

(No Model.)

2 Sheets—Sheet 1.

M. J. O'RIELLY.  
GAS BURNER.

No. 546,340.

Patented Sept. 17, 1895.

Fig.1

Fig.2

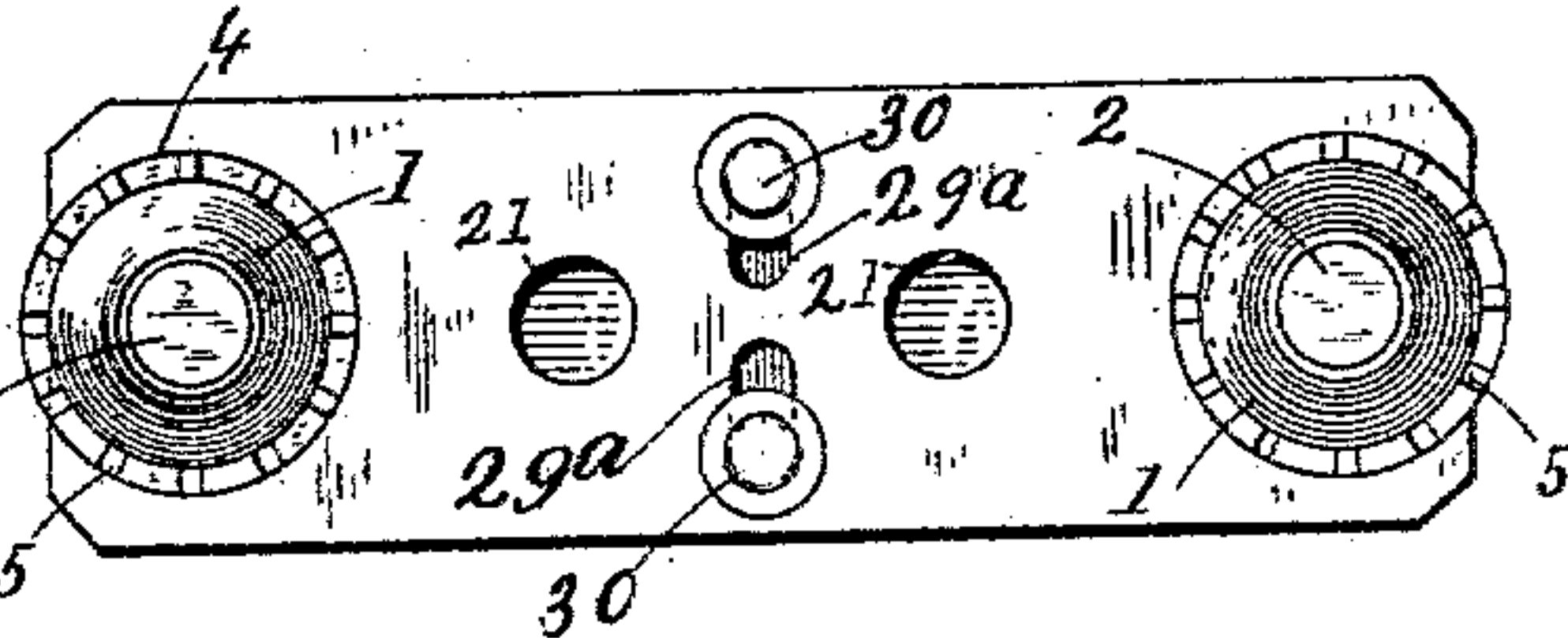
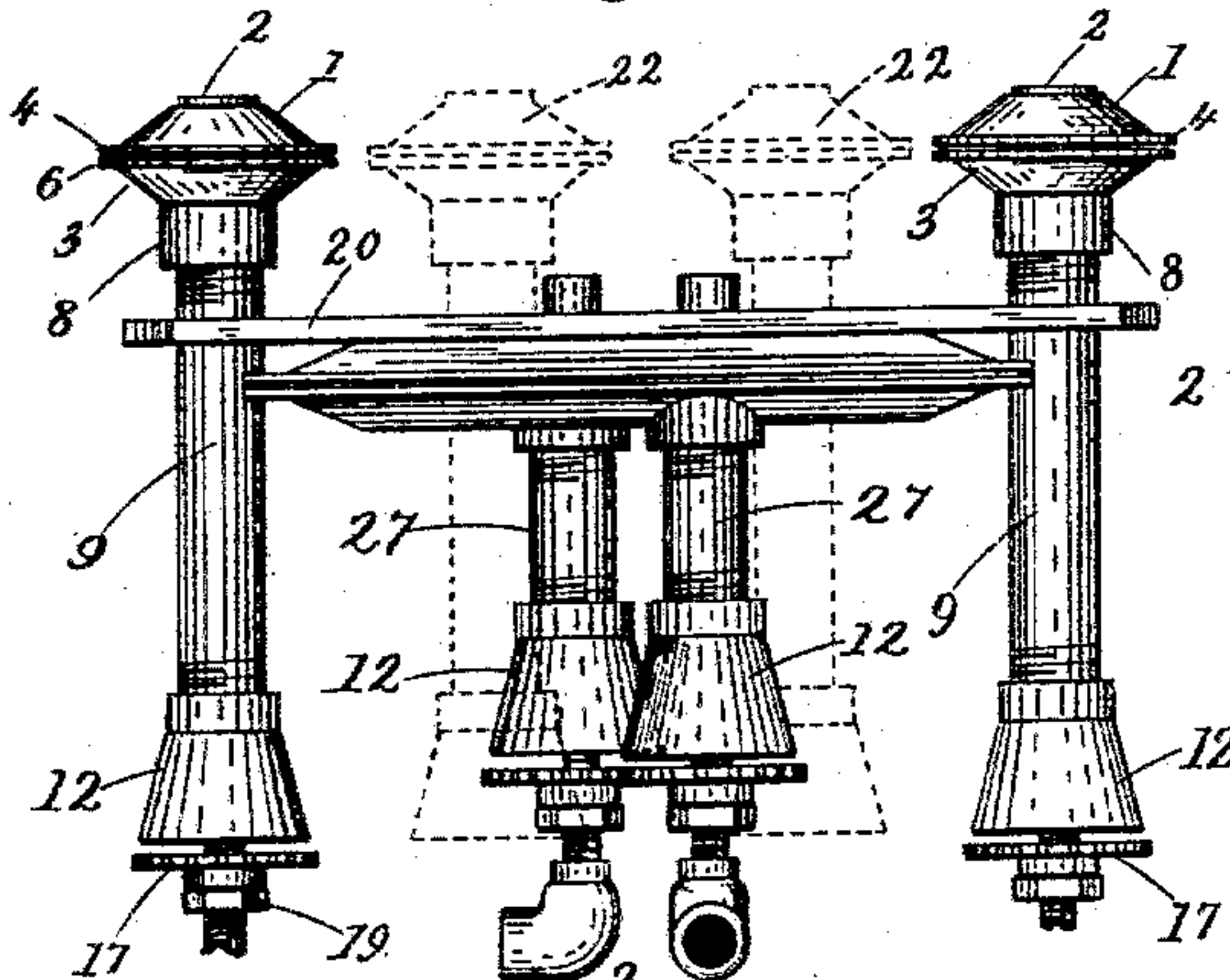


