No. 805,719. PATENTED NOV. 28, 1905.

T. FITZGERALD, JR.

MACHINE FOR POURING FILLING MATERIAL IN CREVICES.

APPLICATION FILED AUG. 7, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

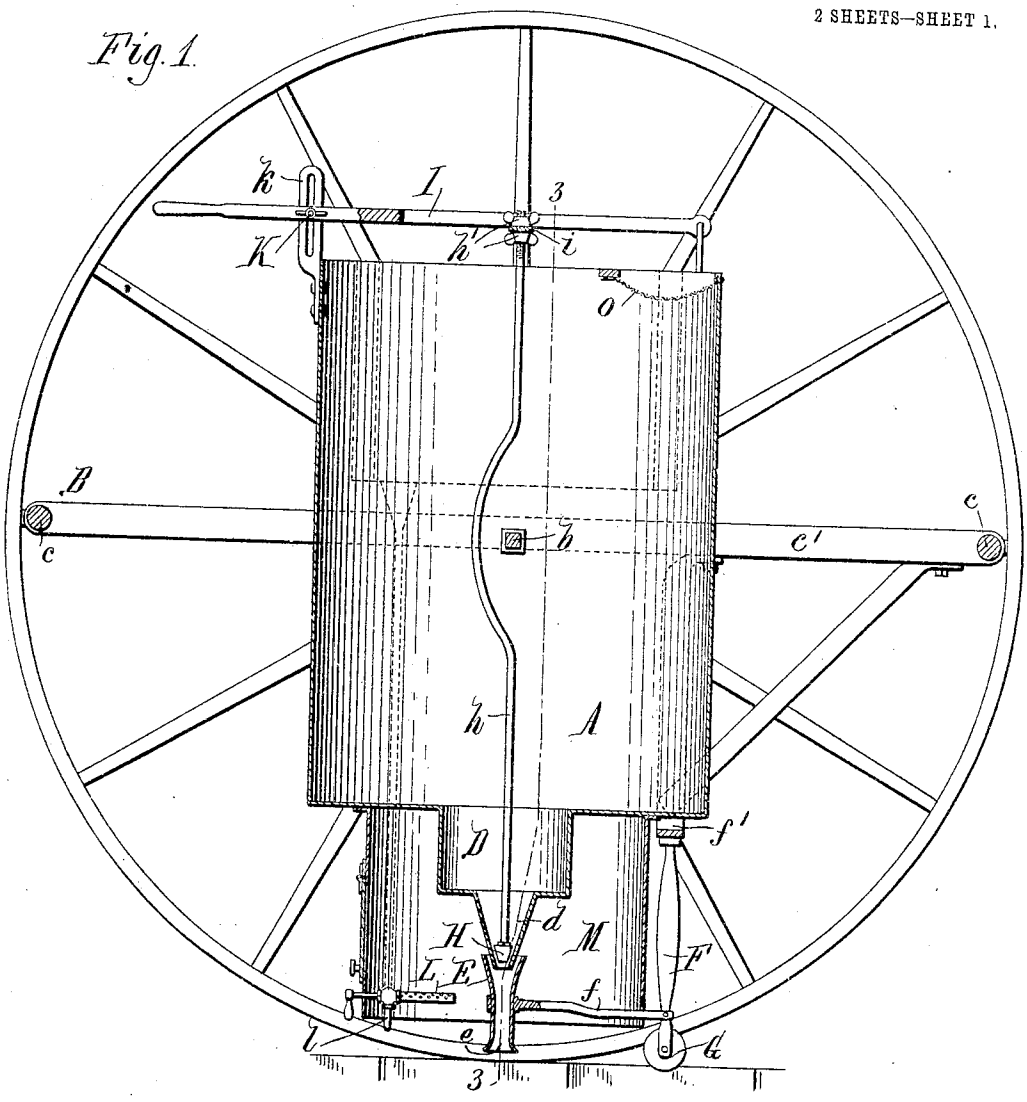
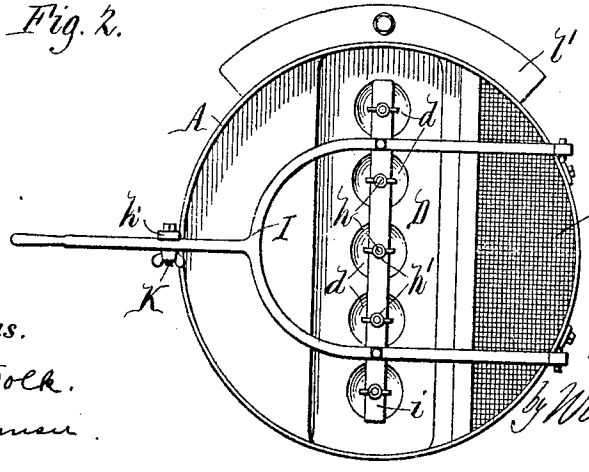


