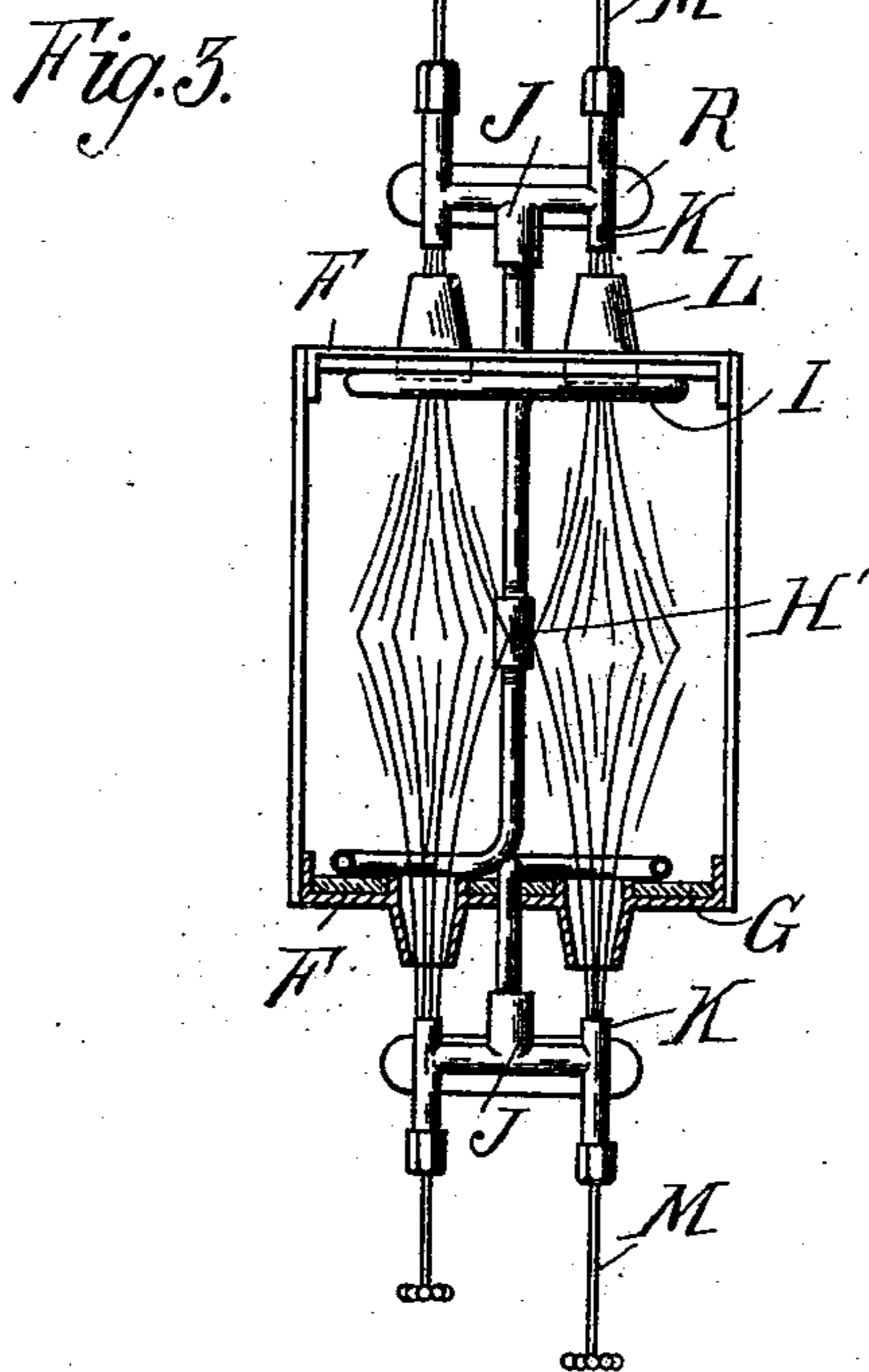
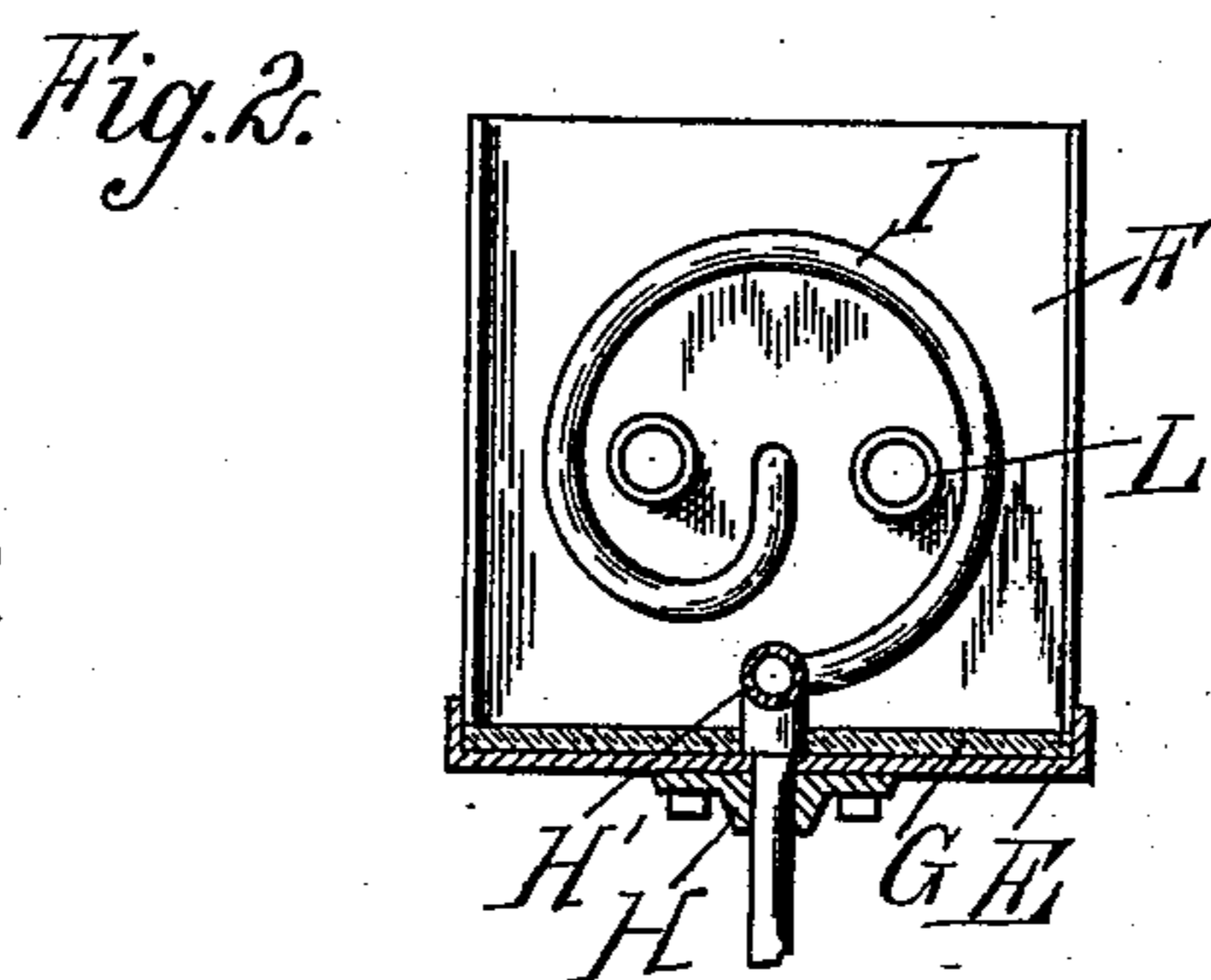
