

Aug. 25, 1925.

1,550,685

G. A. EYNON ET AL

APPARATUS FOR COATING MOLDS

Filed May 12, 1923

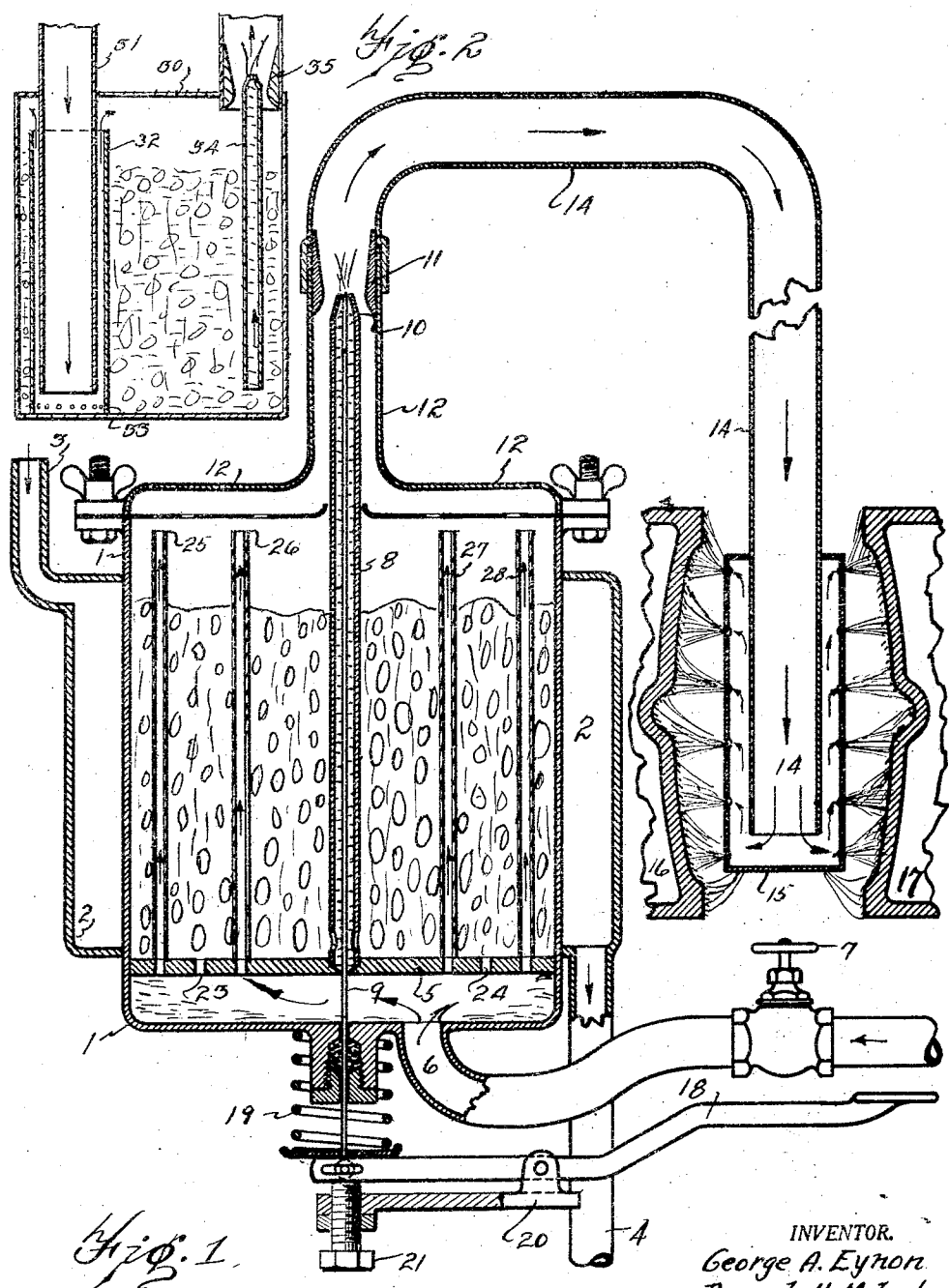


Fig. 1.

