

(No Model.)

W. E. DENNISON.
HEATED PAVING ROLLER.

No. 524,939.

Patented Aug. 21, 1894.

Fig. 1.

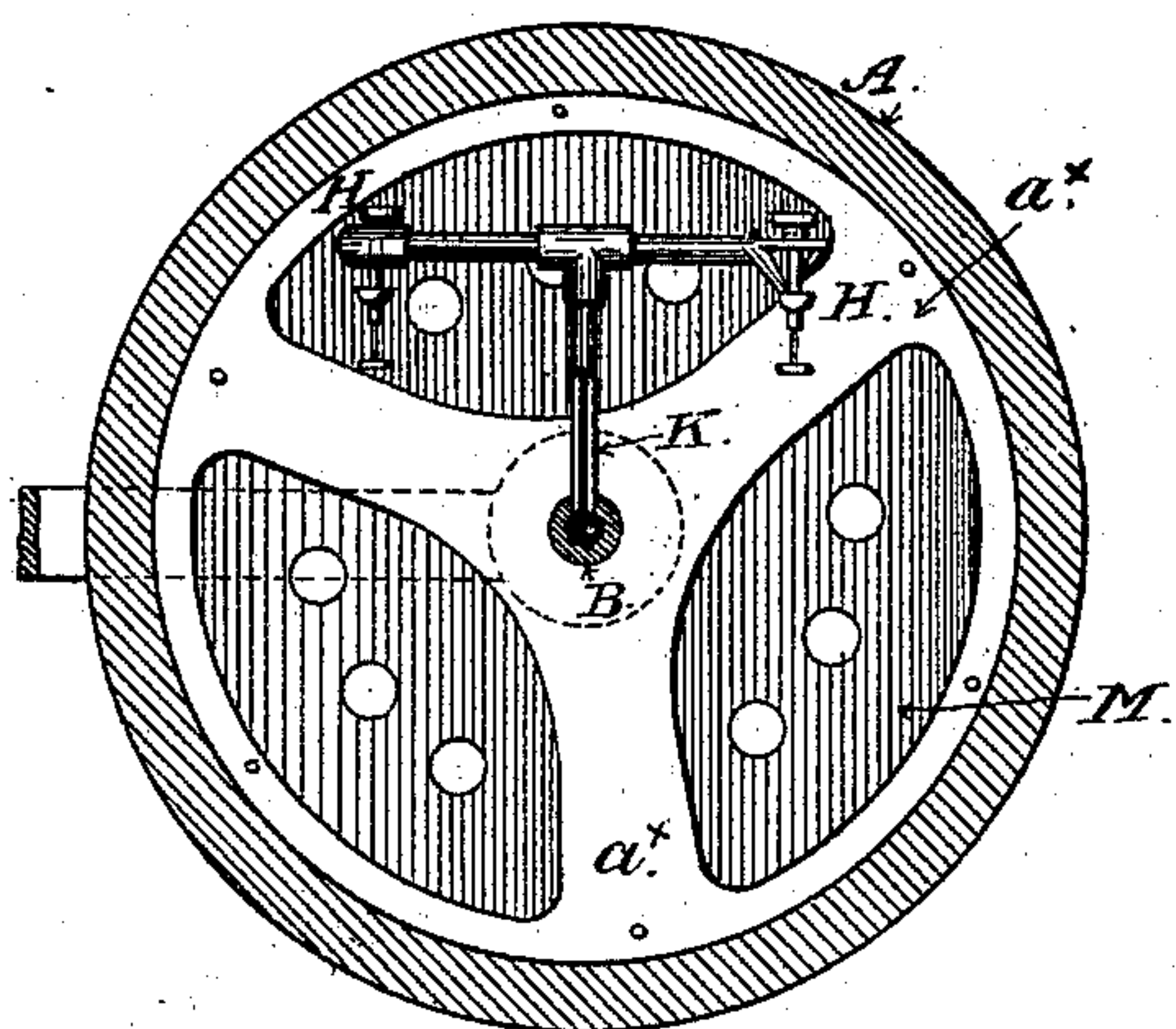


Fig. 2.

