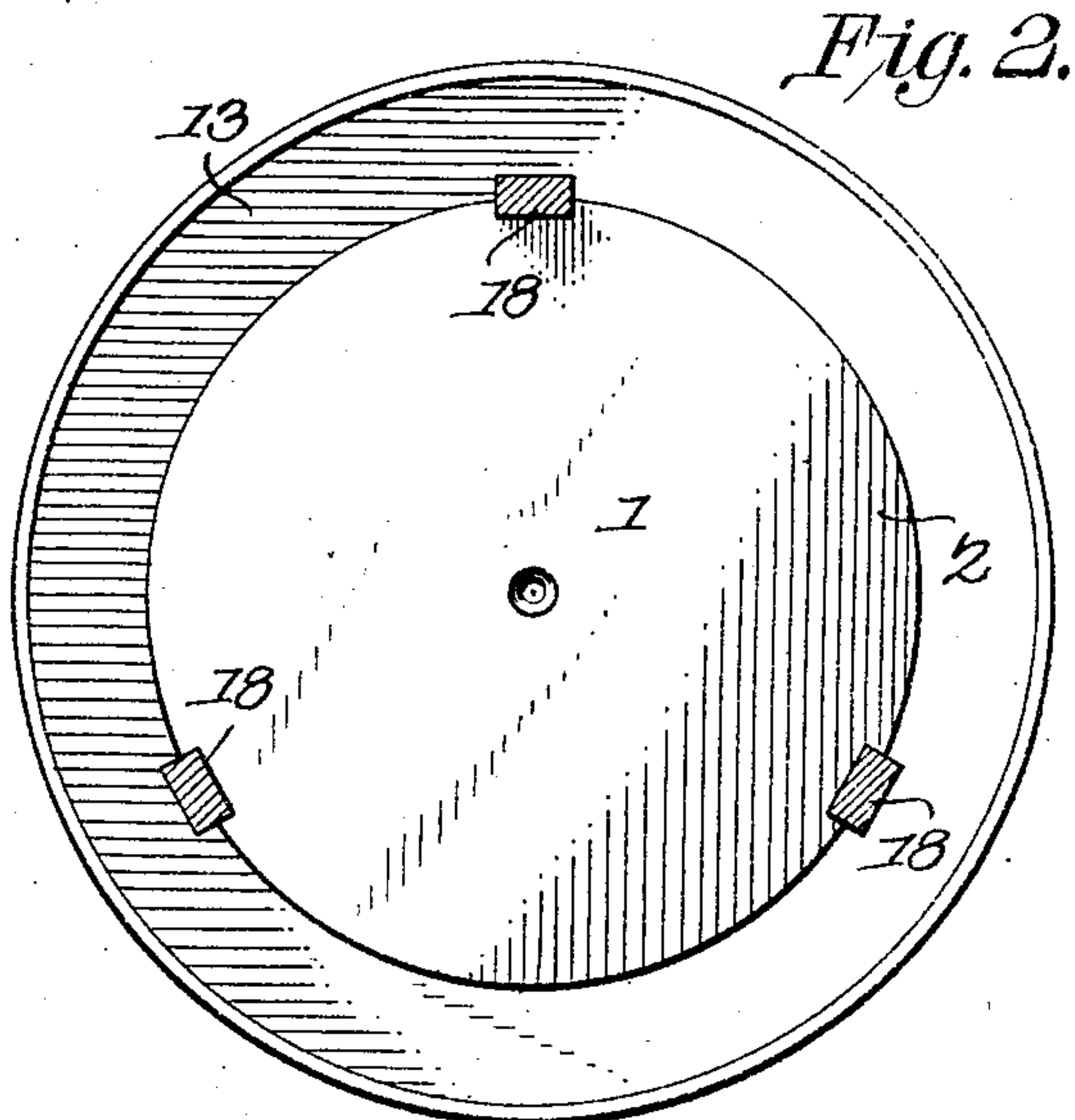
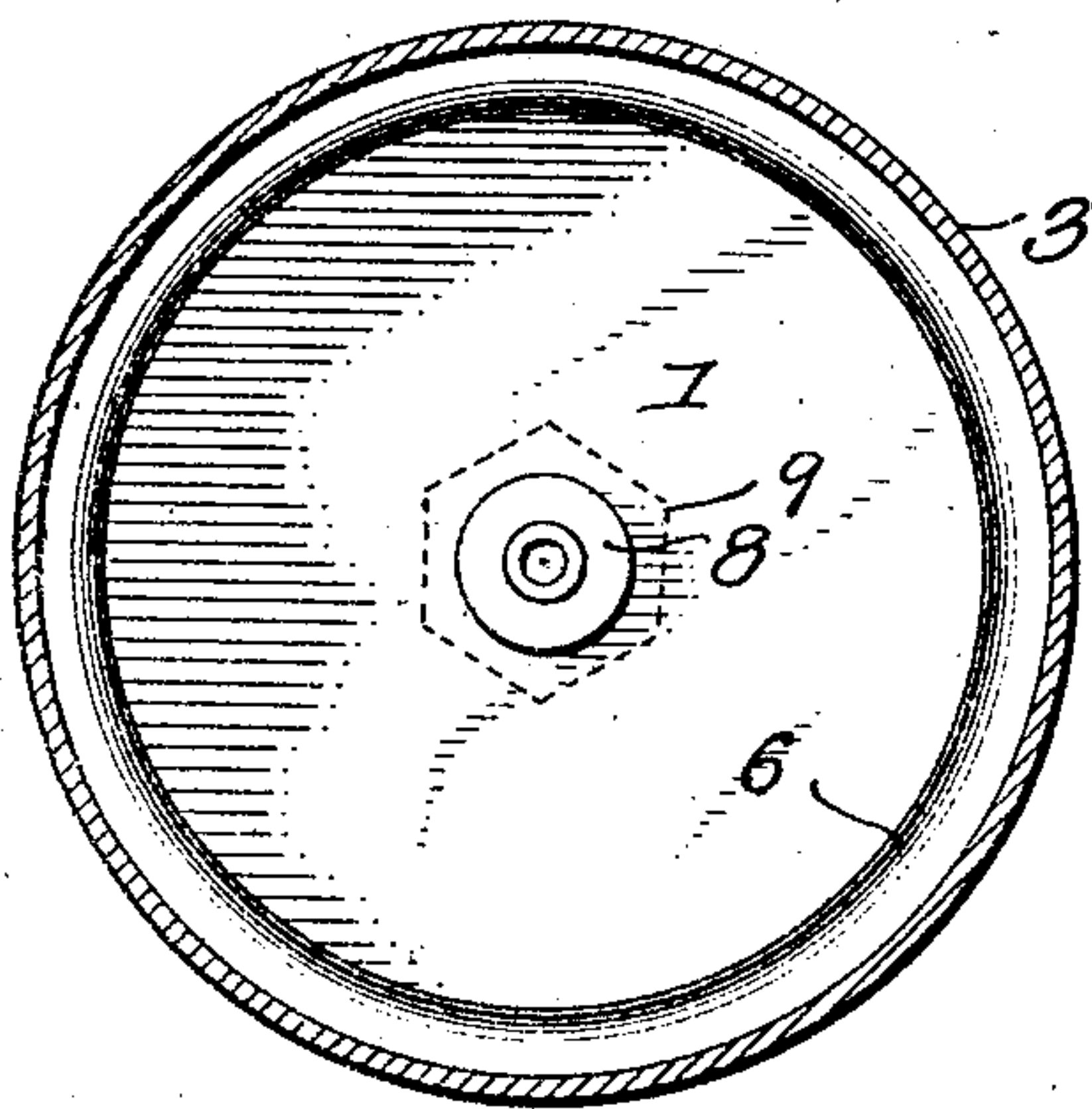
