

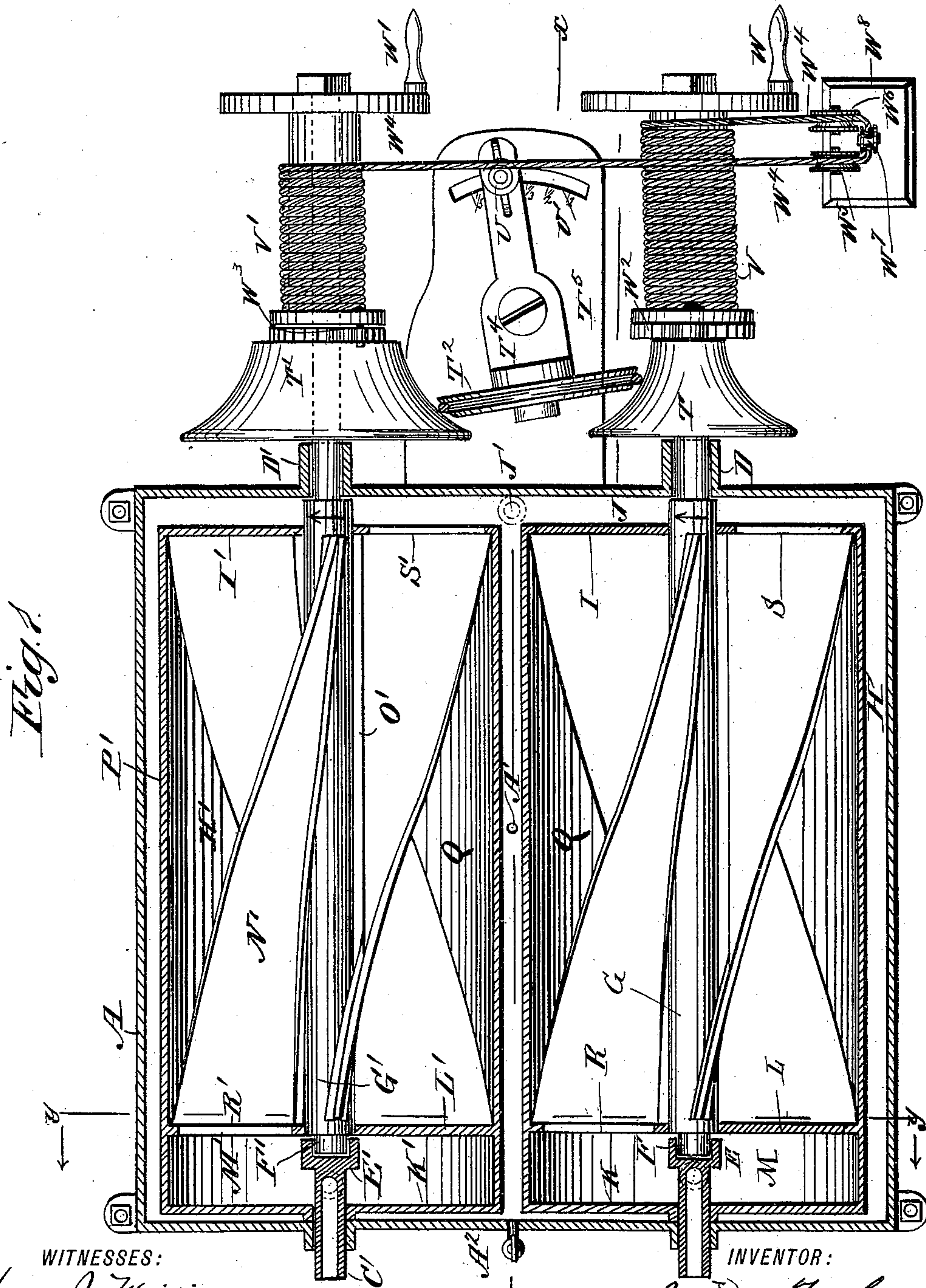
(No Model.)

2 Sheets—Sheet 1.

J. TAYLER.
GAS MIXING MACHINE.

No. 446,086.

Patented Feb. 10, 1891.



WITNESSES:
Henry J. Weininger
J. C. C. Palmer.

INVENTOR:
James Taylor
BY
Charles D. Dyer
ATTORNEY.