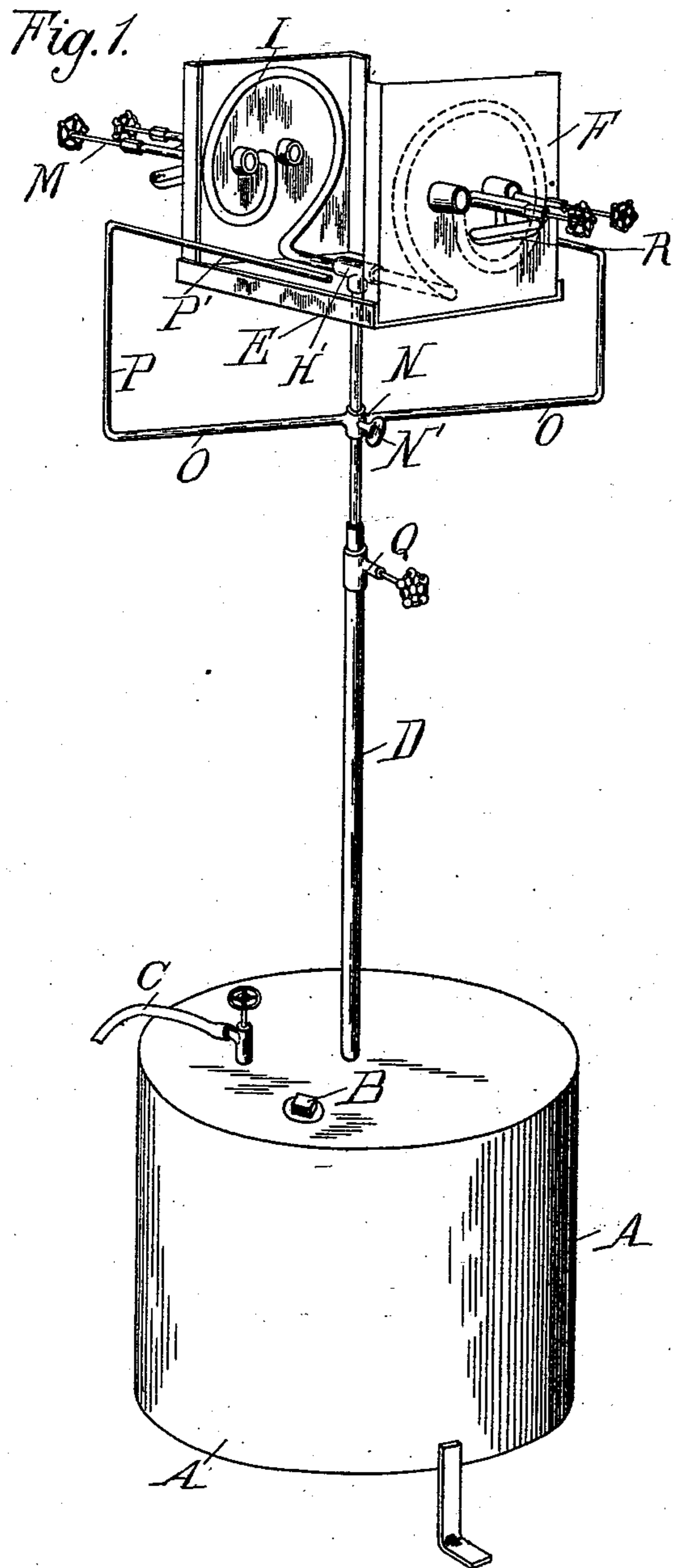