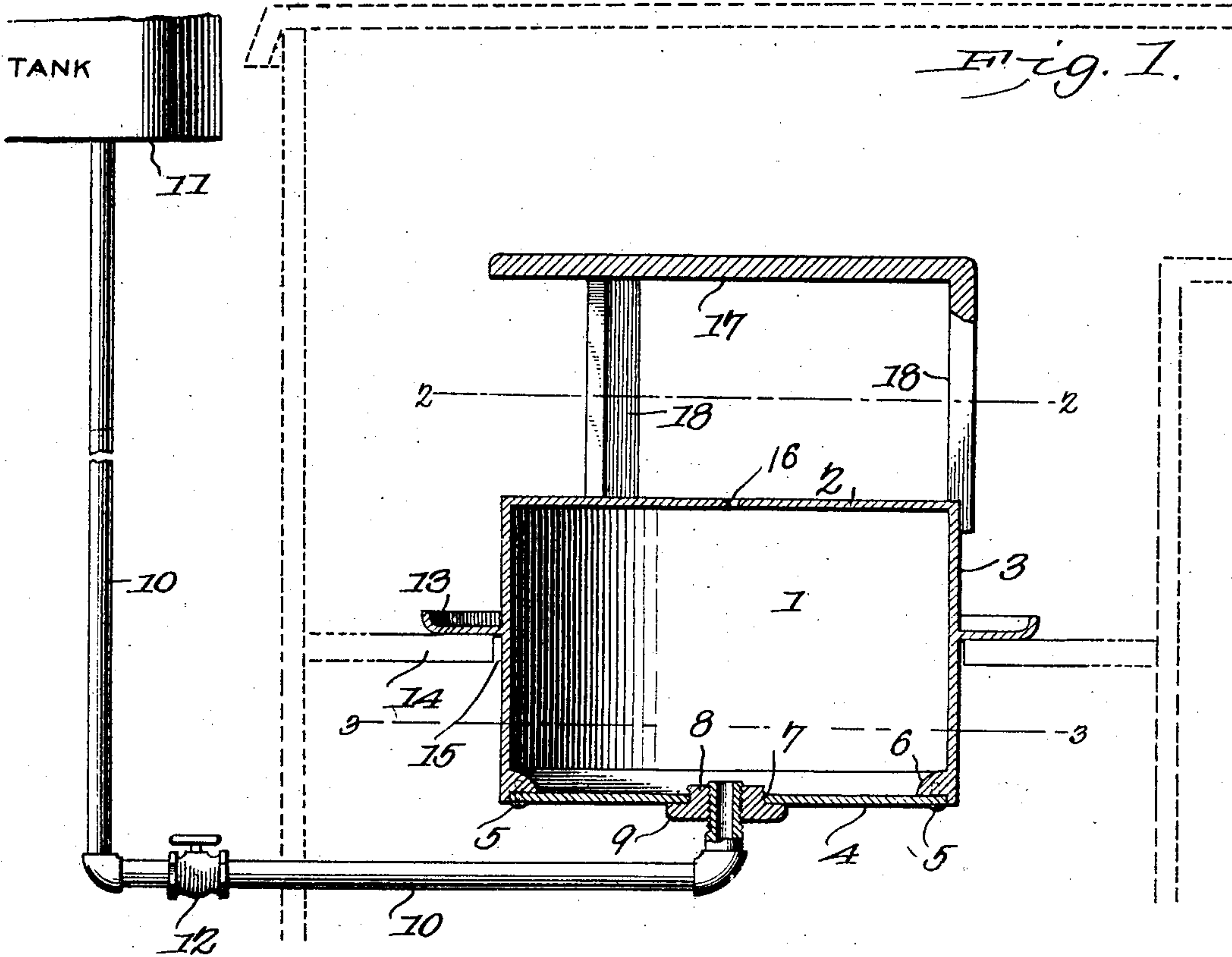


