

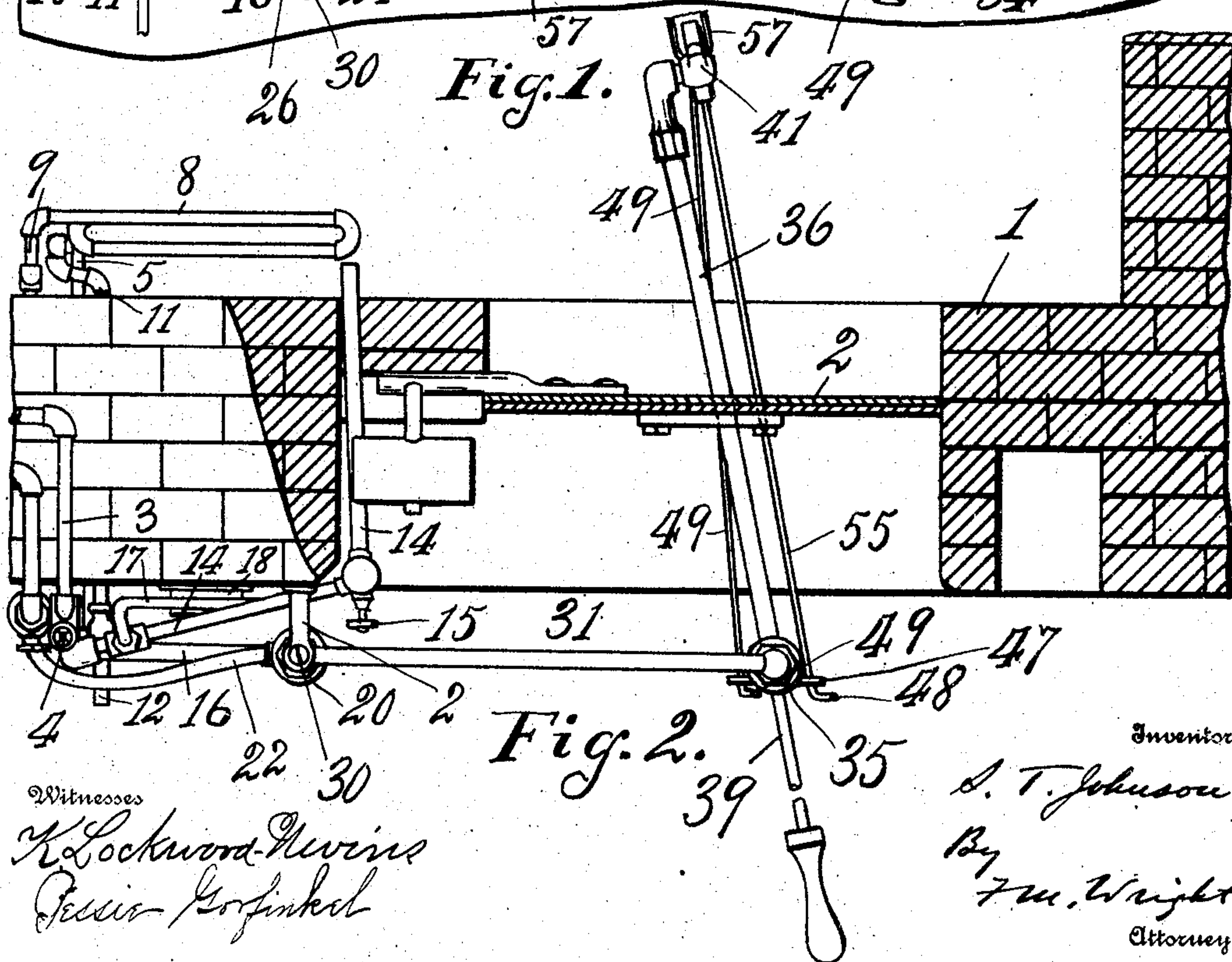
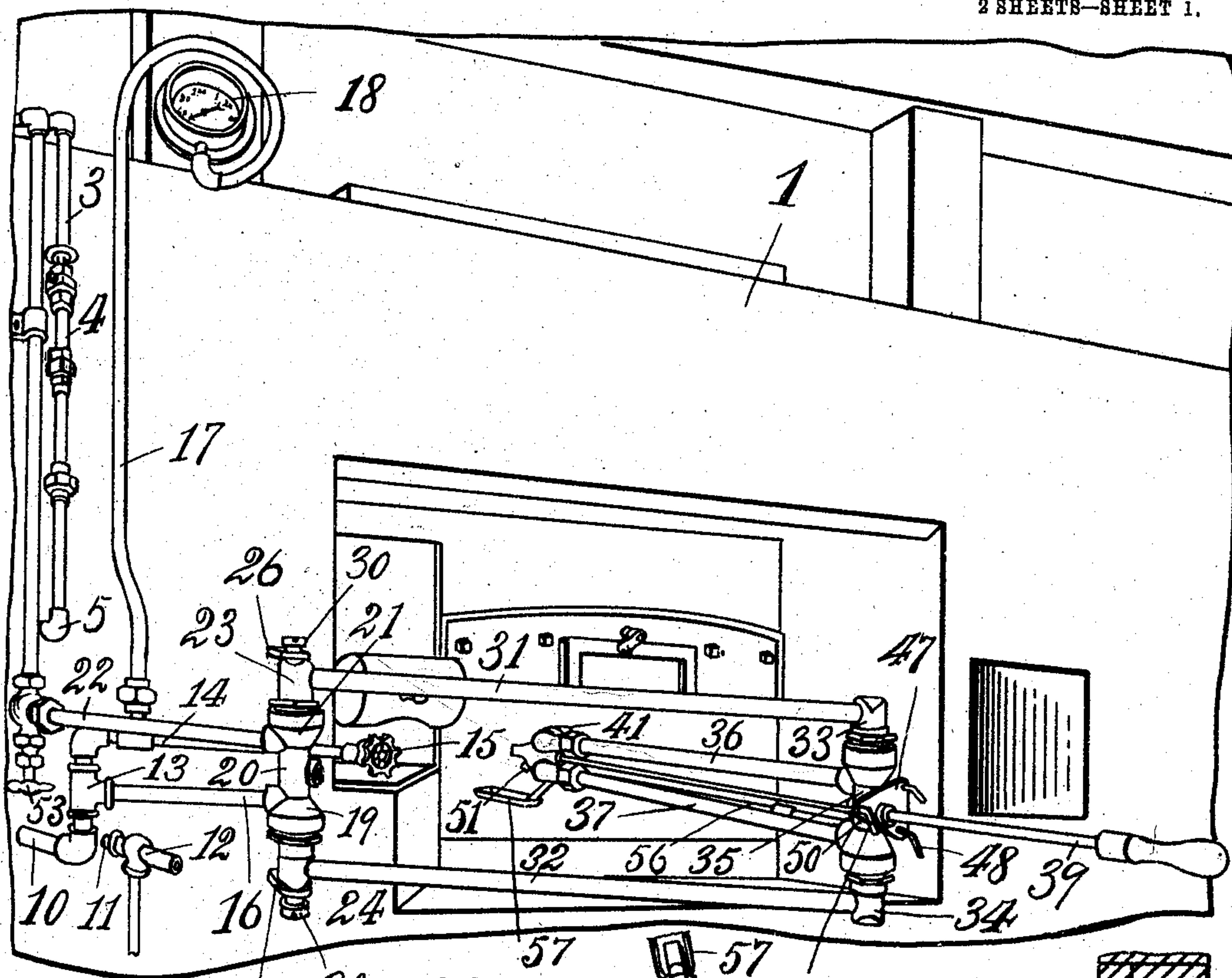
No. 781,284.