Fig.3

Fig.5.

Fig.4.

Fig.6

Fig.3a.

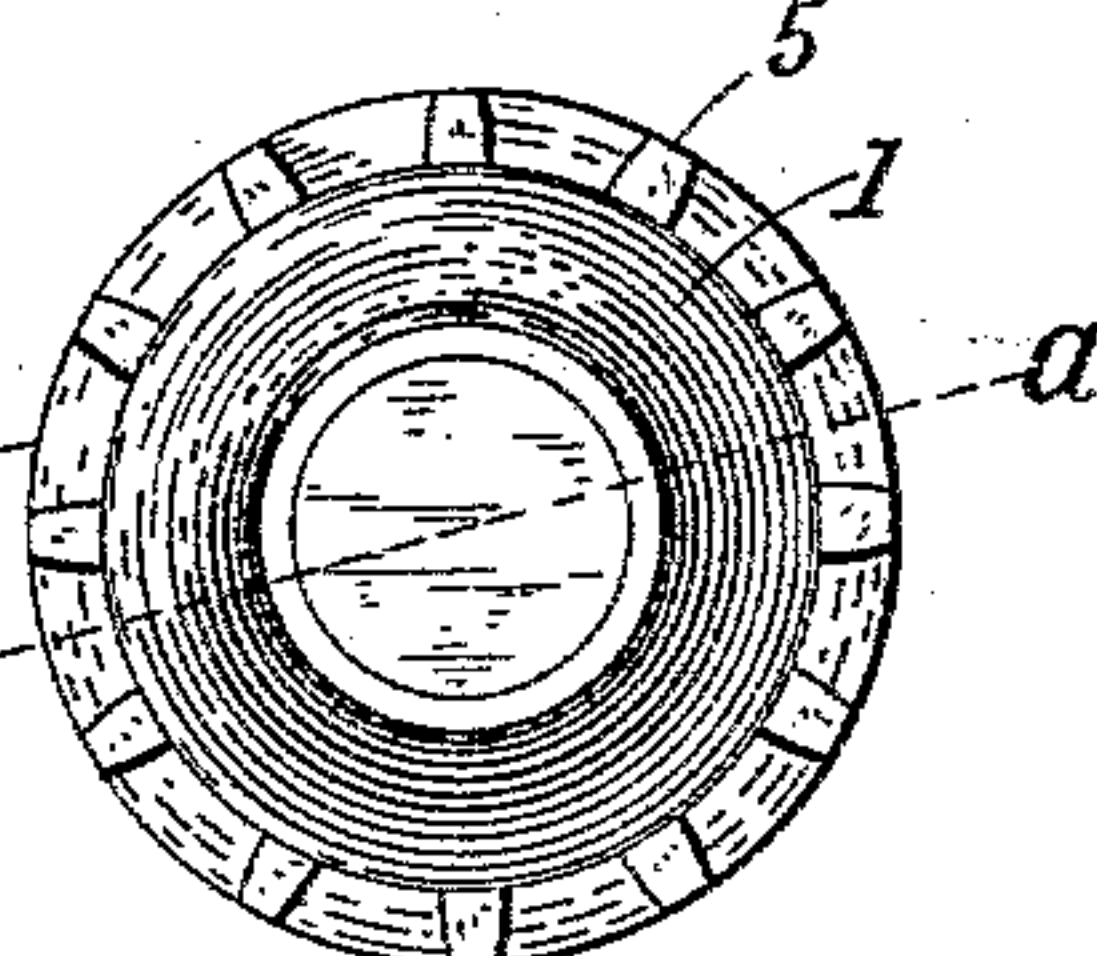
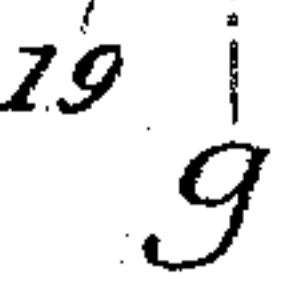
