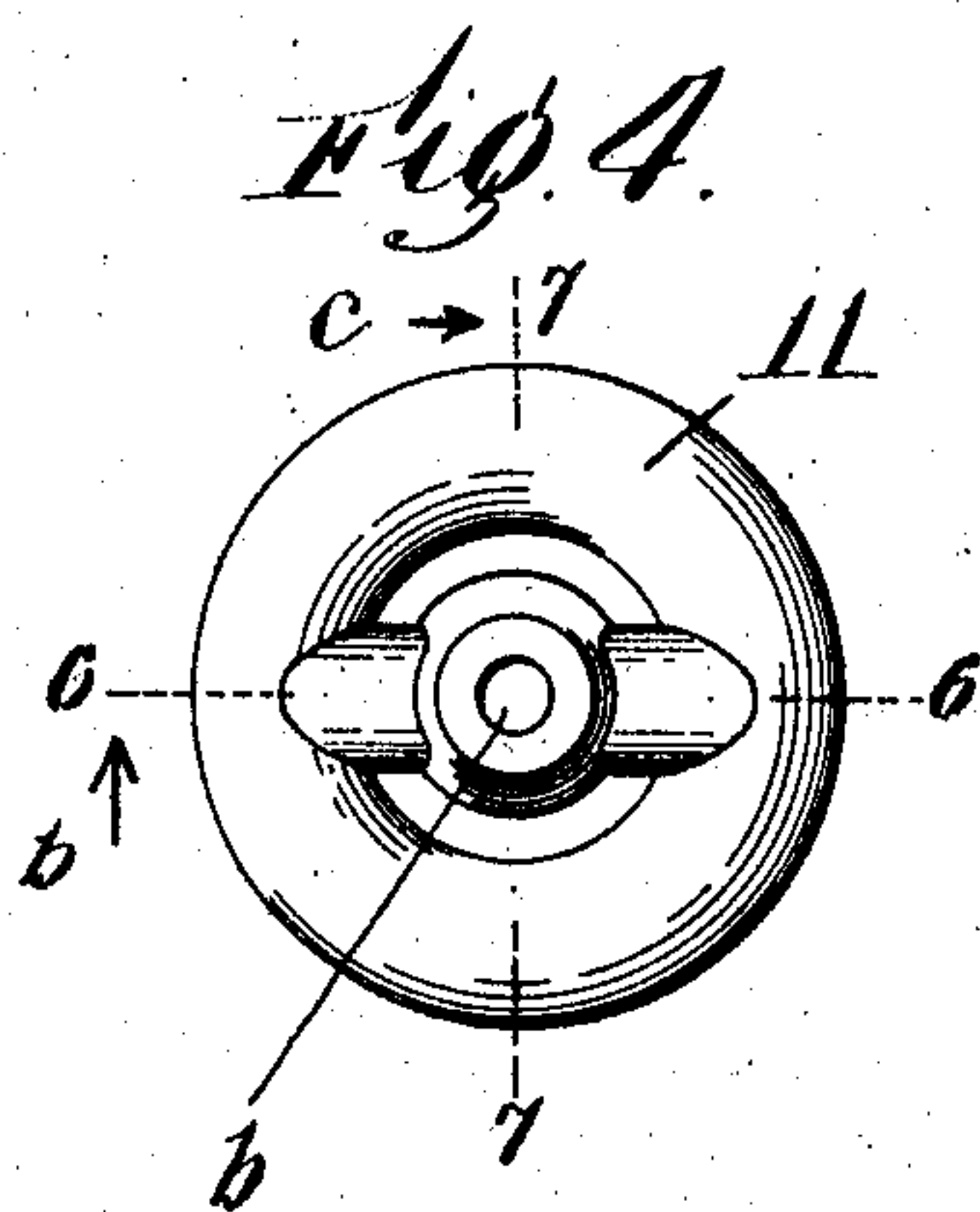
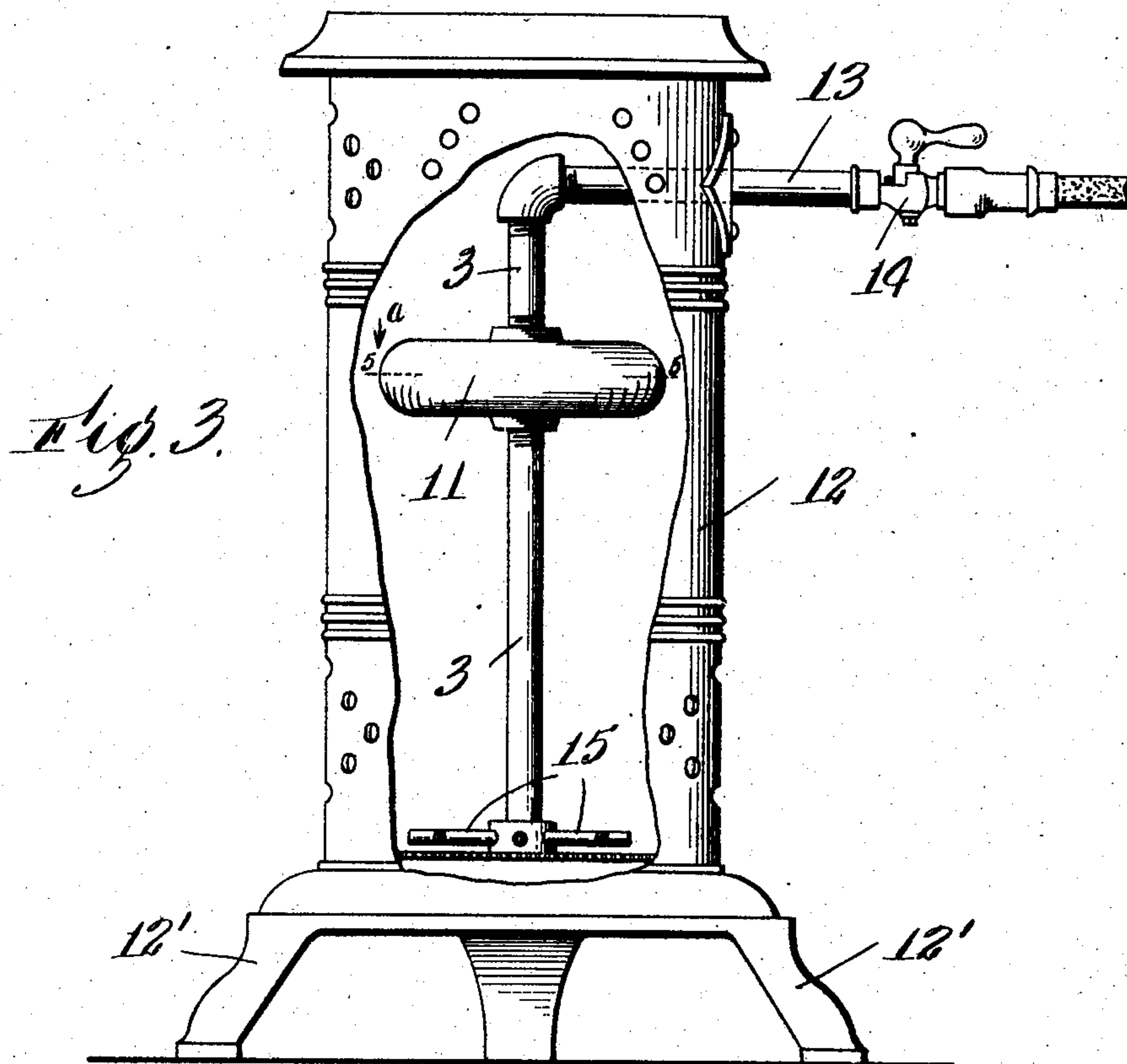
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PREHEATING CHAMBER FOR GAS LAMPS OR GAS HEATERS.