PATENTED JAN. 31, 1905.

S. T. JOHNSON.
OIL BURNER FOR BAKERS' OVENS.

APPLICATION FILED SEPT. 9, 1904.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

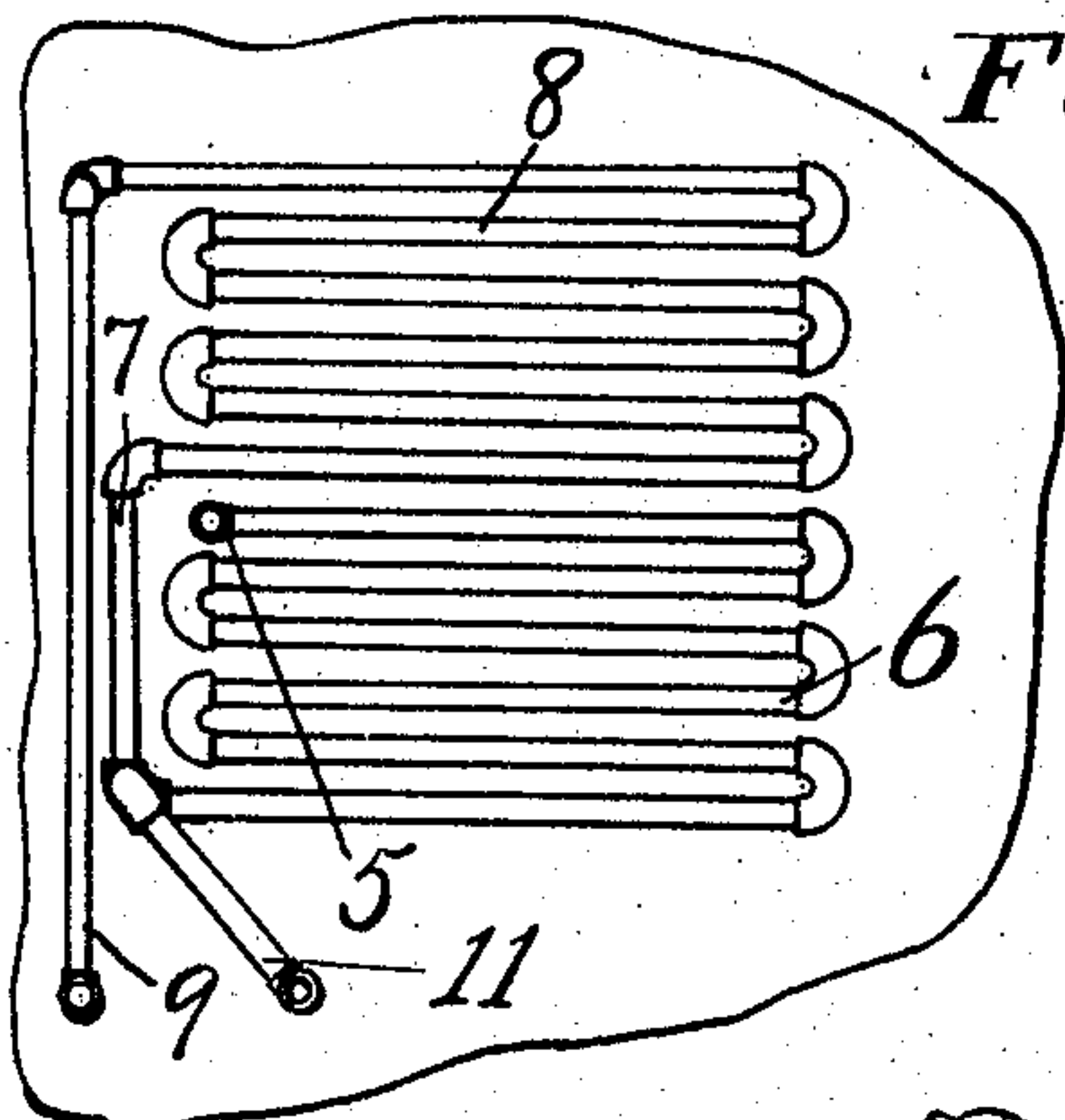


Fig. 3.