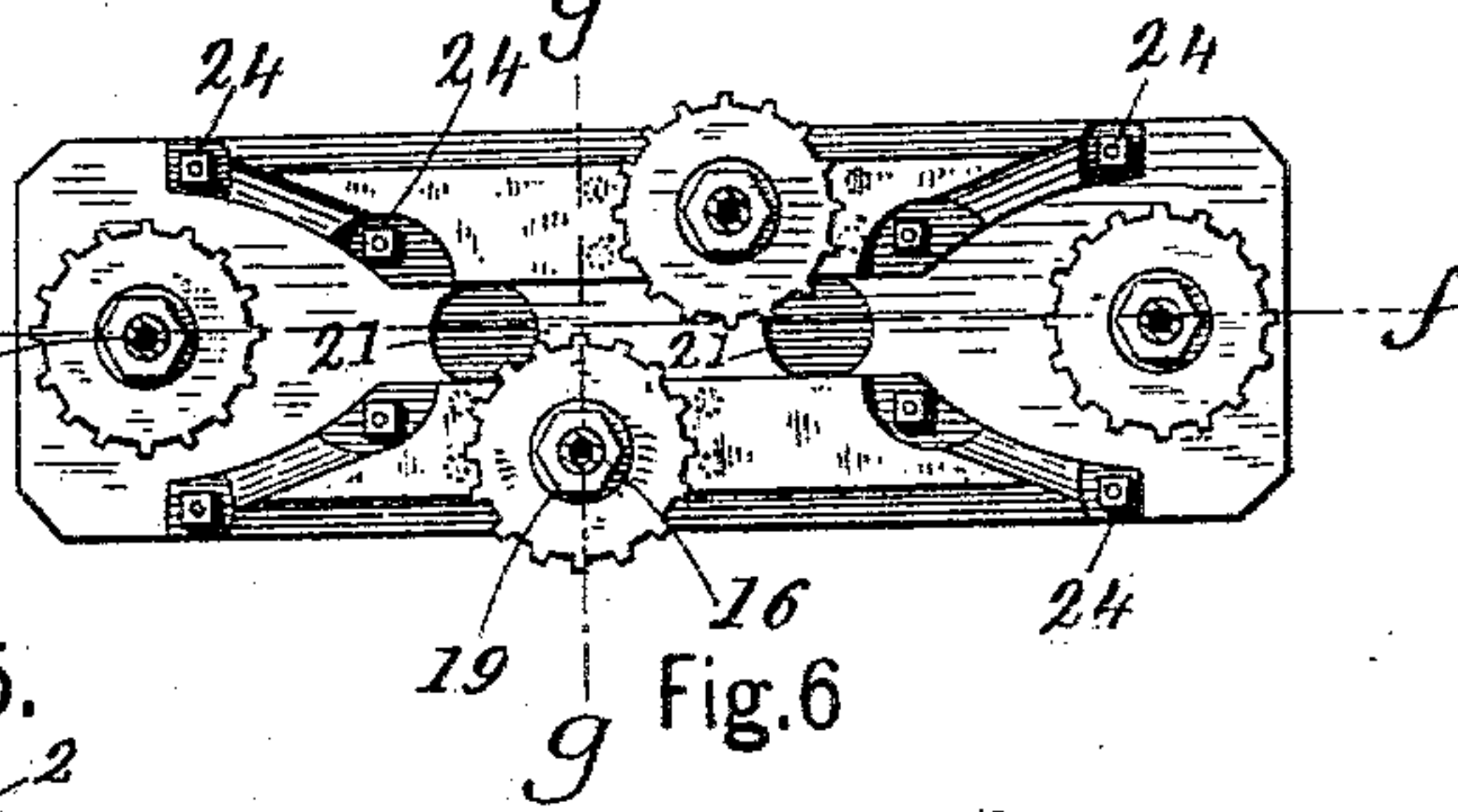
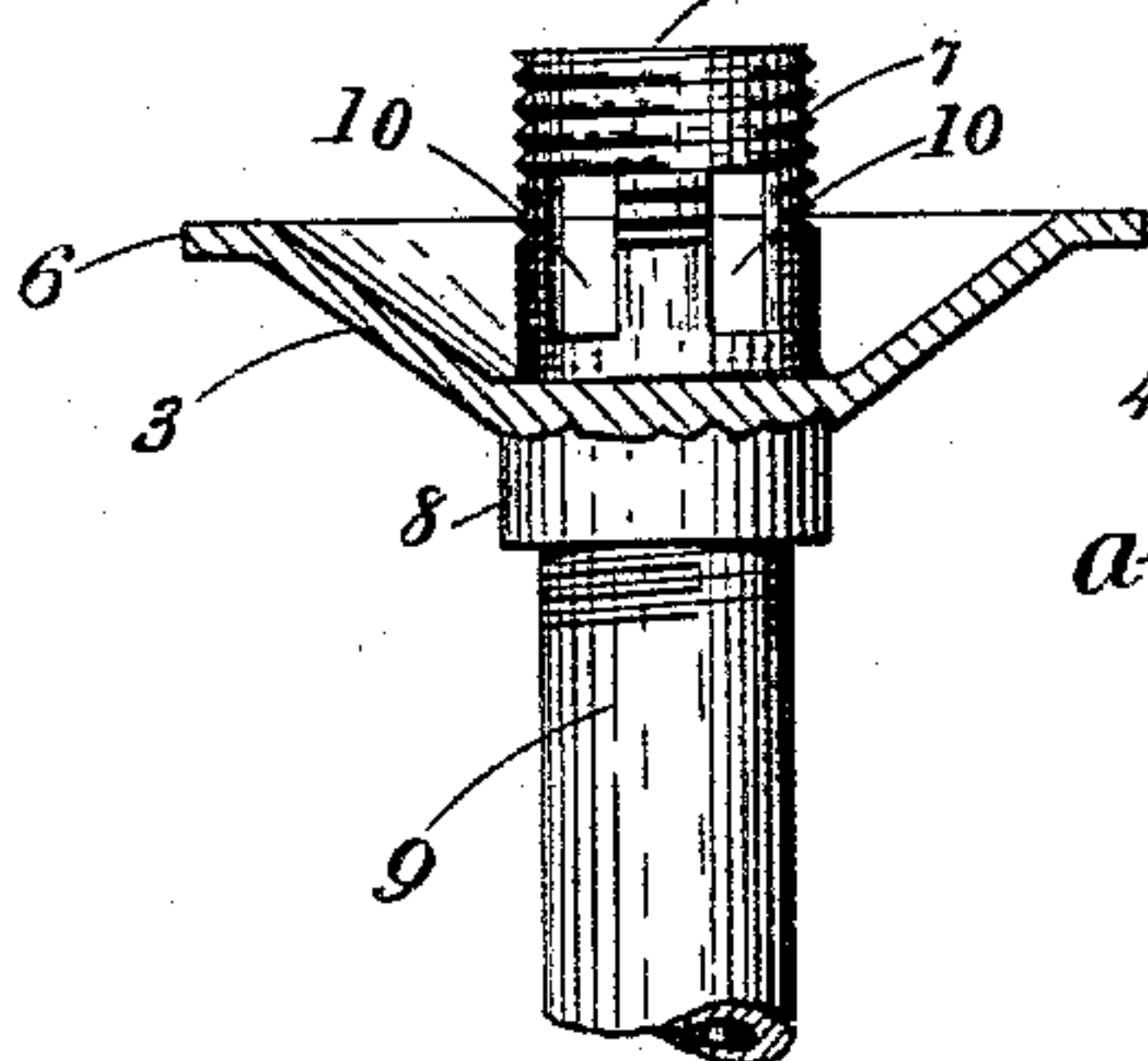
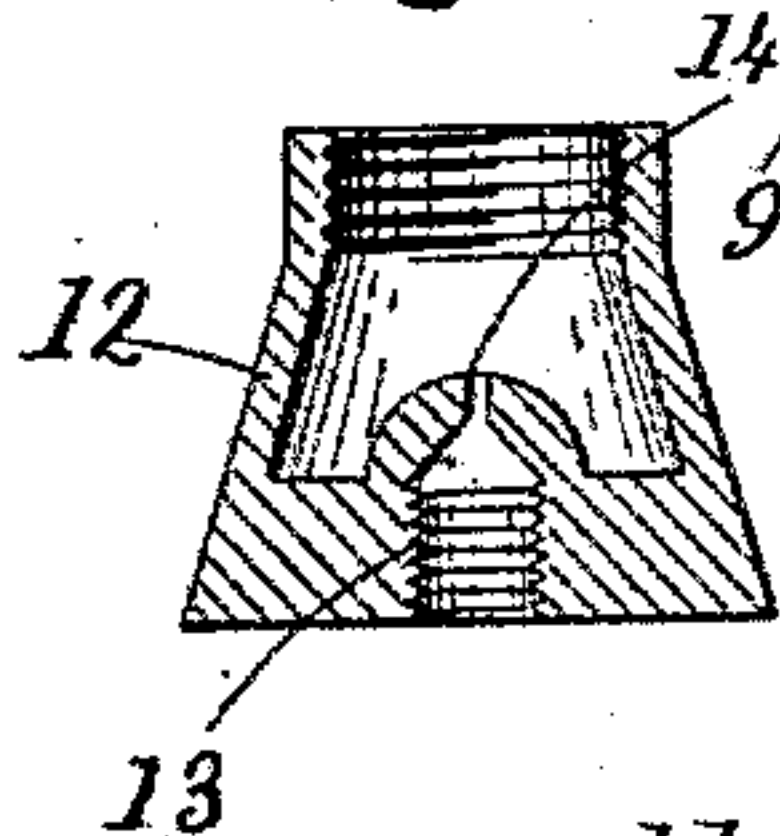