No. 771,970.

PATENTED OCT. 11, 1904.

L. E. COLEMAN.
HYDROCARBON BURNER.
APPLICATION FILED FEB. 1, 1904.

NO MODEL.



Witnesses

E. H. Stewart
Wm. Bagger

Lucius E. Coleman Inventor
by *Chas. H. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

LUCIUS E. COLEMAN, OF SANTA ANA, CALIFORNIA.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 771,970, dated October 11, 1904.

Application filed February 1, 1904. Serial No. 191,597. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS E. COLEMAN, a citizen of the United States, residing at Santa Ana, in the county of Orange and State of California, have invented a new and useful Hydrocarbon-Burner, of which the following is a specification.

This invention relates to hydrocarbon-burners; and it has for its object to provide a hydrocarbon-burner for general use, such as for heating and cooking purposes, which shall be extremely simple in construction and efficient in operation, which may be conveniently mounted for operation in a diaphragm provided for the purpose and which forms a substitute for the grate in the stove where the device is placed for operation, or which said diaphragm, if preferred, may be disposed above the ordinary grate, which shall be free from nipples and pipes exposed to excessive heat, and in which the general construction shall be simple, inexpensive, and thoroughly feasible and practical.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a hydrocarbon-burner constructed in accordance with the principles of my invention. Fig. 2 is a horizontal sectional view taken on the line 2 2 in Fig. 1. Fig. 3 is a horizontal sectional view taken on the line 3 3 in Fig. 1.

Corresponding parts in the several figures are indicated by similar numerals of reference.