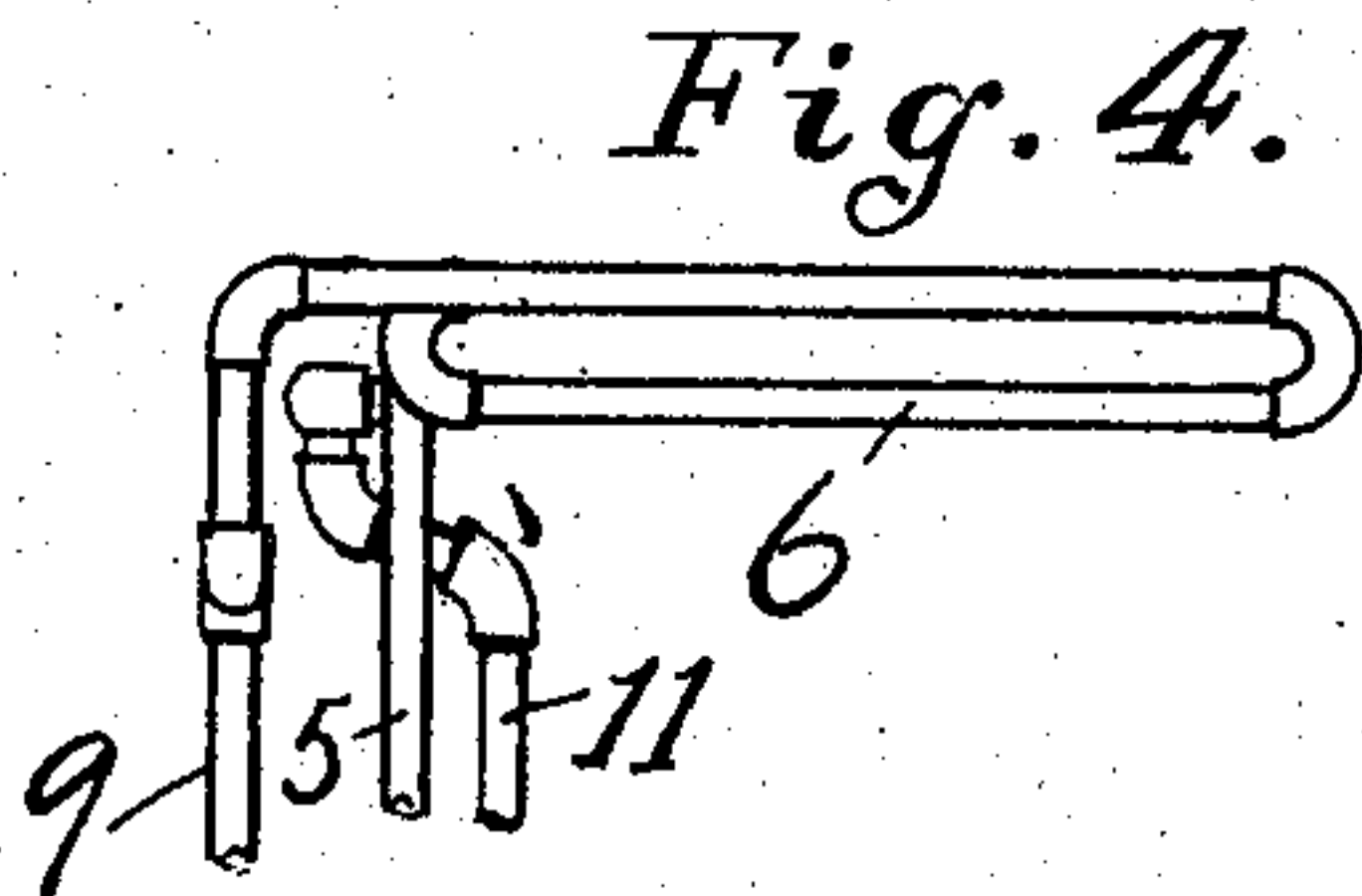


Fig. 4.