Fig.7.

Fig.8.

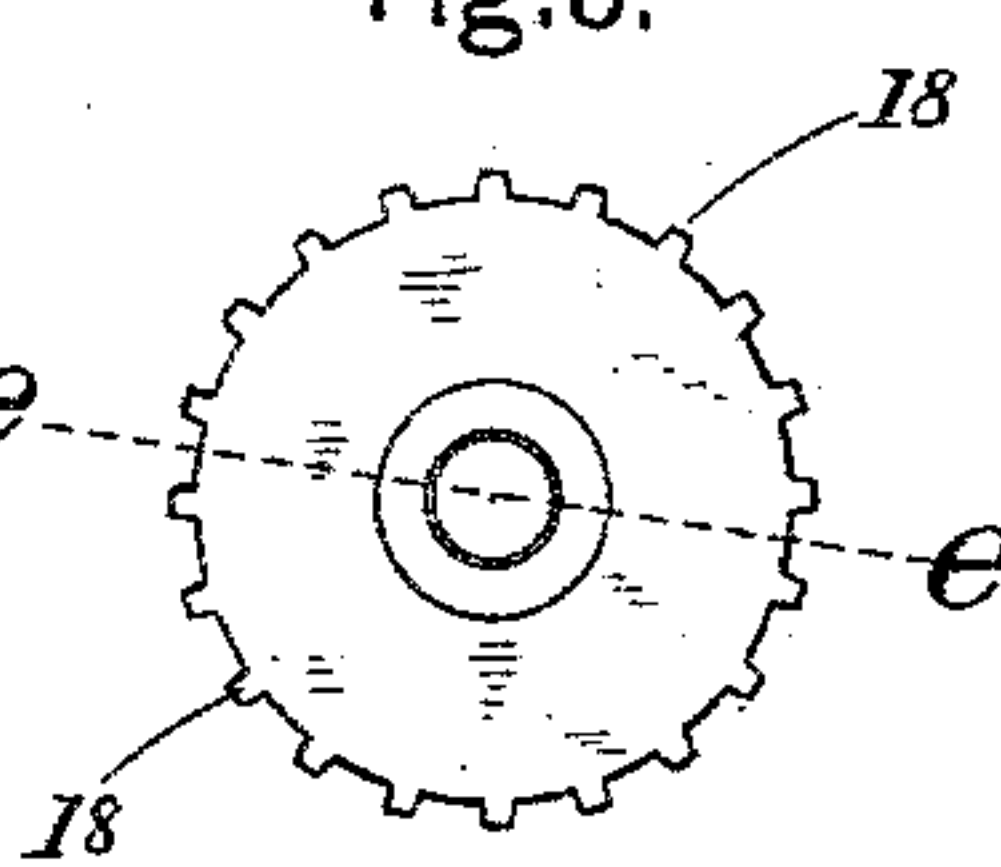