APPLICATION FILED JAN. 4, 1905.

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## PREHEATING-CHAMBER FOR GAS-LAMPS OR GAS-HEATERS.

SPECIFICATION forming part of Letters Patent No. 791,278, dated May 30, 1905.

Application filed January 4, 1905. Serial No. 239,582.

*To all whom it may concern:*

Be it known that I, CHARLES C. MALTON, a subject of King Edward the VII of England, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Preheating-Chambers for Gas-Lamps and Gas-Heaters, of which the following is a specification.

My invention relates to a preheating-chamber for a gas-lamp or a gas-heater.

A preheating-chamber for a gas-lamp is located above the burner or burners and in the direct path of the heat from the same. The preheating-chamber ordinarily consists of an inclosed air-tight receptacle having a single chamber or space therein and interposed between two portions of the gas-supply pipe. The gas passes into and through said chamber and into the pipe leading to the burners. The heat from the lighted burners will heat the gas in the preheating-chamber, and this heat acts to cause the expansion of the gas in the chamber and the combustion of the carbon in the gas, thus producing a higher candle-power and a brighter and more intense light. The preheating-chamber also acts to receive the heat from the lighted burners on its lower surface and to divert and distribute the heat and prevent it from passing directly up from the burners to impinge upon and blacken or discolor the shade or the ceiling or other surfaces.