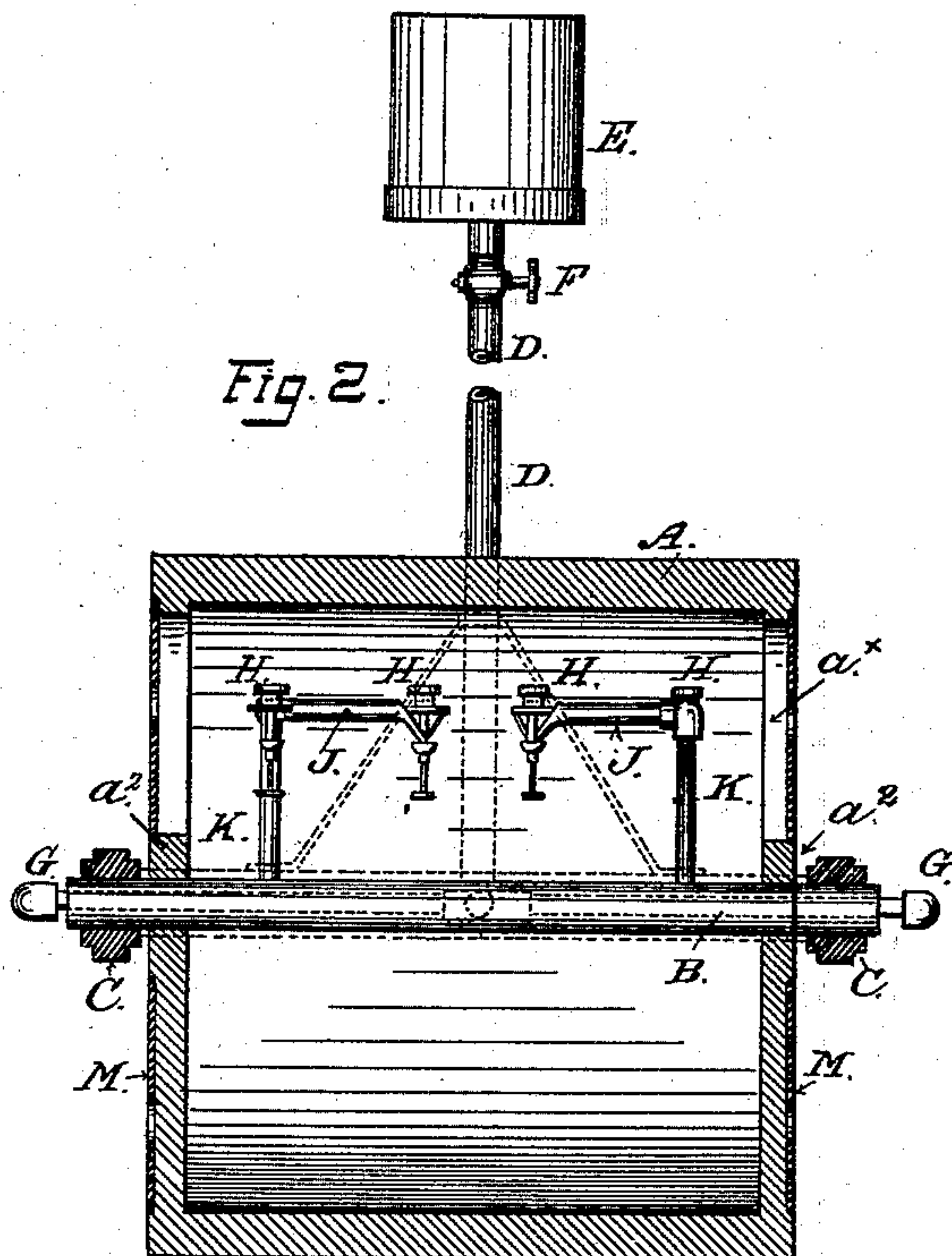


Fig. 3.