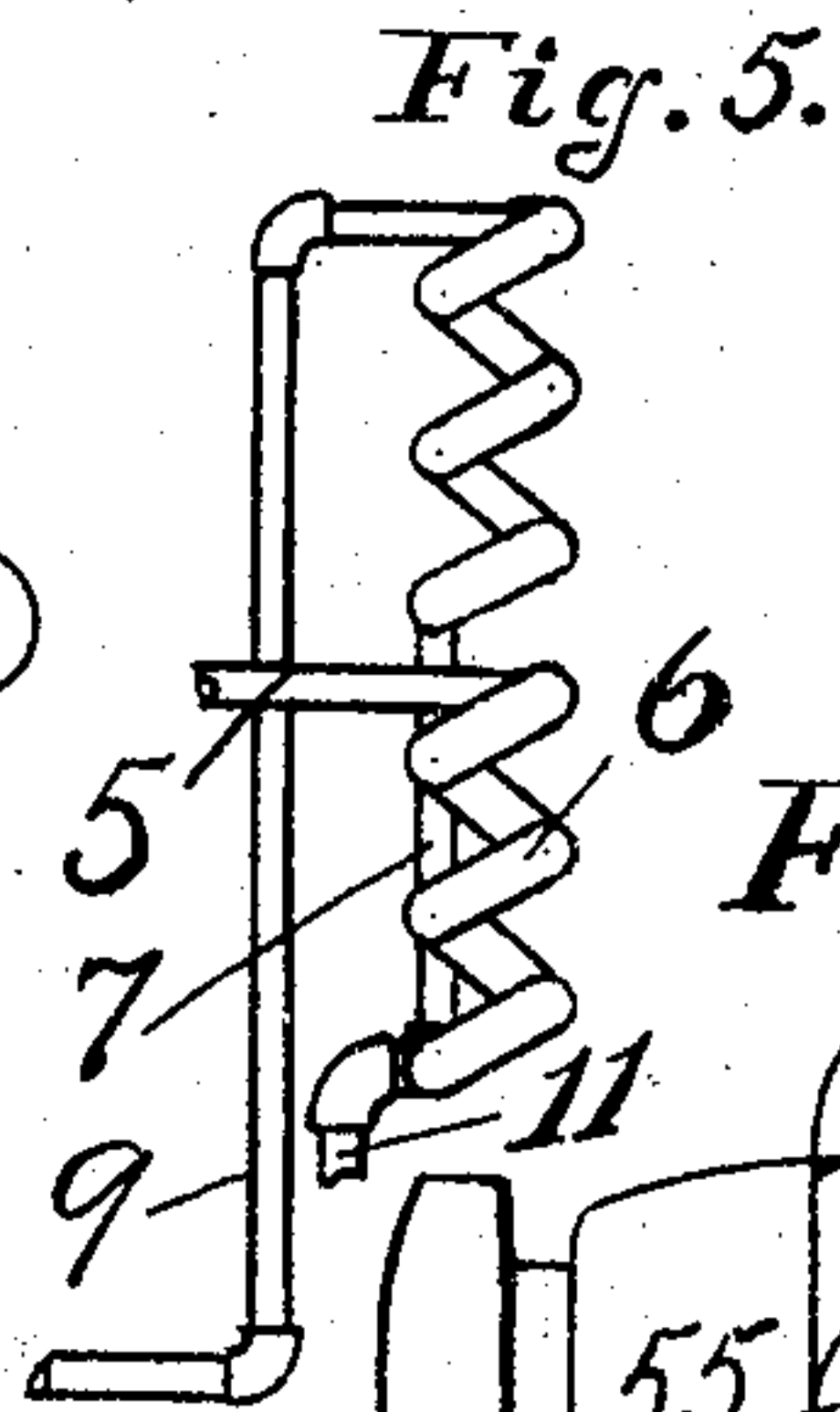


Fig. 5.