The object of my invention is to improve upon the construction of preheating-chambers for gas lamps or lights as ordinarily made, and more particularly to provide a preheating-chamber of simple and inexpensive construction and adapted to be combined with a gas lamp or light of any ordinary construction and also adapted to be combined with a gas-heater of any ordinary construction.

My invention consists in certain novel features of construction of my improvements, as will be hereinafter fully described.

I have shown in the drawings a preheating-chamber embodying my improvements combined with a gas-lamp of ordinary construction and also combined with a gas-heater.

Referring to the drawings, Figure 1 shows a preheating-chamber embodying my improvements combined with the gas-supply pipe of a gas-lamp, said lamp being shown partially in section and the shade partially broken away. Fig. 2 shows the preheating-chamber shown in Fig. 1 detached with one of the shade-holder arms in its lowered or inoperative position. Fig. 3 shows a preheating-chamber embodying my improvements combined with the gas-supply pipe to a gas-heater, said heater being partially broken away. Fig. 4 is a plan view of the preheating-chamber shown in Fig. 3 detached. Fig. 5 is a transverse horizontal section through the preheating-chamber on line 5 5, Fig. 3, looking in the direction of arrow *a*, same figure. Fig. 6 is a vertical cross-section on line 6 6, Fig. 4, looking in the direction of arrow *b*, same figure. The inlet and outlet supply pipe, which are not shown in Fig. 4, are shown in this figure, and Fig. 7 is a vertical cross-section on line 7 7, Fig. 4, looking in the direction of arrow *c*, same figure. The inlet and outlet supply pipe, which are not shown in Fig. 4, are shown in this figure.

In the accompanying drawings, 1 is a gas-lamp of a well-known type, having in this instance four burners 2, one of which is not shown, surrounding the central gas-supply pipe 3 and each provided with a mantle 4. There is a pilot-light burner 5 and a cock 6 of ordinary construction operated by chains 7. A globe 8 surrounds the burners 2 and mantles 4 and is in this instance secured to the gas-supply pipe 3 above the mantles 4. A shade 9 of ordinary shape is supported over the lamp portion, in this instance by means of movable arms or supports 10 on the preheating-chamber 11 to be hereinafter described.

I will now describe the preheating-chamber 11 embodying my improvements and to which my invention particularly relates.

The preheating-chamber 11 is preferably made of circular or disk shape, as shown, and of metal and is preferably made in one piece as a casting. The chamber 11 has an opening *a* in its lower surface, preferably centrally located, which opening is preferably screw-



threaded to receive the threaded end of one section of the gas-supply pipe 3 leading directly to the burners of the lamp shown in Fig. 1 or the heater shown in Fig. 3. The chamber 11 has also an opening *b* in its upper surface, preferably centrally located and directly over the opening *a*. (See Fig. 6.) The opening *b* is preferably screw-threaded to receive the screw-threaded end of the other section of the gas-supply pipe 3 leading to the source of supply. At one side of the opening *b* in the upper part of the chamber 11 is a vertically-extending partition or division *c* within the upper part of the chamber 11. The length of the partition or division *c* is about one-half of the diameter of the passage within the chamber 11. The partition or division *c* is connected by a horizontal partition or division *c'*, extending through the central passage within the chamber 11 and between the two openings *a* and *b*, with a second vertical partition or division *c''* extending within the lower part of the chamber 11. (See Fig. 6.) A channel or passage *d*, preferably of circular shape in cross-section, within the chamber 11 leads from the partition or division *c c' c''* into a second channel or passage *e*, preferably of circular shape in cross-section and of the same diameter or size as the passage *d*. (See Figs. 5 and 6.) The channel or passage *e* preferably extends entirely around the chamber 11 as a circle within said chamber, and the channel or passage *f*, preferably of circular shape in cross-section and of the same diameter or size as the channel *e*, leads from said channel *e* to the under side of the central partition or division *c c' c''* to the opening *a*. (See Fig. 6.) As the gas enters from the supply-pipe 3 to the preheating-chamber 11 through the opening *b* it is stopped by the central division *c c' c''* and caused to pass through the channel *d* and is distributed on each side of the end of said channel into and through the channel *e* and into the channel *f*, and by reason of the central division or partition *c c' c''* it passes from the channel *f* through the opening *a* to the supply-pipe 3 and through said supply-pipe to the burners of the lamp or heater.