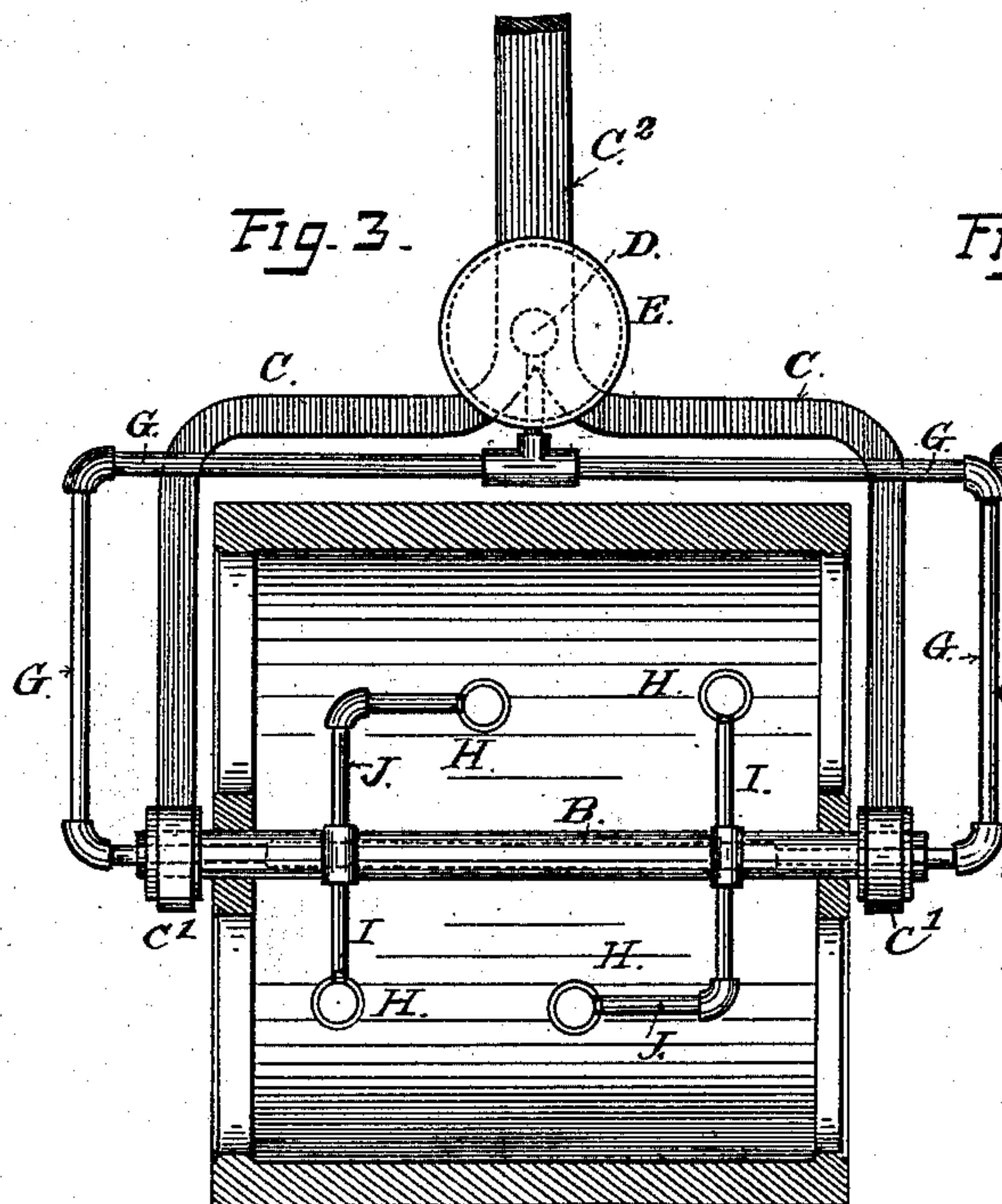
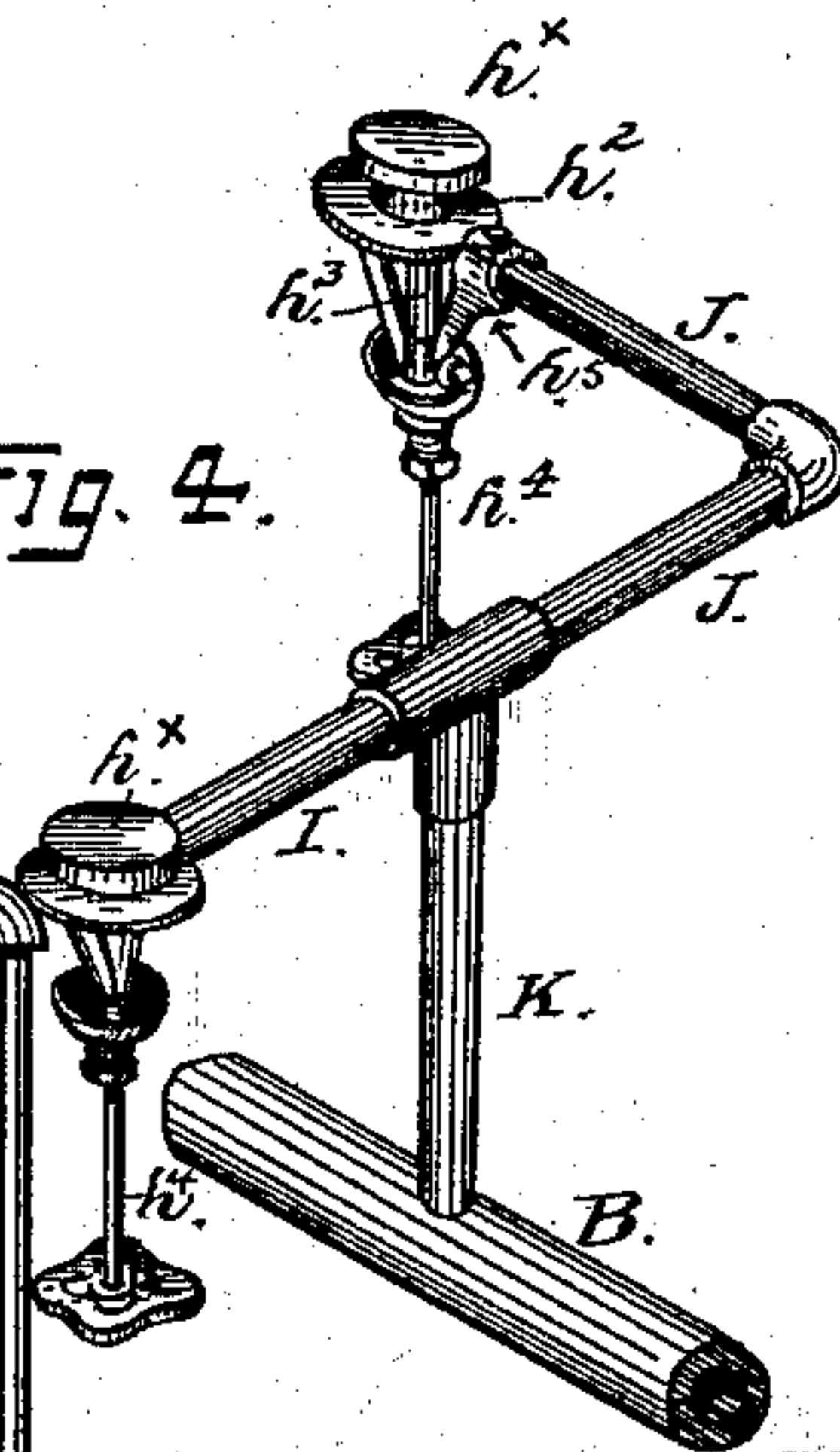