(No Model.)

A. W. STRAIGHT.
BRAZING FURNACE.

No. 550,007.

Patented Nov. 19, 1895.



Witnesses:

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UNITED STATES PATENT OFFICE.

ASA W. STRAIGHT, OF DETROIT, MICHIGAN.

BRAZING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 550,007, dated November 19, 1895.

Application filed January 8, 1895. Serial No. 534,203. (No model.)

To all whom it may concern:

Be it known that I, ASA W. STRAIGHT, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Brazing-Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in a vapor-burning furnace especially intended for brazing purposes and similar work; and it consists particularly in an oven or heating-chamber having upon opposite sides a series of diametrically-opposing vapor-jet nozzles arranged parallel and with unobstructed discharge, and, further, in the construction, arrangement, and combination of various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a perspective view of my improved furnace. Fig. 2 is a vertical central section through the oven or heating-chamber. Fig. 3 is a sectional plan of the oven.

It has been customary in the use of vapor-burners to lead the vapor into a mixing-chamber or into a burner proper in which the air and the vapor were mixed before burning and to employ blow-pipes or air-blasts to get the requisite heat from the flames.

With my construction I employ a parallel series of unobstructed vapor-jet nozzles on opposite sides and opposed to each other, using the force of the jet to effect the necessary blast and the opposing forces of the jets to break up the jet effect and enable the air to mingle with the vapor to obtain perfect combustion.

A is a tank for the gasoline or other liquid to be vaporized. This tank has a suitable plug-aperture B for filling.

C is the connection for supplying air under pressure into the tank to force out the liquid.