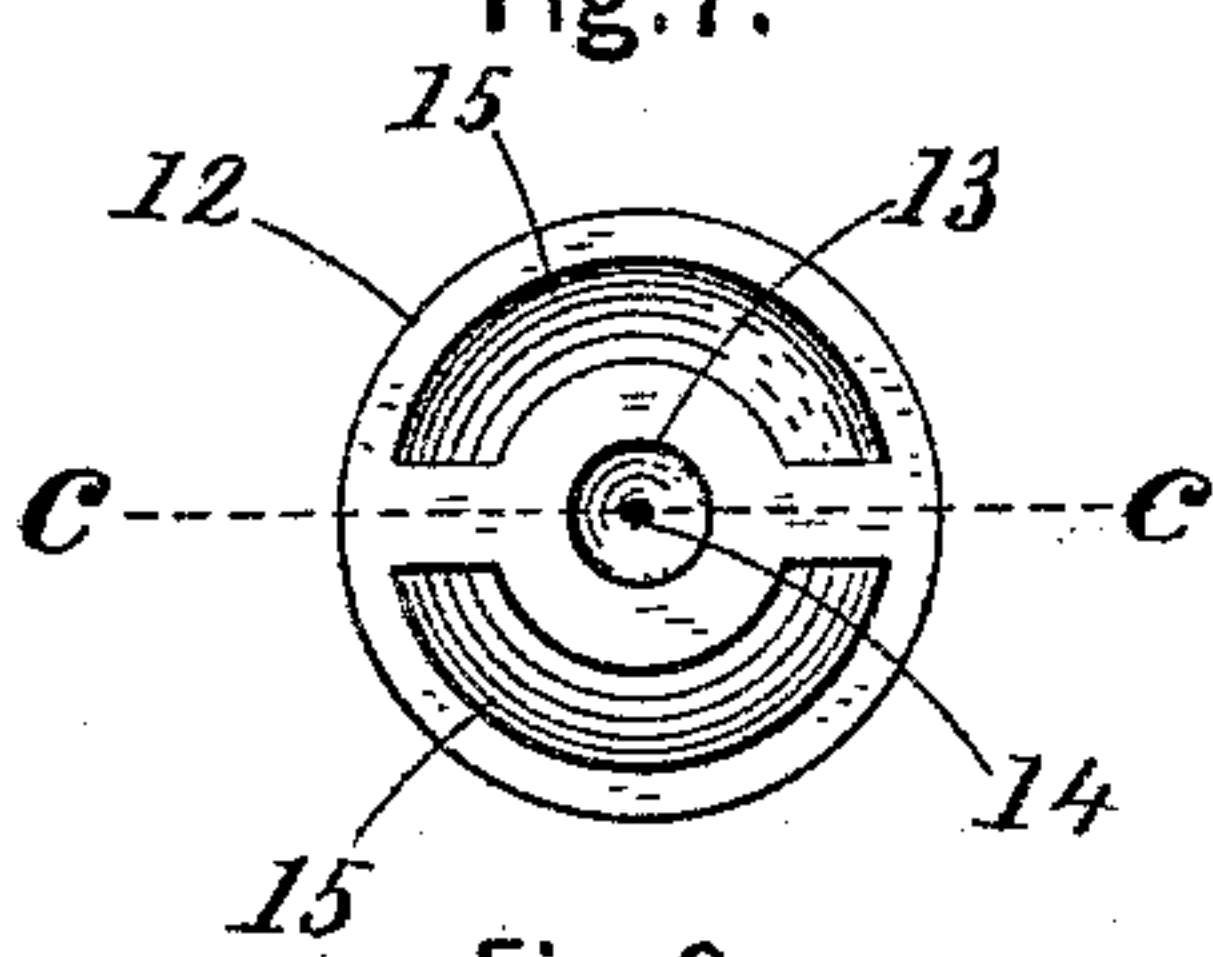
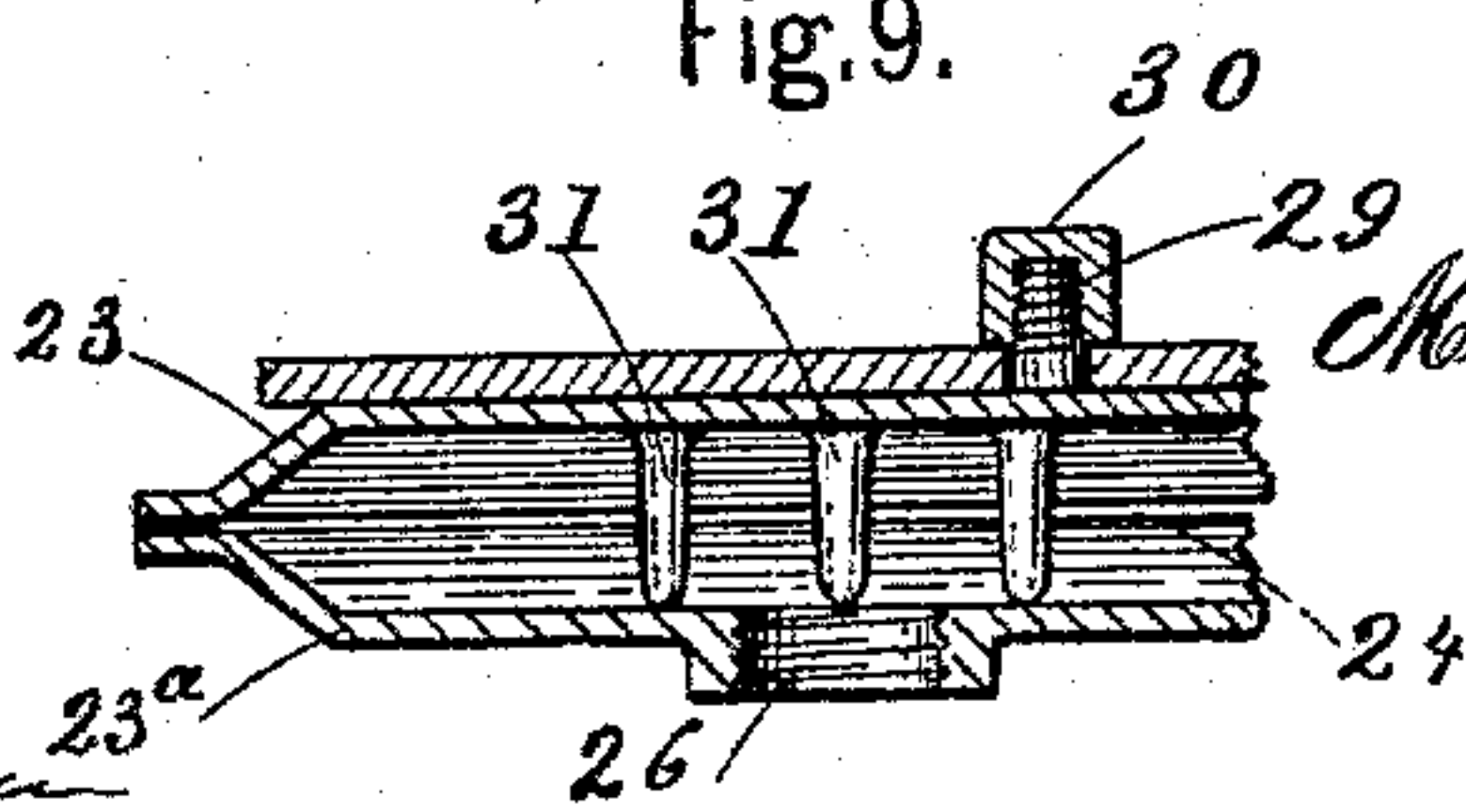