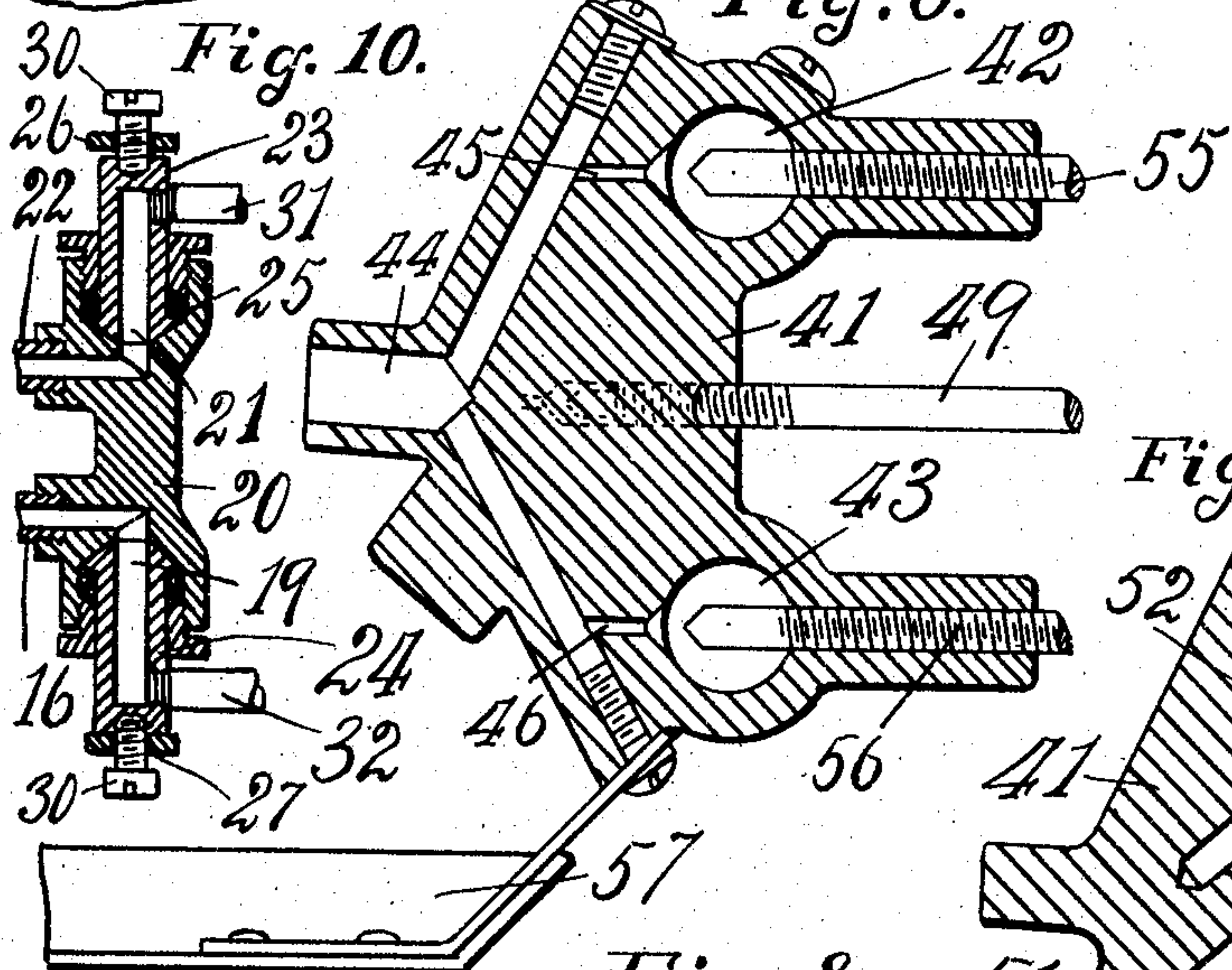


Fig. 6.

Fig. 7.