My improved hydrocarbon-burner comprises a vessel 1, forming a retort, said vessel being provided with a top plate 2, side walls 3, and a bottom plate 4, which latter is made removable. In the accompanying drawings this bottom plate has been shown as connected, by means of screws 5, with a flange 6, formed interiorly upon the side walls 3 of the retort at the lower edge of said side walls; but I desire it to be understood that the retort-casing may, if desired, be formed of a single casting. The bottom 4 of the retort has a centrally-disposed screw-threaded opening 7, in

which is fitted a bushing 8, having a wrench-seat 9 to enable it to be readily detached from the bottom plate 4. The bushing 8 is interiorly screw-threaded for the reception of the valved supply-pipe 10, which connects the retort with a suitable source of supply, such as a tank 11, which is preferably supported at a sufficient elevation to enable the hydrocarbon to be fed by gravity to the retort, the flow being regulated by means of a valve 12 upon the feed-pipe. The retort is formed about midway of its height with an exterior annular trough-shaped flange 13, adapted to rest upon a plate or diaphragm 14, which is provided with an opening 15 of proper size and shape to accommodate the retort. This plate is to be suitably supported in the stove structure where my improved burner is to be used, and it may, if desired, be provided with draft-openings, although, by preference, no draft-openings are formed very close to the retort. The upper side of the latter is to be provided with one or more jet-openings 16, which are simply in the nature of perforations extending through the top of the retort, said perforations being wider at their upper ends. Through these openings the gaseous vapors developed in the retort are expelled when the device is in operation.

17 designates a spray-plate which is provided with three or more legs 18 of suitable length, said legs being provided at their lower ends with notches to engage the upper edge of the retort above which the spray-plate is supported by means of said legs, which latter are made of any desired height to support the spray-plate at any desired elevation.

In the operation of this device a small portion of hydrocarbon fluid is placed in the trough 13 and ignited, thus heating the upper part of the retort as well as the superimposed spray-plate. When the retort is sufficiently heated, the oil is admitted into its lower portion through the pipe 10. The oil being converted into vapor is expelled through the opening or openings 16, being forcibly ejected in the direction of the spray-plate, where the particles of vapor are finely divided, and being ignited will produce a flame of great heat and intensity which by the spray-plate is

spread over a considerable area. This flame obviously maintains the retort at a proper heat to cause the rapid vaporization of the oil fed into the lower portion of the latter, and the intensity of the flame may be regulated by the quantity of oil supplied, which when the flame is to be extinguished may be cut off by the valve 12.

It will be observed from the foregoing that the supply-pipe and its related parts, which are disposed below the supporting-plate or diaphragm 14, are protected by said plate against excessive heat. The lower part of the retort, which is the only portion of the latter provided with removable members, is entirely protected from the heat of the flame, not only by being sunk below the diaphragm 14, but also by the oil, which when the device is in operation occupies the lower portion of the retort. Hence it is obvious that when it shall be desired to disassemble the retort for the purpose of cleaning the latter and removing any carbon which may have accumulated therein the parts may be readily separated, because the screw-threaded connecting means are all protected against deposits of carbon and all corrosive influences. Consequently while it is obvious that carbon will form within the retort it is equally obvious that the perfect operation of the device will in nowise be affected thereby, and also that any deposits within the retort may at any time be easily removed, owing to the facility with which the latter may be disassembled. The jet opening or openings 16, as is obvious, may at any time be cleared from obstructions by the use of a needle or other pointed instrument. This offers a considerable advantage over the use of nipples, which are commonly used and which are very liable to become obstructed in a manner that precludes their cleansing or clearing other than by skilled

labor and by especially-appointed tools. It will be specially noticed that these jet-openings, which are conical in shape, are larger at their outer than at their inner ends, thus enabling accumulations of soot and the like to be readily cleared out in the manner described. In cases where the jet-openings are reversely constructed—that is, when their outlets are smaller than their inner ends—the clearing of said openings may not always be readily accomplished, and small quantities of soot adhering to the inner walls will soon accumulate additional obstructions which will seriously interfere with the operation of the device.

The spray-plate is detachably supported upon the retort and, as is obvious, may at any time be removed from the same.

The parts are simple. They do not occupy much space and may be readily packed for shipment and for storage.

The device is also capable of being applied with the utmost facility to any stove structure of ordinary construction.

Having thus described my invention, I claim—

A retort consisting of a casing having a detachable bottom plate, a bushing in said plate having an exterior wrench-seat, a valved supply-pipe connected with said bushing, a conical jet-opening, widening outwardly in the top of the retort, and an annular trough-shaped supporting-flange formed about midway of the height of the retort.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LUCIUS E. COLEMAN.

Witnesses:

J. HOWARD BELL,
WILLIAM H. SPAKE.