Fig.9.



Witnesses.

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By James Sangster, Attorney.



(No Model.)

2 Sheets—Sheet 2.

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Fig.10

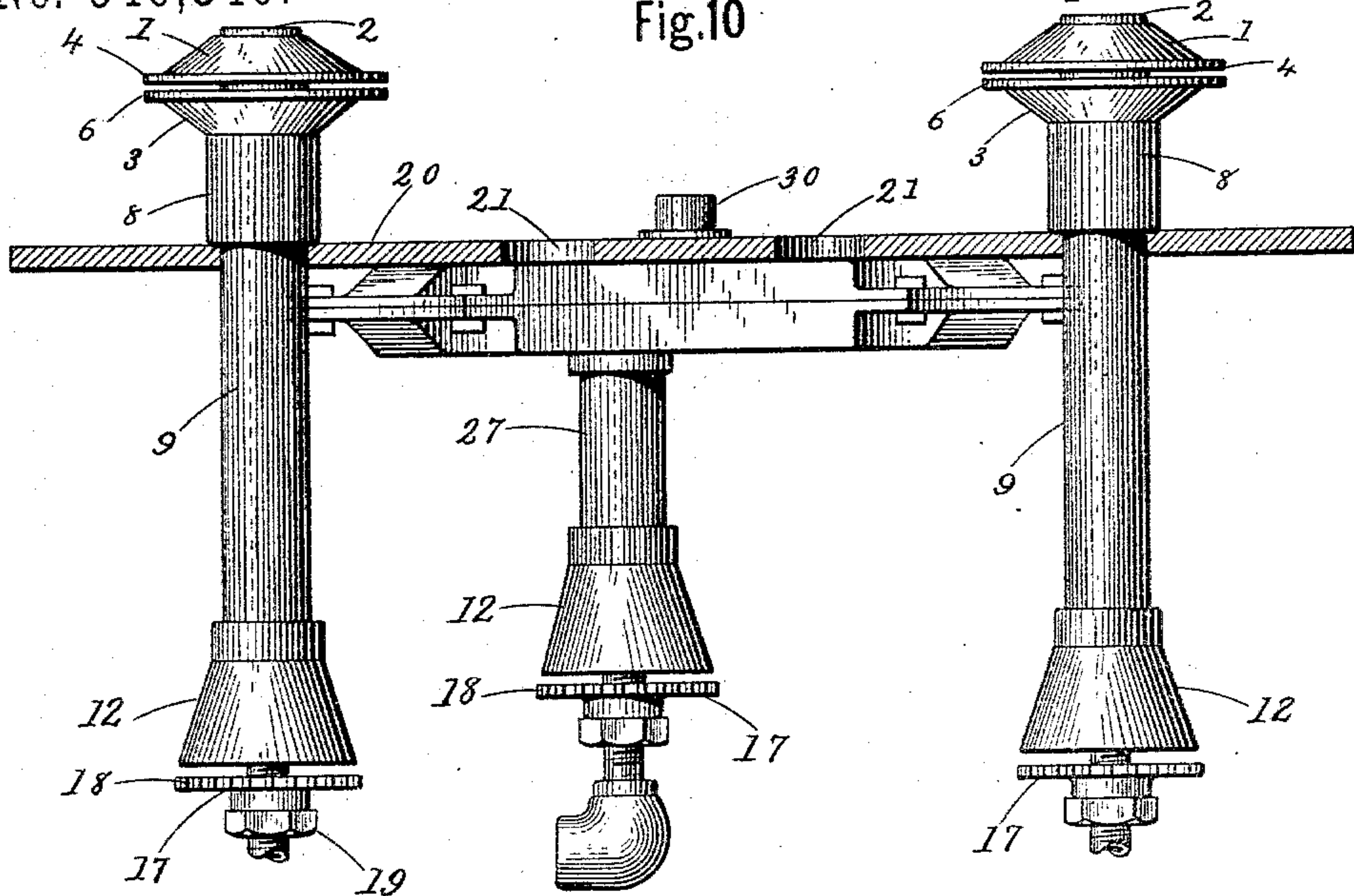
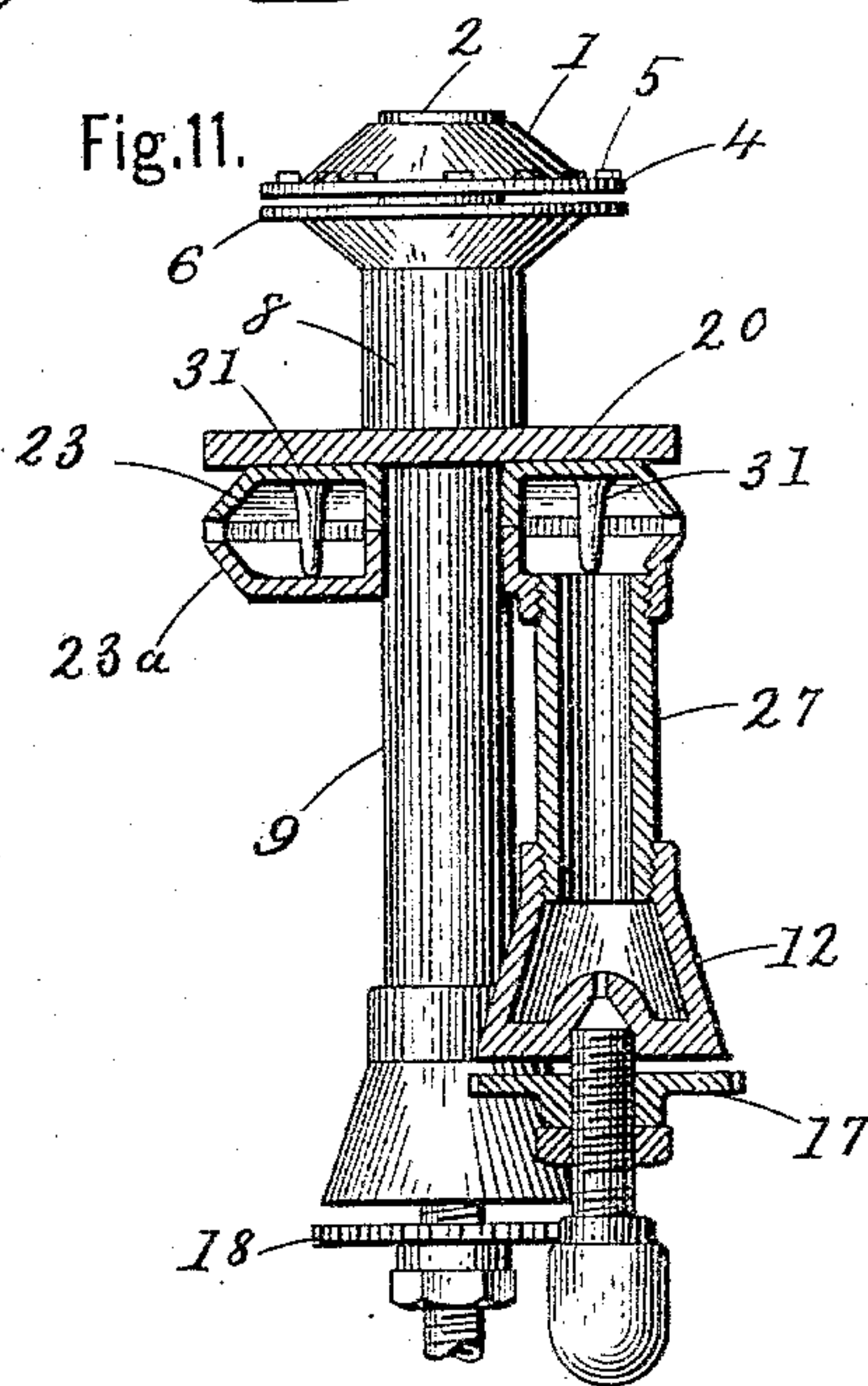