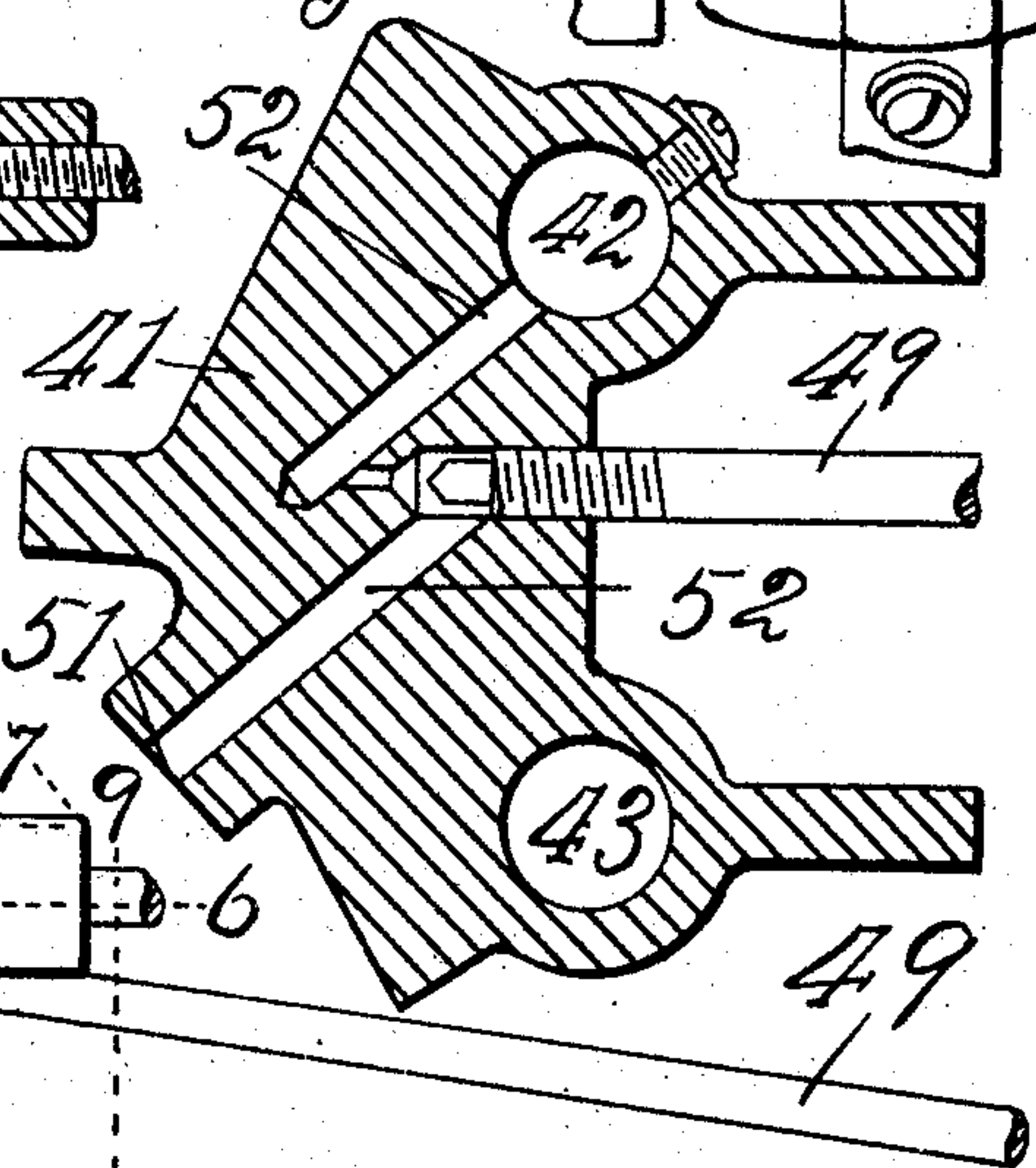
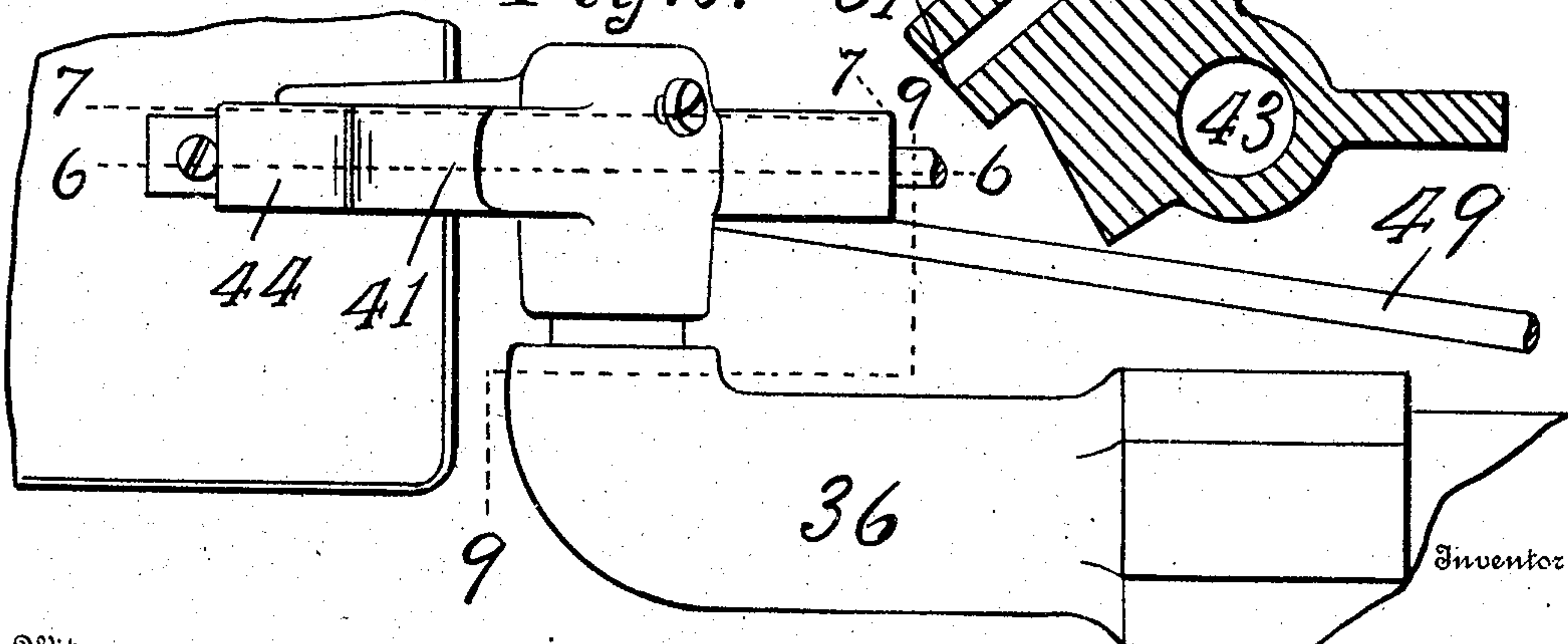