Fig. 4.



Witness:

M. Rogers
E. Pattern

Inventor:

Walter E. Dennison
by Smith & Osborn
his Attys.

UNITED STATES PATENT OFFICE.

WALTER E. DENNISON, OF SAN FRANCISCO, CALIFORNIA.

HEATED PAVING-ROLLER.

SPECIFICATION forming part of Letters Patent No. 524,939, dated August 21, 1894.

Application filed December 16, 1893. Serial No. 493,845. (No model.)

To all whom it may concern:

Be it known that I, WALTER E. DENNISON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Heated Paving-Rollers, of which the following is a specification.

My invention relates to improved means for heating street-paving and road-making rollers of the kind or description which are used in laying and finishing asphaltum and bituminous-rock pavements. Rollers of this class, at the present time, are commonly heated by means of a swinging grate or fire-pan suspended from the axle within the central hollow space of the roller and a fire of coal or wood fuel; but this mode of heating is imperfect and objectionable in several respects, principally on account of the difficulty of keeping the roller properly heated and of maintaining an even and uniform condition of heat at all times, but also on account of the expense attending the careless and extravagant use of fuel and the loss of the workman's time through the frequent interruptions and delays occasioned by renewing and replenishing the fire.

My present invention has for its object to provide roller-heating means or apparatus having none of these defects and objections and possessing, besides, the advantages of simplicity, cleanliness, economy in the cost of handling and in the consumption of fuel and regularity of operation.

To such ends and objects my invention consists in the described construction and combination of heating apparatus for street-rollers, consisting of a tank or reservoir to contain gasoline or other similar liquid mounted on the roller-frame or carriage, a set of burners inside the roller with conducting pipes and connections between the burners and the tank outside the roller and regulating valves or cocks to control the flow of the liquid to the burners, substantially as hereinafter explained.

The invention consists also in a heated roller for street-work having a gasoline-tank mounted on its frame or carriage, a hollow axle, a set of gasoline burners connected to and supported by said axle and pipes connecting said hollow axle inside the roller with

the supply tank outside and cocks or valves to control the flow of gasoline through the pipes to the burners, as hereinafter described and pointed out in the claims. 55

Referring to the accompanying drawings forming a part of this specification:—Figure 1 is a cross-section of the roller taken vertically through the middle. Fig. 2 is a longitudinal section, looking toward the front of the roller. Fig. 3 is a horizontal section taken longitudinally through the middle of the roller just above the axle. Fig. 4 is a view in perspective on an enlarged scale of a portion of the hollow axle and a set of burners and their supporting and connecting pipes. 60