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

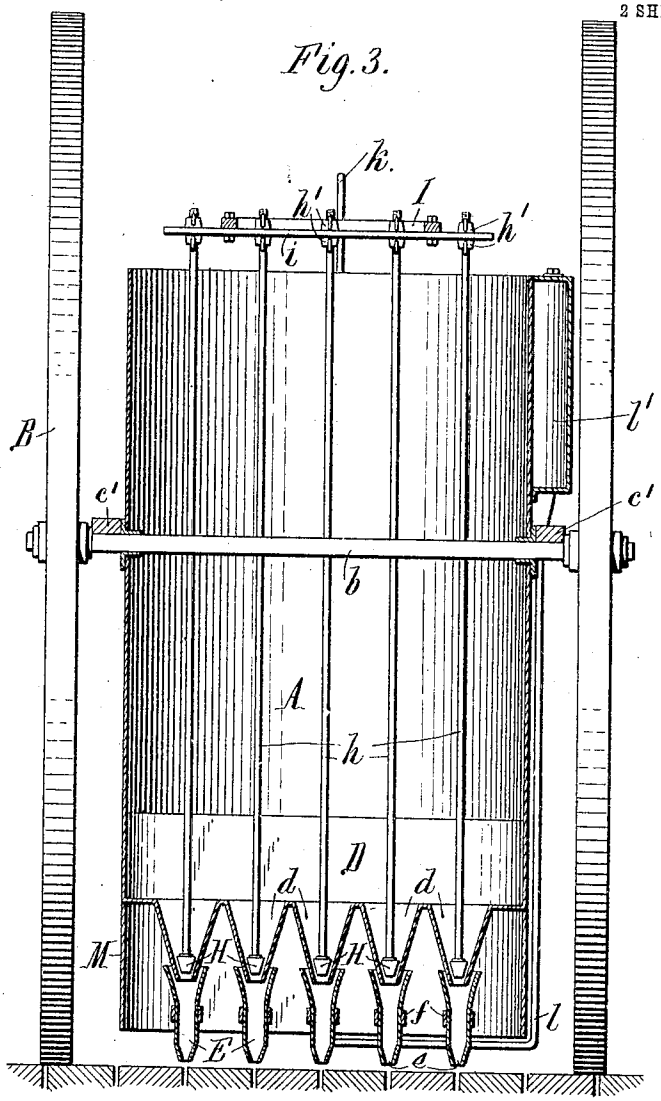
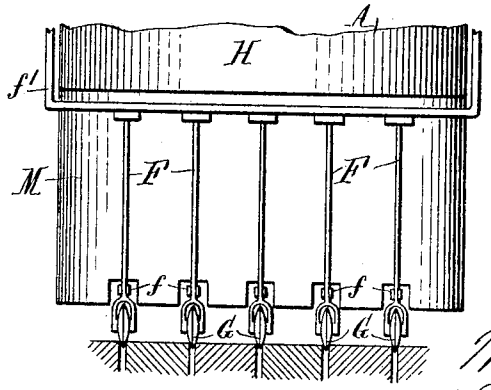


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR POURING FILLING MATERIAL IN CREVICES.

No. 805,719. Specification of Letters Patent. Patented Nov. 28, 1905.

Application filed August 7, 1905. Serial No. 273,115.

To all whom it may concern:

Be it known that I, THOMAS FITZGERALD, Jr., a citizen of the United States, residing at Fredonia, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Machines for Pouring Filling Material in Crevices, of which the following is a specification.

In some pavements the paving bricks or blocks are laid loosely on a bed of sand or the like and melted pitch, tar, cement, or analogous material is poured into the crevices between the bricks or blocks and acts when set to permanently bind or cement the bricks or blocks together. Up to the present time it has been customary, so far as I am aware, to pour the melted pitch or other filler into the crevices by hand with a spouted can or pot. This operation is slow and tedious, and it is only possible to pour the filler into one crevice at a time, and it is also wasteful, as it requires considerable care not to pour the pitch on the surface of the bricks or blocks, and the ordinary laborer will not take the pains necessary to prevent such waste. The cost of the filling therefore amounts to a very considerable part of the cost of the pavement.

This invention relates to a portable machine or device for pouring the filling material into the crevices of the pavement, and has for its primary object to produce a pouring machine or device which can be operated with ease to rapidly fill the crevices without scattering or wasting the filling material.