Fig.11.



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Michael J. O'Reilly, Inventor.

By James Sangster

Attorney



# UNITED STATES PATENT OFFICE.

MICHAEL J. O'RIELLY, OF BUFFALO, NEW YORK.

## GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 546,340, dated September 17, 1895.

Application filed December 18, 1893. Serial No. 493,978. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL J. O'RIELLY, a citizen of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Gas-Burners for Heating Purposes, of which the following is a specification.

My invention relates to gas-burners for heating purposes, whereby the burner is rendered more simple in its construction and its mode of adjustment is improved, so it can be conveniently adjusted while in operation, and whereby the air-mixer can be easily adjusted at any time without affecting or changing the opening through which the gas flows from the nozzle to the burner.

In my burner patent, No. 468,155, the upper disk is adjustably secured to the lower disk by means of a screw-threaded stem working in a support or bracket in the supply-pipe; but this construction requires that the stem be made so small—to prevent it and the support from obstructing the flow of gas—that it is so weak that it is liable to let the disk cant over to one side or the other, which varies the amount of gas escaping upon the opposite sides of the disks, thereby varying the amount of flame or heat issuing from different parts of the burner. This is especially so if used in connection with means for rotating the upper disk by striking it when it is burning, as the small blows necessary for turning the disk would have a tendency to bend the stem and cant the disk. Another objection to locating the screw-threaded stem in the supply-pipe is the effect of the gas upon the screw-threads, which will corrode them and weaken the stem and prevent its turning in the support, and thereby render the burner defective and inoperative.

My invention relates also to certain details of construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation representing the burners and air-mixers complete, showing, also, by dotted lines the position of the upper burners when adjusted closer together. Fig. 2 is a top or plan view of the same, showing the top burners and the mode of adjusting the

under burners to or from each other. Fig. 3 is an enlarged side sectional elevation of a single burner and air-mixer, showing a vertical central section in or about line *a a*, Fig. 6, through the burner, showing, also, a vertical central section through the air and gas mixer and its adjusting plate or disk in or about lines *c c* and *e e*, Figs 7 and 8. Fig. 3<sup>a</sup> is a detached sectional elevation of the air-mixer in or about line *c c*, Fig. 7. Fig. 4 is a bottom or under side view of the completed device, showing a similar view of the air-mixer and lower gas-burner, a horizontal section being shown through the gas-pipe leading into the air-mixers. Fig. 5 is a side, partly sectional, elevation of the lower member of one of the upper burners, a part of the concave surrounding portion being broken away to show the hollow central vertical screw portion forming a part of it, and through which the gas and air flow into and through the burner, and upon which the upper member is secured by being screwed thereon, as will be more clearly hereinafter explained, a portion of the gas-pipe being shown attached to it. Fig. 6 is an enlarged top view of one of the upper gas-burners. Fig. 7 represents a detached under side view of one of the air-mixer cases. Fig. 8 is a detached under side view of one of the air-mixer adjusting-disks. Fig. 9 is a sectional elevation representing a portion of the burner-plate and a part of one of the lower gas-burners in section, showing, also, a section through the cap for securing the gas-burner to the burner-plate. Fig. 10 represents a longitudinal section through the burner-plate on or about line *f f*, Fig. 4, showing, also, a side elevation of two burners in the line of section and a side elevation of one of the burners and its several parts below the burner-plate. Fig. 11 represents a transverse section on or about line *g g*, Fig. 4, cutting through the burner-plate and lower burner and air-mixer.