Fig. 8.



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UNITED STATES PATENT OFFICE.

SEWARD T. JOHNSON, OF VALLEJO, CALIFORNIA.

OIL-BURNER FOR BAKERS' OVENS.

SPECIFICATION forming part of Letters Patent No. 781,284, dated January 31, 1905.

Application filed September 9, 1904. Serial No. 223,844.

To all whom it may concern:

Be it known that I, SEWARD T. JOHNSON, a citizen of the United States, residing at Vallejo, in the county of Solano and State of California, have invented certain new and useful Improvements in Oil-Burners for Bakers' Ovens, of which the following is a specification.

This invention relates to improvements in oil-burners, and is especially applicable to oil-burners intended for use in bakers' ovens. It includes also a special form of coil for generating steam for use with the burner.

The object of the invention is to provide a burner which will consume the oil in the most economical manner possible, which will be clean, safe, and reliable, burn without soot or smell, and which is easy to operate.

This invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front perspective view of a baker's oven, showing my improved oil-burner in use therewith. Fig. 2 is a horizontal section of the same. Fig. 3 is a front view of the steam-generating coils. Fig. 4 is a plan view thereof. Fig. 5 is an end view thereof. Fig. 6 is an enlarged vertical section of the burner on the line 6 6 of Fig. 8. Fig. 7 is a vertical section on the line 7 7 of Fig. 8. Fig. 8 is a plan view of the same. Fig. 9 is a vertical section on the line 9 9 of Fig. 8. Fig. 10 is a vertical section through one of the swivel-joints.

Referring to the drawings, 1 represents the wall of a baker's oven, 2 representing the door, of any common construction, closing the mouth of the oven. For supplying steam for use in the oil-burner water is brought by a pipe 3, having therein a feed-water sight-gage 4 and which passes through the wall of the oven, as shown at 5, and is connected to a coil of pipe 6 within the oven, near the front wall thereof. Said coil constitutes a flash steam-generator and is of peculiar construction, especially intended for providing dry or superheated steam, being formed in two series, a lower and an upper series. The water first passes

along the pipes of the lower series 6 of the coil, being converted into steam before it reaches the lowest pipe of said lower series, and then passes by a pipe 7 to the upper series 8. It then passes out from the topmost pipe of the upper series through the wall of the oven, and down by a pipe 9, and through the wall of the oven, as shown at 10. The two series of coils 6 and 8 are coiled not only vertically, but also horizontally, as shown by comparison of Figs. 3, 4, and 5. This presents the heating-surface of the coils to the heat in the oven in the best manner possible. A pipe 11 leads from the lowest pipe of the lower series through the wall of the oven to the outside and connects to a safety-valve 12. By providing the safety-valve at this point of these coils the result is obtained that in case of the steam-pressure rising above a certain point not only is the steam blown off, but any surplus of water which has accumulated in the lowest pipe, owing to the pipes having been too cold or the water-inlet valve open too much, and which would thus form a trap at the bottom of the lowest pipe of the series, preventing the escaping of the steam generated in the upper coils of said series, will now be blown out through said safety-valve. The steam-pipe connecting through the wall rises by a pipe to a T 13, and the steam passing through the T is conducted therefrom in two directions by a pipe 14, leading through the wall of the oven to the interior and provided with a controlling-valve 15 for the purpose of admitting steam into the oven for baking purposes, and also by a pipe 16, leading to the burner. Connected with the pipe 14 is a pipe 17, leading to a steam-gage 18. The pipe 16 leads to the lower chamber 19 of a swivel-joint 20. Oil is conducted to the upper chamber 21 of said joint by a pipe 22, controlled by a valve 23. Into said lower and upper chambers 19 21 extend castings 23 24 and are connected therewith by ground-joints and suitable packing 25. Bars 26 are screwed into the wall and have eyes 27 at their ends, and the castings 23 24 are swiveled between said eyes by means of screws 30 through said eyes screwed into said castings. Into said castings 23 24 are screwed the pipes 31 32, screwed at