INVENTOR.
George A. Eynon
Daniel H. Meloche
Stanley M. Udale
BY
Stanley M. Udale, ATTORNEY.

884
239-117
Patented Aug. 25, 1925.

Draftsman
1,550,685

UNITED STATES PATENT OFFICE.

GEORGE A. EYNON, DANIEL H. MELOCHE, AND STANLEY M. UDALE, OF DETROIT,
MICHIGAN, ASSIGNORS TO EARL HOLLEY, OF DETROIT, MICHIGAN.

APPARATUS FOR COATING MOLDS.

Application filed May 12, 1923. Serial No. 638,470.

To all whom it may concern:

Be it known that we, GEORGE A. EYNON, DANIEL H. MELOCHE, and STANLEY M. UDALE, citizens of the United States, residing at 3250 Lothrop Ave., 2241 Gladstone Ave., and 893 Lothrop Ave., respectively, Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Apparatus for Coating Molds, of which the following is a specification.

The object of this invention is to provide means for coating metal molds with a film of carbon, the carbon being supplied as a suspension in oil and distributed as a spray. The existing apparatus for coating molds consists of a burner in which illuminating gas is consumed, the expense of which is a considerable item in the production of large castings.

Figure I shows the preferred form of construction.

Figure II shows diagrammatically the principle of operation.

1 is a reservoir heated by a jacket 2, there being an entrance 3 and an exit 4 therefrom for conducting the heating fluid around the reservoir 1. 5 is a perforated diaphragm within the reservoir 1. 6 is an air entrance. 7 is a valve preferably controlling a supply of compressed air to the reservoir 1. 8 is a nozzle communicating to the lower end of the reservoir 1 above the perforated diaphragm 5. 9 is a cleaning and adjusting rod concentric with the nozzle 8. 10 is the restricted outlet of the nozzle 8 into which the cleaning needle 9 may preferably project.

11 is a venturi formed construction from the reservoir 1 into which the nozzle discharges. 12 is the detachable cover of the reservoir 1 and 13 is a perforated diaphragm in the upper portion of the reservoir 1. 14 is a flexible pipe connecting the cover 12 with a series of nozzles in a spraying device 15. 16 and 17 are two stone-faced iron molds which are being coated with the liquid contained in the reservoir 1.

18 is a lever adapted to be manually operated, connected to the needle 9 and held in position by a spring 19, and pivoted about the fulcrum 20 so that by depressing the extreme end of 18 the needle 9 is raised and the orifice 10 of the nozzle 8 is positively cleared of any obstruction. 21 is an adjust-

able stop for regulating the opening of the orifice 10 by the needle 9. 22 is the liquid contained in the reservoir 1.

In the perforated plate 5 the perforations 23 and 24 allow the air admitted at 6 to pass up through the liquid and thereby agitate and thoroughly mix the lampblack with the iron so as to maintain the lampblack uniformly distributed throughout the mass of the iron. 25, 26, 27 and 28 are tubes which project up from the perforated plate 5 and allow air to pass directly from 6 to the upper portion of the reservoir 1 so that the larger portion of the air flowing in at 6 escapes to the upper portion of the reservoir 1 without passing through the liquid and a minor portion of the air passes through the liquid and thereby maintains the lampblack in suspension.

In Figure II, which shows diagrammatically the principle of operation in Figure I, 30 is the reservoir containing the liquid to be sprayed, 31 is the entrance for the compressed air or other gas, 32 is the outlet for the compressed air above the level of the liquid, 33 are the outlets below the level of the liquid, the air which passes through which serves to mix the liquid and lampblack thoroughly together. 34 is the liquid nozzle and 35 is the Venturi tube into which the nozzle discharges.

Mode of operation.—A mixture of oil, preferably of the paraffin series, having lampblack suspended therein is placed in the reservoir 1. Compressed air is delivered through the valve 7, pipe 6, to the lower portion of the reservoir 1 beneath the diaphragm 5. This air bubbles through the liquid 22 contained in the reservoir 1, thereby agitating the liquid and causing the carbon to be thoroughly mixed with the oil. The air in the upper portion of the reservoir 1 passes through the perforations in the diaphragm 13 and so to the venturi 11. In the Venturi tube 11, there is thus a depression relative to the pressure that exists in the upper portion of the reservoir 1, and a flow of liquid from the reservoir 1 up the tube 8 and discharging into the venturi 11 results.