D is the supply-pipe extending to the bottom of the tank and supplying the burner with liquid fuel. At the top the pipe D supports a plate E, which has at its ends the vertical end plates F, the whole forming a heating chamber or oven with open sides, and which may be lined, if desired, with asbestos or fire-brick, as shown at G.

The oven is supported on the standard D by

means of a collar H. Within the oven-top of the standard is the T H', to each side of which connect the coils I, arranged vertically around the inner faces of the end plates F of the oven, having their discharge ends passing out centrally through those plates and connected into the T-shaped heads J. In the ends of these heads are the parallel jet-nozzles K, arranged centrally opposite the air pipes or tubes L, of which there are two or more on each side, and each pair being arranged diametrically opposite. The nozzles K are controlled by suitable valves M.

N is a sleeve adjustably secured upon the standard D by means of a set-screw N', carrying a bar O, which at each end has the vertical and horizontal sections P and P', the horizontal sections extending across the open ends of the oven and forming a rest for the work.

The parts being thus constructed their operation is as follows: The tank being supplied with gasoline or other suitable volatile combustible fuel the air under pressure is pumped therein through the pipe C and the valve controlling that pipe is closed. The valve Q in the standard D is opened and the valves M are opened to allow the gasoline to flow into the liquid-cups R beneath the jet-nozzles K. The jet-nozzles are heated by burning the fluid in the cups, and when thoroughly heated the valves M are opened and the vapor in the oven ignited. The vapor from the opposing jets will meet centrally of the oven with great force and be deflected up and down and thoroughly broken up, so that the air will thoroughly mix with it and produce perfect combustion, the jet being impelled with sufficient force to give the necessary blast. The result is a heat in which brazing may be quickly and satisfactorily done. By arranging a series of such jet-nozzles side by side and parallel, as shown, I not only obtain a greater heat, but one pair of oppositely-directed jets act as a balance to the adjoining pair and prevent them from being blown out or deflected by the unequal pressure in case one of the jets is stronger. This arrangement also adds greatly to the heat obtained. Indeed, I have found that with but a single pair of opposing jets but poor results could be obtained and no reliance could be placed upon the continu-

ance of the fire, while with a multiple the heat is steady and ordinary drafts have no effect upon it.

What I claim as my invention is—

- 5 1. In a brazing oven, the combination with a base and end walls, of a supply pipe leading to the oven having coiled branched extensions leading to the opposite ends of the oven and passing to the outside thereof, jet nozzles at
10 the end of the coiled extensions directed toward the vertical center of the oven, and arranged in line with the jets at the opposite end and air pipes in the ends of the oven in front of the nozzles, substantially as described.
- 15 2. In a brazing oven, the combination with a base and end walls, of a supply pipe leading through the base, branched coils leading from the supply pipe and coiled vertically at the ends within the oven, and passing to the outer
20 side thereof, jet nozzles at the ends of the coil pipes directed toward the center of the oven, and air pipes in the ends in front of the nozzles, substantially as described.
- 25 3. In a brazing oven, the combination with a base and end walls, of a supply tank, a tubular standard leading therefrom supporting the oven, branches from the standard leading to the outside of the oven at opposite ends, jet nozzles on the ends of the branches directed
30 toward the center of the oven, and air pipes in the ends in front of the nozzles, substantially as described.
4. In a brazing oven, comprising a base, end walls and open sides, the combination with a

supply tank, a support thereon connected with 35 the oven, a burner for the oven and a vertically adjustable rest on the support having arms extending across the open sides of the oven, substantially as described.

5. In a brazing furnace, the combination 40 with an oven having a base, end walls and open sides, of a vapor supply, jet nozzles connected with the supply arranged in parallel pairs at opposite ends of the oven and on a plane sufficiently above the bottom to permit 45 a complete commingling at the center of the oven and a radiation in all directions, and air pipes leading through the end walls in line with the nozzles, substantially as described.

6. In a brazing oven, the combination with 50 the oven having a base, perforated end walls, and open unoccupied sides, of a vapor supply, vapor jet nozzles connected with the supply and arranged in parallel series at opposite ends, each one of each series being dia- 55 metrically opposite one of the other series, and each series being arranged on a plane above the base sufficient to permit a radiation at the center of the oven in all directions, air pipes in front of each nozzle, and means for 60 superheating the supply to the nozzles, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ASA W. STRAIGHT.

Witnesses:

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M. B. O'DOHERTY.