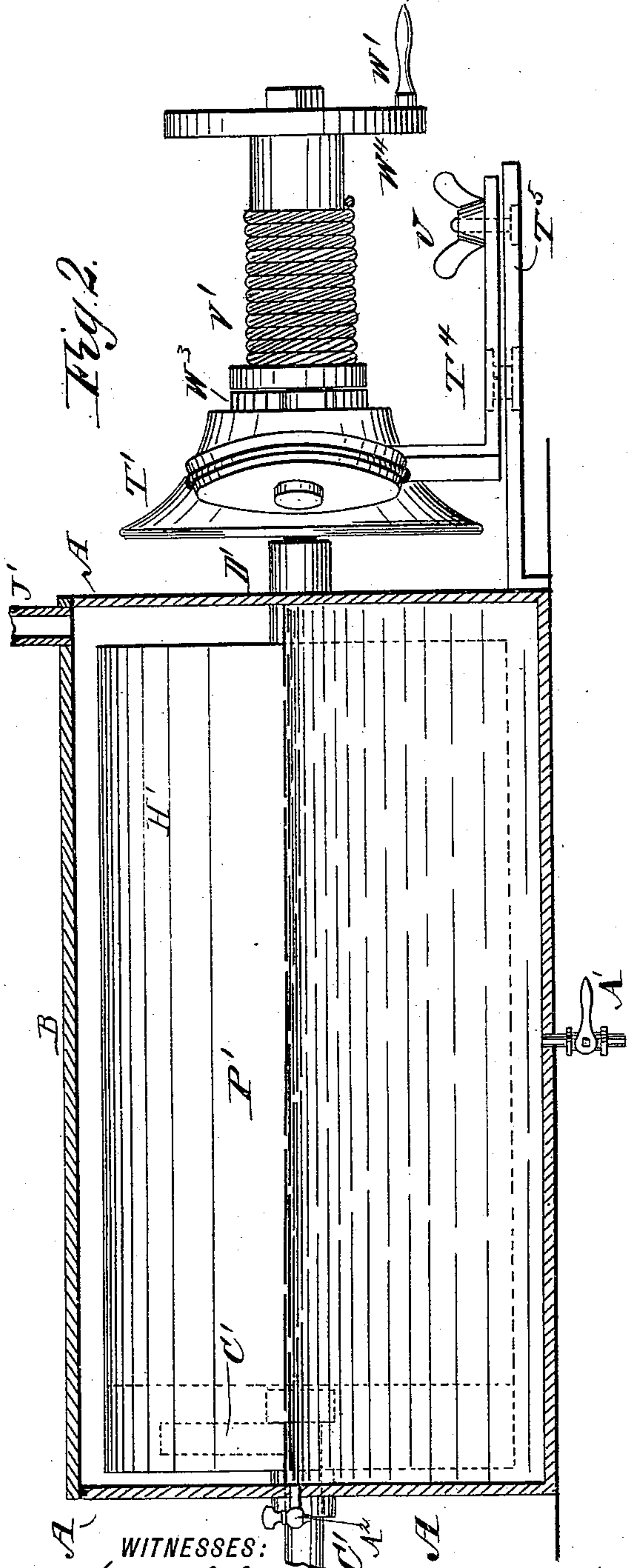
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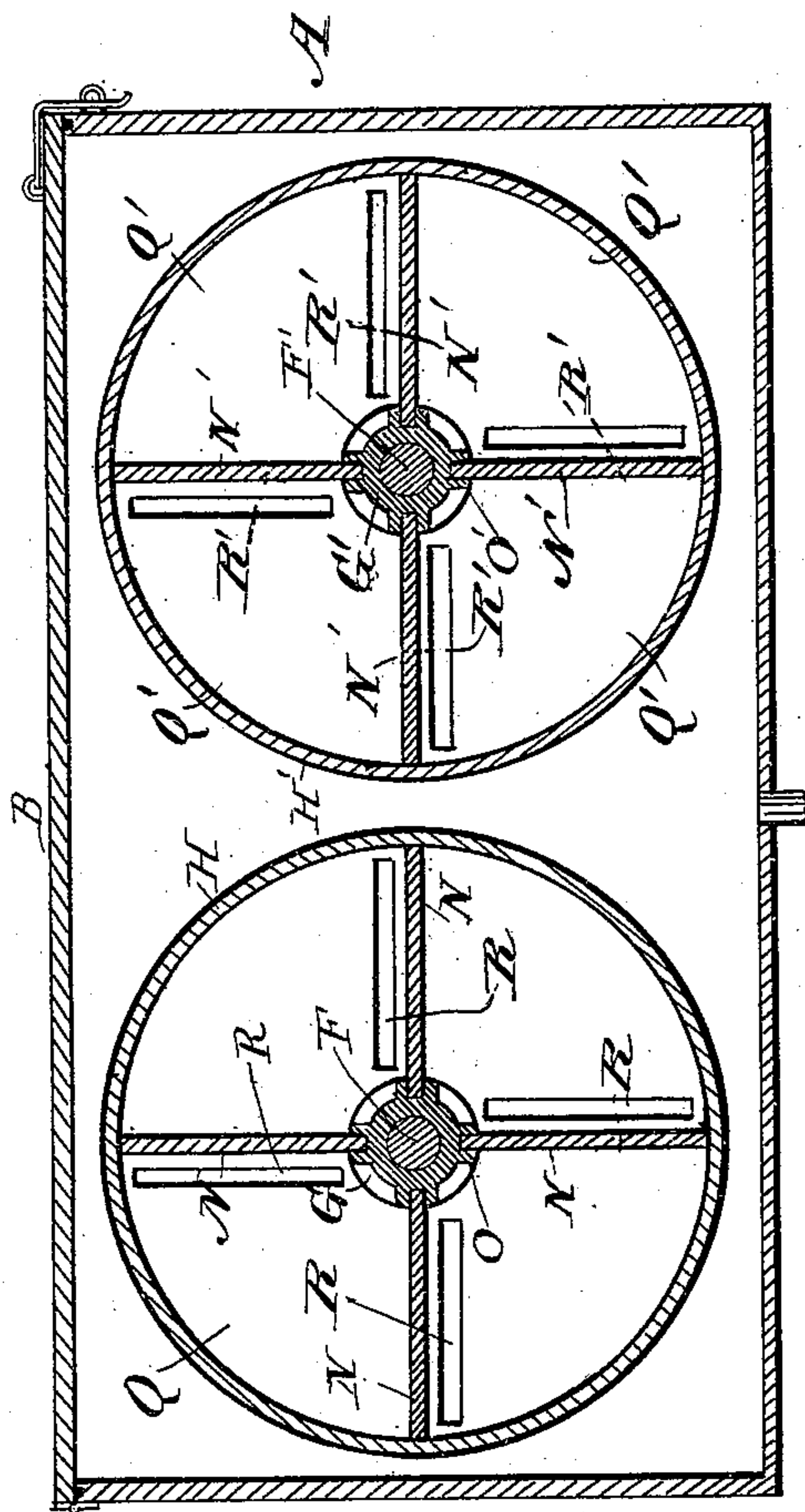