—A— indicates the body of a roller such as is generally used at the present time in the work of laying asphaltum and bituminous-rock pavements, having open ends with spokes or arms — a^x — and hubs — a^2 — for the axle. 70

—B— is the axle and —C— is the yoke or frame having side-arms — b^x — to take the ends of the axle and a long sweep or tongue — B^2 — at the front for working the roller. 75

—D— is a stand-pipe or tubular support on which is mounted a tank —E— the lower end of the pipe being fixed in a socket in the yoke or frame in front of the roller. The tank is provided with an outlet in the bottom to which the end of the stand-pipe is connected or coupled in such manner that the pipe forms a conductor for the liquid in the tank. 80

—F— is a cock or valve in the pipe D for controlling the flow of the liquid. 85

—G—G— are pipes of smaller bore than the stand-pipe connected to the lower end of that pipe and branching thence in opposite directions to the sides of the roller and extending backward along the yoke to the ends of the axle. The branch pipes are fixed in the axle by screwing their threaded ends into plugs or bushings fixed in the ends of the axle, or by any other means to secure tight joints. 90

—H—H— are two sets of burners of a kind suitable for burning gasoline. The burners I have used with good results are the kind composed of a hollow, circular head — h^x —, a contracted neck — h^2 — below the head and a tubular extension or body — h^3 — below the neck, with a circular row of perforations around the neck at which the gas or vapor 95

100

burns in numerous jets. A needle-valve —*h*⁴— in the body of the burner controls the flow of fluid which is fed in through a tube —*h*⁵— connecting the burner-body with the supply-pipe. Two of these burners forming a pair or set are connected by branches —*I*— *J*— to a common pipe —*K*— fixed in and standing perpendicularly upward from the hollow axle, so that the two burners are supplied with fluid from the hollow axle through the single standing-pipe *K*. For a roller of ordinary length such as is commonly used in laying bituminous-rock pavements I arrange two sets of burners in such position that the heat is distributed uniformly or evenly across the roller and against the entire length of its rim or body. The two pipes —*K*— are fixed at points on the axle about one-fifth the distance from each end, and the branch —*J*— of each pipe is turned by an elbow at right angle, as shown more particularly in Fig. 3, so that the burner on its end will occupy a position about the same distance from the burner on the opposite straight branch —*I*— measuring along the axle as that burner occupies from the end of the roller. The like branch —*J*— of the other set is turned in the same manner to stand at right angle and substantially parallel with the axle toward the other bent branch before mentioned, so that the space or distance between one burner and the next is about one-fifth of the length along the axle. Thus by means of pipes —*K*— and the branches —*I*—*J*— as many sets of burners are connected to the axle as are required to heat the roller, without multiplying the pipes and connections. In arranging these parts for use on the ordinary paving-roller, which has central hubs for the axles united to the rim by radial arms or spokes, the interior space being open to the outside through the openings between the arms, it is necessary to close up these openings in order to reduce the circulation through the roller and reduce the supply of air from the outside to the burners, as otherwise the heat will not be confined within the body of the roller nor applied in the manner to secure good results. I therefore close the openings between the arms or spokes at both

ends, by fixing sheet metal heads —*M*— in the ends of the roller, and making in these heads between the spokes apertures —*m*— *m*— to admit air in sufficient quantity to the burners without allowing a free circulation or a strong draft through the roller. One of these apertures I usually make larger than the others in one head to afford access to the burners for lighting and regulating them.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The herein described paving-roller comprising a metal rim inclosing a hollow space having closed heads provided with apertures for admission of air, and central hubs for an axle, a frame or carriage having a fixed tubular axle on which the roller rotates, a tank for a liquid, as gasoline, mounted on the frame outside the roller, supply-pipes connecting the tubular axle with the tank, pipes inside the roller connected to the tubular axle at points along the length thereof and extending therefrom substantially at right angle to said axle and burners fixed on said pipes in close relation to the inner periphery of the roller-rim, and regulating valves in the supply-pipes, substantially as hereinbefore set forth.

2. The combination, with a hollow paving-roller in an operating-frame, having closed heads or ends provided with apertures to regulate the admission of air, of a stationary hollow-axle on which the roller is set for rotation, a gasoline-tank mounted on said frame, supply-pipes connecting the ends of the tubular axle with the tank, branch-pipes fixed in the tubular-axle extending substantially perpendicular thereto, gasoline-burners fixed on the said branch-pipes and regulating-valves on the supply-pipes for controlling the flow of liquid from the tank to the burners, constructed for operation substantially as hereinbefore set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

WALTER E. DENNISON. [L. S.]

Witnesses:

EDWARD E. OSBORN,
LEE D. CRAIG.