Hence the mixture of air, oil and lampblack is carried through the pipe 14 to the lower portion of the spraying device 15, whence it is distributed over the surface of the molds 16 and 17, thereby coating these molds with the lampblack held in suspen-

sion in the reservoir 1, the oil being evaporated by the heat of the molds 16 and 17. Should the nozzle 10 at any time become clogged, by merely depressing the lever 18 the needle 9 is forced through the nozzle 10 and the obstruction therein cleared. The spring 19 will then positively return the needle 9 to the position determined by the adjustable stop 21.

When thicker oils than kerosene are used, such as fuel oil and waste lubricating oil, it may be necessary to raise the temperature of the oil during cold weather. For this reason a jacket 2 is provided through which steam may be passed.

Obviously when steam is not available a burner may be provided and the heat confined to the reservoir 1 by means of a jacket similar to that shown, but with the lower portion of the jacket flared. Of course, the use of either a burner or of steam are equivalent means for heating the liquid 22 in the reservoir 1.

The operation of the device shown in Fig. II is intended to be the same in principle as the operation of Fig. I.

The device is also adapted to be used for using a combustible mixture which may be ignited and which ignited mixture would deposit carbon in a well known manner. The function of the mixing device, in conjunction with the atomizing device, is to enable an oil containing a wide range of mixture, such as the waste oil which is removed from the crank case of automobile engines, in the reservoir.

The danger with using such oils is that they will separate out, the heavier oils going to the bottom and the lighter oils going to the top. Further, there is in such oils a good deal of solid matter in suspension, chiefly carbon from the engine and dust from the atmosphere. Unless these mixed oils are agitated the heavier oils, together with the solid particles, would accumulate and clog up the nozzle.

What we claim is:

1. In a lampblacking device, a liquid reservoir containing lampblack in suspension, a connection admitting compressed air to the bottom of said reservoir, a perforated diaphragm in the lower portion of said reservoir, a liquid atomizing nozzle connected to the lower portion of said reservoir above said perforated diaphragm, a restrict-

ed air outlet leading from said reservoir, said fuel nozzle discharging into said restricted air outlet, a spraying device connected to said restricted outlet and adapted to distribute the suspended lampblack over a surface.

2. In a mixing and spraying device, a liquid reservoir containing lampblack in suspension in a relatively non-volatile liquid, a passage for the admission of compressed air beneath the level of the liquid in said reservoir, a passage for the admission of compressed air above the level of the liquid in said reservoir, a restricted air outlet from the said reservoir, a liquid atomizing nozzle extending below the level of the liquid fuel and discharging into said restricted air passage.

3. In a mixing and spraying device, a liquid reservoir containing lampblack in suspension in a relatively non-volatile liquid, a passage admitting compressed air beneath the level of said liquid in said reservoir, an air outlet from said reservoir, a liquid atomizing nozzle extending beneath the level of said liquid and adapted to discharge the said liquid into the air outlet from said reservoir.

4. In a mixing and spraying device, a reservoir containing a relatively non-volatile liquid, means for admitting a compressed gas to said liquid reservoir, means for discharging said gas from said reservoir in a confined stream, a nozzle adapted to discharge liquid into said stream whereby the liquid is first agitated in the reservoir and then sprayed into the confined stream.

5. In a mixing and spraying device, a reservoir containing a liquid, means for admitting a compressed gas to said liquid reservoir, means for discharging said gas from said reservoir in a confined stream, a nozzle adapted to discharge the liquid into said stream, a needle adapted to control the discharge from said nozzle and to clean said nozzle, whereby the liquid is first agitated within said reservoir and then sprayed into the said confined stream.

In testimony whereof we affix our signatures.

GEORGE A. EYNON.
DANIEL H. MELOCHE.
STANLEY M. UDALE.