Fig. 3

INVENTOR:
Jonas Taylor
BY
Clarence A. Rogers
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSIAS TAYLER, OF NEW YORK, N. Y.

GAS-MIXING MACHINE.

SPECIFICATION forming part of Letters Patent No. 446,086, dated February 10, 1891.

Application filed April 8, 1889. Serial No. 306,330. (No model.)

To all whom it may concern:

Be it known that I, JOSIAS TAYLER, a resident of the city, county, and State of New York, have invented a new and useful Improvement in Gas-Mixing Machines, of which the following is a specification.

This invention relates to machines for mixing in certain proportions different gases—such as natural or coal gas—and air, so as to form by their combination a gas suitable for illuminating or heating purposes.

The object of my invention is to provide a mixing-machine for this purpose by which the air and gas or gases to be mixed are both measured off in the required proportions, which may be varied at will, and pumped into the mixing-chamber automatically and simultaneously by the same device, by which a thorough mixture of the air and gas or gases thus forced into the mixing-chamber is accomplished, and a uniform and uninterrupted flow of the resulting compound gas from the machine is assured, while greater strength, simplicity, and efficiency are obtained than heretofore.

My invention consists of gas measuring and delivering devices of peculiar construction, substantially as hereinafter described and claimed, whereby I am enabled to introduce the separate gases, under whatever pressure, in predetermined uniform proportions into a common chamber, wherein they commingle, so that a gas of definite uniform composition may be produced, according to the purpose for which it is to be used.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional plan view of a gas-mixing machine embodying my invention. Fig. 2 is a vertical longitudinal section of the same on the line X X, Fig. 1. Fig. 3 is a vertical cross-section of the same on the line y y, Fig. 1.

Similar letters of reference designate corresponding parts in all the figures.