Referring to the drawings in detail, 1 represents the removable and adjustable upper cap of the burner. It is adapted to screw up or down on the vertical central screw portion 2, which projects upward from the center of the lower member 3 of the burner and forms a portion of it. This upper portion 1 is made hollow or dishing on the inside, (see Fig. 3,)



where it is shown in place on the portion 2, and is provided with a peripheral flange 4, having on its upper surface a series of upward-projecting teeth 5, by which the operator is able to turn it on the screw portion 2, so as to adjust it up or down and thereby adjust it as may be desired (even while hot or burning) by means of an ordinary poker or a common poker with a hook at the end. The lower member 3 of the burner is also made hollow or dishing and the central portion 2 projects upward centrally from the lower inside of the hollow portion. The periphery of the part 3 is provided with a surrounding flange 6, corresponding in size and shape to the flange 4 on the adjustable top piece 1. At the upper part of the central supporting portion is a screw-threaded portion 7, (see Figs. 3 and 5,) adapted to fit the inside screw-threaded opening in the upper cap 1. The portion 2 is also made hollow and provided with a collar 8, having an inner screw-thread adapted to screw onto the gas-pipe 9, and above the screw-threaded collar 8 is a series of openings 10 (either one opening 10 or more will answer) through which the gas passes from the gas-pipe 9 through and out of the burner. This lower portion 3 of the burner, consisting of the parts 2, 3, 6, and 8, are all formed in one piece, which renders it cheaper in construction, more durable, and less liable to get out of order. It is constructed preferably of cast-iron, but any other suitable material may be used.

At the lower end of the gas-pipe 9 is secured to it by the usual screw-threaded portion 11 the air and gas mixer 12. This air-mixer consists of a hollow bell-shaped case having on its larger end an internal screw-threaded opening 13. This opening is contracted into a smaller or fine opening 14, through which the gas issues and passes up the gas-pipe to the burner, (see Figs. 3, 3<sup>a</sup>, and 7,) the air passing through the openings 15 (see Fig. 7) and mixing with the gas as it passes to the burner. Into the opening 13 is screwed the gas-pipe 16. (See Fig. 3.) This gas-pipe 16 is provided with an outside screw-threaded portion, on which is secured the adjustable disk 17, so that it can be screwed up or down thereon to adjust the amount of air admitted.

To facilitate the operating of the disk 17, it is provided on its periphery with a series of teeth 18, by which it can be turned and adjusted at any time, even when in operation, by means of an ordinary poker or with a poker provided with a small hook at the end.

The object in constructing the air-mixer as above described is to provide the means for adjusting the amount of air admitted without in any way disturbing the jet-opening 14, so that the gas-opening 14, and consequently the amount of gas admitted, is always the same, while the quantity of air admitted can be conveniently increased or diminished as required. This is an important

advantage in this kind of gas-burner. When it is necessary to fix the adjusting-disk at any point to which it may be adjusted, a jam-nut 19 is used.

These burners are secured to a burner-plate 20 by passing the gas-pipe 9 through holes large enough to allow it to pass in easily, after which the burners are screwed on. In Figs. 1 and 2 I have shown them arranged for a large size stove or furnace. When it is desired to use them for a smaller size stove, either the burners or mixers may be taken off and the gas-pipe 9 put through the holes 21 (shown in Figs. 2 and 4) and the burners or air-mixers then put on. This would bring them in the position substantially as shown by the dotted lines 22 in Fig. 1, thereby adapting them for a smaller or different kind of stove.

Below the burner-plate are secured two long gas-burners. These burners also consist of two hollow or disk shaped portions 23 23<sup>a</sup>. (See Fig. 9 and also Fig. 4.) They are secured together, so as to leave an elongated gas-opening 24, by bolts 25. (Shown in Fig. 4.) The lower half 23<sup>a</sup> is provided with screw-threaded openings 26 (see Fig. 9) to receive the correspondingly screw-threaded gas-pipes 27 (see Fig. 1) and their air and gas mixers, which are the same as the air and gas mixers on the upper burners. These lower gas-burners are secured to the burner-plate 20 by means of screws 29, rigidly secured to the upper half 23 of the burner and screw-caps 30. (See Fig. 9, where one is shown in section.) A top view of the screw-caps 30 is shown in Fig. 2. The screws 29 pass through elongated holes 29<sup>a</sup> in the burner-plate, (also shown in Fig. 2,) so they can be adjusted transversely so as to bring the burners closer together if required.

On the inside of the half 23 of the lower burners is a series of downward-projecting pins 31. (See Fig. 9.) These pins project down so as to surround the openings 26, and there may be one, two, or more of such pins 31. Their object is to prevent the upper and lower portions 23 and 23<sup>a</sup> of the burner from warping and coming together when exposed to the great heat they are subjected to, which is an important construction. It will be noticed that the tubular portion 2 is closed at the top.

I claim as my invention—

1. A gas burner for heating purposes, comprising two substantially concave disks, the peripheries of which are vertically adjustable relatively to each other, and each one is provided with a flange, one of the disks having an interiorly screw threaded collar projecting from its bottom and a hollow perforated central supporting portion projecting upwardly from the interior, the upper end of which is closed and exteriorly screw threaded, and the other disk is in the form of an inverted annular cone, the inner edge of which is screw threaded to fit upon the screw threads of the central supporting portion, and



the flange at its periphery is provided with upwardly projecting teeth or studs upon its upper surface, substantially as set forth.

2. In a burner for heating purposes, the  
5 combination, with a plate, each end of which is perforated, and the central portion is provided with two perforations in line with and two slots or elongated holes upon opposite sides of and at right angles to the lines to the  
10 end perforations, of a burner for each of the end perforations, said burner being adapted

to be removed to the inner perforations, and a long burner adjustably secured in each one of the slots the outer surface of each of which is substantially even with the outer edge of 15 the plate, said first mentioned burners being above the plate and the long burners being below the plate, substantially as set forth.

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Witnesses:

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