During the circulation or passage of the gas through the inclosed channels or passages within the preheating-chamber 11, as above described, when the burners are lighted the heat from the burners, impinging directly onto the chamber 11, heats the gas contained within the chamber before the gas passes to the burners. The heating of the gas within the chamber 11 acts to destroy or consume the carbon particles in the gas, so that they will not be given off from the burners, and also acts to cause the expansion of the gas within the chamber to produce a better light.

By making the preheating-chamber 11 with the inclosed and separated channels or passages therein, as above described and shown

in the drawings, the gas is distributed and circulated through the chamber and caused to be heated more satisfactorily.

When my preheating-chamber 11 is used in connection with gas lamps or lights, I preferably combine therewith three or more movable arms or supports 10 for supporting and holding the shade 9 in position. The supports or arms 10 are preferably combined with the preheating-chamber 11 in the manner shown in Figs. 1 and 2. The preheating-chamber 11 has three or more pairs of lugs or ears 11' thereon, preferably on the under surface of the chamber 11, at the edge thereof and integral with the chamber. A supporting-arm 10, preferably of substantially the shape shown in Fig. 2, is movably and pivotally attached to each pair of lugs or ears 11' by extending between the ears and having a pin 11'' secured in the ears 11' and extend through an elongated slot 10' in the inner end of the arm 10. When the arm 10 is moved inwardly, as shown at the left in Fig. 2, the inner end of the arm bears against the under side of the chamber 11 and acts to hold the arm 10 in its operative position. When the arm 10 is drawn out so that the pin 11'' will engage the inner end of the elongated slot 10' in the arm 10, the arm 10 will drop down into its inoperative position, as shown at the right in Fig. 2.

When the shade 9 is to be supported in position over the lamp, the supporting-arms 10 are moved into their inoperative position (shown at the right in Fig. 2) and the shade is moved up over the burner portion of the lamp, the globe being removed. After the shade is raised above the preheating-chamber 11 the supporting-arms 10 are raised at their outer ends and moved inwardly to be held in their operative position, as shown at the left in Fig. 2. The shade is then lowered to be supported on the arms 10, as shown in Fig. 1.

In Fig. 3 I have shown my improvements in a preheating-chamber combined with a gas-heater, which may be of any ordinary shape and construction.

The heater 12 (shown in the drawings, Fig. 3,) is preferably made of sheet metal of cylindrical shape, with legs or supports 12'. The gas-supply pipe 13 has a cock or shut-off 14 therein and preferably enters the heater at the upper part thereof, so that the stop-cock or shut-off 14 is in such a position that it can be easily operated.

The gas-supply pipe 13 leads to the supply-pipe 3, which extends vertically within the heater, and the lower part thereof leads to the burners 15 at the lower part of the heater.

The preheating-chamber 11 is combined with the two parts of the gas-supply pipe 3 in the same manner as above described in connection with the gas-supply pipe 3 of the lamp shown in Fig. 1.

The preheating-chamber 11 is preferably located at the upper part of the heater 12, as



shown in Fig. 3. The action of the preheating-chamber 11 in the heater 12 is the same as the action of the preheating-chamber 11 in connection with the lamp shown in Fig. 1 and 5 above described, and in addition the preheating-chamber 11 within the heater 12 acts to deflect and distribute the heat from the burners in the heater 12 when they are lighted to cause the heat to be distributed and circulated through the heater.

It will be understood that the details of construction of my improvements may be varied, if desired.

The preheating-chamber may be of non-circular shape, if preferred, and may be made in 5 two or more parts secured together.

My invention particularly relates to a preheating-chamber, and the same may be combined with a gas-supply pipe to a lamp or to 5 a heater or to any other similar article.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A preheating-chamber adapted to be 5 combined with a gas-supply pipe to a burner or burners, said chamber having an opening therein on one side for one section of a gas-supply pipe, and a second opening therein on the opposite side for the other section of a gas-supply pipe, and a partition or division within

said chamber between said openings, and inclosed channels or passages leading from said partition or division within the chamber, for the circulation of the gas within the chamber before it passes to the burner or burners, substantially as shown and described. 35

2. A preheating-chamber adapted to be combined with a gas-supply pipe to a burner or burners, said chamber having lugs or projections thereon for pivotally attaching there- 40 to movable supporting-arms or shade-supports, and said shade-supports, adapted to be moved and held in horizontal operative position, and adapted to be moved and held in vertical inoperative position, substantially as 45 shown and described.

3. The combination with a gas-supply pipe, of a preheating-chamber located between two sections of the gas-supply pipe and secured thereto, said chamber having a partition or 50 division therein between the two openings for the gas-supply pipe, and inclosed channels or passages leading from said partition or division, within the chamber, for the distribution or circulation of the gas within the chamber, 55 substantially as shown and described.

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