A water-tight box A, provided with a removable gas-tight cover B, is fixed upon a suitable base, which may be the cellar-floor of the building which is to be supplied with the compound gas. Through one end of the box A, which is partially filled with water,

and just below the water-line, are introduced and fixed therein metallic L-pipes C C', which are connected with the sources of supply of the gases to be combined, which are presumed in this instance to be respectively the outer air and a natural or artificial gas-supply pipe. The box A is provided on its opposite end with sleeve-bearings D D', and the inner angles of the L-pipes C C' with socket-bearings E E' axially in line therewith, and in the bearings E E' are mounted to turn as gudgeons the ends of parallel shafts F F', which are also passed through and turn in the sleeve-bearings D D'.

On the shafts F F' are fitted and fixed long sleeves G G', forming the axes of cylindrical drums H H', the front heads I I' of which are separated from the corresponding end of the water-box, so as to form a chamber J, and the rear heads K K' of the drums H H' turn loosely on the respective L-pipes C C', the upturned arms of which open inside said heads above the water-line. The drums H H' are also provided with inner heads L L', separated from the outer heads K K', so as to form end compartments M M', into which the air and gas or gases are respectively led, the said inner heads surrounding the ends of the respective sleeves G G'. The interiors of the drums H H' are each divided into several—in this instance four—truly spiral compartments Q Q' by spiral partitions N N', the inner edges of which are seated in spiral grooved ribs O O', formed on the outside of the respective sleeves G G', and which extend to the outer cylindrical shells P P' of the drums, and from the inner heads L L' to the opposite heads I I', making a twist of ninety degrees in that length. The spiral compartments Q Q' are connected with the respective end compartments M M' by approximately radial openings R R' in the inner heads L L', and with the common chamber J outside the drums by approximately radial openings S S' in the front heads I I', about one hundred and eighty degrees from the respective openings R R', so that, the water-level being at or slightly above the axes of the drums, the drums being revolved, as indicated by the arrows thereon, as the inlet-openings R R' emerge in order from the water the corresponding outlet-openings S S' are immersed and sealed, and the spiral com-

partments gradually filled with gas by inhalation through the openings R R' until, said openings R R' being again immersed, the passage of the water therethrough forces out the
 5 contained gases through the outlets S S' into the common chamber J, where the different gases are mixed in proportion, the capacity of the drums being equal to their speed.

The top of the chamber J is provided with
 10 an eduction-pipe J', which is connected with the delivery-pipes through which the composite gas is to be forced. The water-box A is also provided with a discharge-cock A' at its bottom, for drawing off the contained water
 15 when desired, and a gage-cock A² at the water-line.

On the shafts F F', outside the sleeve-bearings D D', are fixed tapering concave friction-drums T T', which are both engaged by a loose
 20 friction-wheel T², having a leather or other frictional peripheral band and mounted to turn on an adjustable bearing T⁴, which is pivoted to a fixed bracket T⁵ at the center of the circle, on which both friction-drums T T'
 25 are curved, so that the loose friction-wheel T² can be brought into engagement with both friction-drums T T' at different diameters thereof, and their relative speed thus regulated at will.

30 A set-screw U is provided for locking the adjustable bearing T⁴ in position, and a scale U' is marked on the bracket T⁵, to indicate the relative speed of the drums at the various positions of the bearing.

Winding-drums V V', provided with crank- 35 handles W W', are connected with the respective friction-drums T T' by ratchet-and-pawl devices W² W³, and with the opposite ends of a cord W⁴, which is rove over fixed pulleys W⁵ W⁶, and through a loose pulley 40 W⁷, on which is hung a weight W⁸, by which both conveyer-drums H H' are driven in the same direction and their motion maintained while winding the cord W⁴ on either drum V or V'. The motion of the conveyer-drums H 45 H', and hence the supply of the composite gas, will, it is evident, be automatically governed by the consumption.

I claim as new and desire to secure by Letters Patent— 50

A gas-mixing machine comprising a closed water and mixing chamber having separate gas-inlets and a gas-outlet, separate cylindrical conveyer-drums mounted to revolve in said chamber and adapted to be immersed to 55 their longitudinal axes, said drums being each formed with an end compartment connected with the respective gas-inlet, and a plurality of longitudinal spiral compartments, each having approximately radial openings at each 60 end about one hundred and eighty degrees apart, and means for revolving both drums at a predetermined relative speed, substantially as specified.

JOSIAS TAYLER.

Witnesses:

CLARENCE L. BURGER,
 J. CULBERT PALMER.