Other objects of the invention are to provide the machine or device with means for guiding the pouring spouts or nozzles accurately along the crevices as the machine is moved over the pavement, to provide simple and easily-operated means for controlling the flow of the filling material, and to equip the machine or device with means for keeping the filling material in the proper liquid condition, so that it will readily flow.

The pouring machine or device comprises a tank or receptacle for the melted pitch or filling material, which is mounted on wheels or a truck of some sort, enabling it to be moved over the pavement with facility, and is provided with one or more pouring spouts or nozzles and guide means which travel in the crevices of the pavement and automatically hold the discharge ends of the nozzles over the crevices in such manner as to direct the streams of filling material into the crevices and prevent the material from flowing over the surface of the pavement. Regulating-valves are provided for controlling the flow of the filling material and also means for heating the spouts or nozzles and the tank to maintain the filling material in the proper condition of liquidity.

In the accompanying drawings, consisting of two sheets, Figure 1 is a longitudinal sectional elevation of a pouring-machine embodying the invention. Fig. 2 is a plan view thereof. Fig. 3 is a transverse sectional elevation thereof in line 3 3, Fig. 1. Fig. 4 is a front elevation of the lower part thereof, showing the nozzle-guiding means.

Like letters of reference refer to like parts in the several figures.

A represents a tank, vessel, or receptacle for the melted pitch, filling liquid, or other material adapted to flow or pour in streams, and B represents a truck or wheeled support on which the tank is mounted, so as to be readily rolled or moved about. In the construction shown in the drawings the truck consists of two wheels journaled on an axle *b*, which passes through and supports the tank, and operating-handles *c*, connected to the axle by side bars *c'*. The tank is of cylindrical form and preferably has at its bottom a transverse depressed portion or trough D, provided with depending discharge-spouts *d*. One or more spouts may be employed; but the tank is preferably provided with several spouts to produce a number of streams, so that several crevices can be filled simultaneously. A tank and truck or portable support of any other suitable construction could be used instead of that shown in the drawings.

In order to direct the streams flowing from the spouts and cause them to enter the crevices as the device is pushed along over the pavement, each spout has a movable or flexible extension discharge end or nozzle E, which extends nearly to the surface of the pavement and has a discharge-orifice of a size and shape to properly pour the material into the crevices between the bricks or blocks. In the construction shown in the drawings the nozzle or spout extension consists of a tube having a flaring or funnel shaped upper end surrounding the lower end of the spout *d* and an elongated narrow exit-orifice *e* and is supported independently of the spout, so as to be movable relative thereto by an arm *f*, secured to a leg or support F, depending from a bale

or bracket f', which is secured to the side bars of the truck. The several nozzles are supported by as many arms f and legs F, the legs all being attached to the bracket f'. The legs are preferably made of spring or flexible metal and are provided at their lower end with guide devices G, adapted to enter and travel along in the crevices between the bricks or blocks as the machine is moved over the pavement. Wheels with beveled edges journaled on the lower ends of the legs are preferably employed for the guide devices. Such wheels act to spread or separate the bricks or blocks slightly, thus opening the crevices and better insuring the entrance of the filling material between the bricks or blocks. The legs F are flexible enough to allow the guide-wheels to follow the irregularities of the cracks and always hold the exit ends of the spouts or nozzles directly over the crevices, but yet are sufficiently stiff to cause the machine when pushed along the pavement to follow the line of the cracks. Thus the guide-wheels perform the double function of guiding the machine and holding the nozzles over the crevices of the pavement. The described construction of the nozzles and guide means is deemed desirable; but other means for guiding the machine and shifting the discharge ends of the spouts or nozzles, so as to direct the streams of filling material into the crevices, could be used.

Valves H, of some suitable construction, are employed for controlling the flow of the material from the tank. The valves shown consist of conical plugs or stoppers located in the tapering spouts and connected to the lower ends of rods h, which are adjustably secured at their upper ends, as by clamp-nuts h', to the cross-bar i of an operating-lever I, which is pivoted on the upper end of the tank. The lever is provided with any suitable means—such, for instance, as a clamp-bolt K, working in a slotted post k on the tank—for releasably holding it in different positions. By adjusting the valve-rods on the lever I the several valves can be located in the same relative position in the several spouts, and by raising and lowering the lever the valves can be operated to regulate and start and stop the flow of the material as desired.