their other ends into castings 33 34, secured in like manner as the castings 23 24 into a swivel-joint 35, with the lower and upper chambers of which connect pipes 36 37, leading to the burner proper. Thus said burner has a double swivel-support and can be directed through the mouth of the oven in any direction desired and can also be very readily inserted or withdrawn through the oven-door. To facilitate such manipulation of the burner, there is provided a handle 39, extending from the rear side of the swivel-joint 35.

The construction of the oil-burner proper is as follows: 41 represents a solid casting into which the ends of the pipes 36 and 37 are screwed. An oil-conduit 42 and a steam-conduit 43 are provided in said casting, having their outlets close together within a hollow extension 44 of the casting, so that the steam and oil are mixed therein. Small passages 45 46 lead to these conduits from the entrances of the pipes 36 37, and these passages are controlled by valves 55 56, which have long stems extending to bearings in a wing 47 of the swivel-joint and beyond said bearings are bent at their ends to form handles 48, by means of which the valves can be turned to control the passage of steam and oil. There is a similar valve 49 on the opposite side of said swivel and having a bearing in a similar wing 50 for controlling the pilot-burner 51, which pilot-burner is used to maintain the main burner ignited and consists of a tortuous oil-conduit 52 in the casting 41, controlled by the valve 49 and conducting the oil into a pan 57, where it is ignited, said pan being maintained at a high temperature by proximity to the burner. This pilot-burner permits of the main burner being moved about without the danger of the flame from the main burner being extinguished through being turned to a part of the oven where the bricks at the bottom of the oven are too cold to maintain the burner ignited.

I claim—

1. In combination with a heating-chamber, as a baker's oven, stationary steam and oil pipes leading to the door of the chamber, a single swivel-union with which both pipes are connected, hollow castings rotatable in the ends of the joint, a pair of steam and oil pipes secured to said castings, a second pair of castings to which said pipes are secured at their other ends, a second single swivel-union in which said latter castings turn, a second pair of pipes both secured to said second joint, and a burner secured to said second pair of pipes, substantially as described.

2. In combination with a heating-chamber as a baker's oven, a movable burner, steam and oil pipes therefor, flexible connections be-

tween said pipes and burner, a pan movable with the main burner, and means movable with said burner but independently of the main conduits therein for supplying oil to the pan to produce a continuous flame in the pan, said flame maintaining ignition in the main burner in moving to different parts of the oven, substantially as described.

3. In combination with a heating-chamber, as a baker's oven, a burner, steam and oil pipes therefor, connections between said pipes and burner comprising a pair of pipes leading from the steam and oil pipes, a second pair leading to the burner, and a swivel-joint between said pairs, and needle-valves controlling the steam and oil conduits in said burner and having stems extending alongside the latter pair to said joint and at their rear ends being supported by said joint and being bent to form handles, substantially as described.

4. In combination with a heating-chamber, as a baker's oven, a water-pipe, a coil of pipe in the chamber having upper and lower series of coils, a connection from the water-pipe to the top of the lower series, a pipe from the lower series to the upper series, a pipe from the upper series to a point near the door of the chamber, an oil-pipe also leading to the door of the chamber, a burner, and flexible connections between said latter pipes and burner, substantially as described.

5. In combination with a heating-chamber, as a baker's oven, a water-pipe, a coil of pipe in the chamber having upper and lower series of coils, a connection from the water-pipe to the top of the lower series, a pipe from the lower series to the upper series, a pipe from the upper series to the outside of the oven, a branch therefrom discharging into the oven, a valve controlling said branch, a burner, a second branch leading to the burner, and an oil-pipe leading to the burner, substantially as described.

6. In combination with a heating-chamber, as a baker's oven, a movable burner having steam and oil conduits, converging to a common mixing or discharge passage, independent valves controlling said conduits, a pan carried by the burner, an oil-conduit for supplying oil to the pan, and a valve independently controlling said latter conduit, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

SEWARD T. JOHNSON.

Witnesses:

FRANCIS M. WRIGHT,
BESSIE GORFINKEL.