L, Fig. 1, represents a burner arranged beneath the tank adjacent to the discharge spouts or nozzles for heating the latter and the tank to keep the pitch or filling material at the proper temperature to readily flow. The burner is supplied with liquid or gaseous fuel by a pipe l from a reservoir l', supported on the tank or other suitable part of the machine and is preferably inclosed by a fire box or shield M, surrounding the discharge-spouts and trough to confine the burner-flame about these parts and the bottom of the tank. One or more burners of any known or suitable construction may be used, as found necessary. The pitch or filling material is ordinarily melted before it is placed in the tank, and the burners are only for the purpose of keeping the material hot and in a liquid condition while using the machine and for melting the small amount of material which may harden in the tank and spouts when the machine is not in use. As the valves H are located in the discharge-spouts in the vicinity of the burner the pitch or filling material will not harden about them and prevent the operation thereof, and as the spouts are relatively short and of large diameter there is little liability of the pitch hardening and clogging them.

O represents a strainer in the upper part of the tank through which the material is poured into the tank for the purpose of removing any solid particles or foreign matter which could clog the discharge-nozzles or interfere with the operation of the valves.

While the machine described is designed, primarily, for pouring melted pitch or analogous viscous liquid filling material in the crevices of brick or block pavements in the construction thereof, it is not necessarily limited to such use, but may be employed for pouring other liquids or materials in streams for other purposes.

I claim as my invention—

1. The combination of a movable tank or vessel, a discharge-spout therefor, and a guide device for said spout constructed to engage a guiding-surface and cause said spout to follow and discharge along the direction of movement of said guide device as said tank or vessel is moved along a supporting-surface, substantially as set forth.

2. The combination of a movable tank or vessel, a discharge-spout therefor, and a guide device adapted to enter and follow a crevice in the surface supporting said tank or vessel to direct the stream from said discharge-spout into said crevice, substantially as set forth.

3. The combination of a movable tank or vessel, a discharge-spout therefor having a movable discharge portion, and a guide device connected to said movable portion of the discharge-spout and adapted to follow a crevice in the surface supporting said tank or vessel to direct the stream from said discharge-spout into said crevice, substantially as set forth.

4. The combination of a tank or vessel, a wheeled support therefor, a movable discharge-nozzle for said vessel, a guide device movably connected to said support and adapted to follow a crevice in the pavement, and means connecting said guide device and movable nozzle to hold said nozzle over said crevice, substantially as set forth.

5. The combination of a tank or vessel, a wheeled support therefor, a leg connected to one of said parts and provided with a guide device adapted to yield and follow a crevice in the pavement, and a movable discharge-

nozzle for said tank or vessel connected to and moved by said guide device, substantially as set forth.

6. The combination of a tank or vessel, a wheeled support therefor, a flexible leg connected to one of said parts, a guide-wheel at the lower end of said leg adapted to follow a crevice in the pavement, and a movable discharge-nozzle for said tank or vessel connected to and moved by said guide device, substantially as set forth.

7. The combination of a tank or vessel, a wheeled support therefor, a flexible leg connected to one of said parts, a beveled brick-spreading and guide wheel at the lower end of said leg adapted to follow a crevice in the pavement, and a movable discharge-nozzle for said tank or vessel connected to and moved by said guide device, substantially as set forth.

8. The combination of a movable tank or vessel having a discharge-spout, a leg connected to said tank or vessel and provided with a guide device adapted to follow a crevice in the pavement, and a movable nozzle for said discharge-spout supported and held by said guide device over the crevice, substantially as set forth.

9. The combination of a movable tank or vessel, a discharge-spout therefor, a guide device for said spout constructed to engage a guiding-surface and cause said spout to follow and discharge along the direction of movement of said guide device as said tank or vessel is moved along a supporting-surface, and a valve for controlling the flow of material from said spout, substantially as set forth.

10. The combination of a movable tank or vessel, a discharge-spout therefor, a guide device for said spout constructed to engage a guiding-surface and cause said spout to follow and discharge along the direction of movement of said guide device as said tank or vessel is moved along a supporting-surface, and means for heating said tank and spout, substantially as set forth.

11. The combination of a movable tank or vessel, a discharge-spout therefor, a guide device for said spout constructed to engage a guiding-surface and cause said spout to follow and discharge along the direction of movement of said guide device as said tank or vessel is moved along a supporting-surface, a valve for controlling the flow of material from said spout, and means for heating said spout, substantially as set forth.

12. The combination of a movable tank or vessel provided with a series of discharge-spouts having fixed portions and movable discharge portions, valves controlling the fixed portion of each of said spouts, an operating device for said valves to which the valves are adjustably connected, and means for holding said operating device in different positions, substantially as set forth.

13. The combination of a movable tank or vessel provided with a discharge-spout having a conical fixed portion and a movable discharge portion below the fixed portion, a valve controlling said conical portion of the spout, and means for heating said spout, substantially as set forth.

Witness my hand this 31st day of July, 1905.

THOMAS FITZGERALD, JR.

Witnesses:
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GEO. R. MOORE.