C. I. WILLIAMS.

MIXING MACHINE.

APPLICATION FILED JUNE 20, 1910.

1,066,772.

Patented July 8, 1913.

3 SHEETS—SHEET 1.

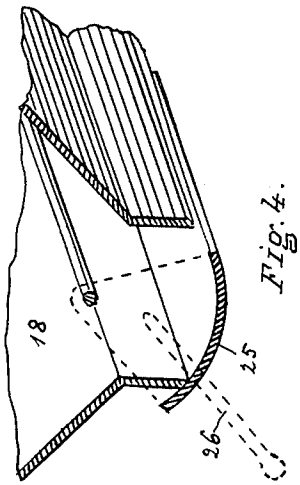


Fig. 4.

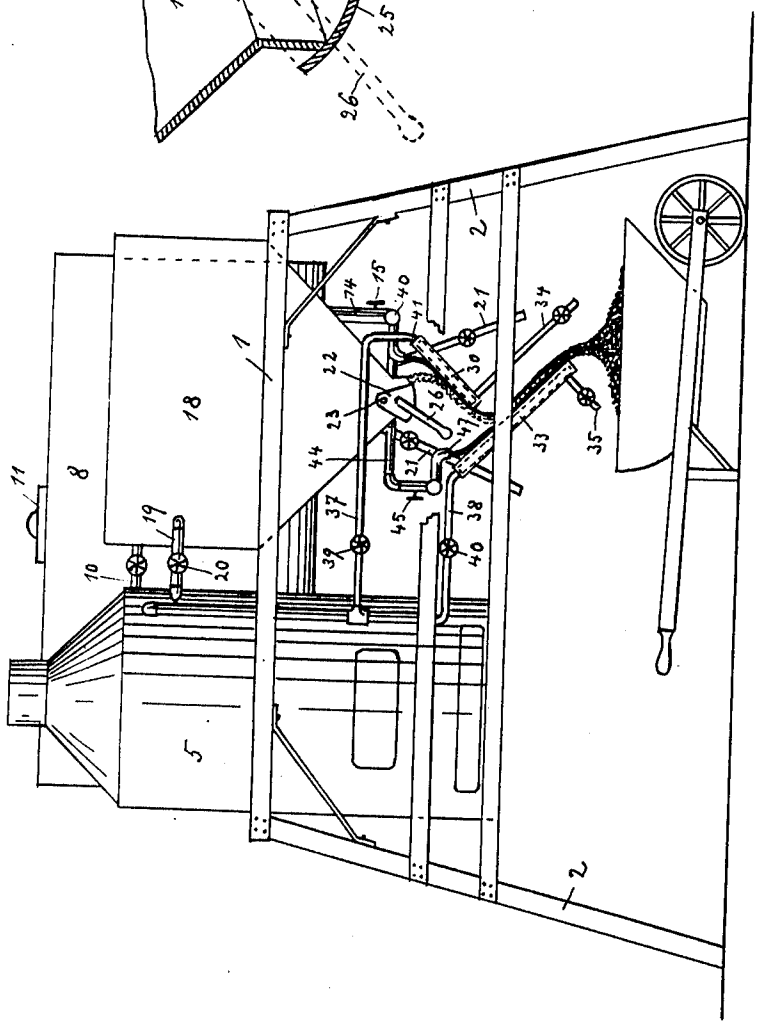


Fig. 1.

WITNESSES

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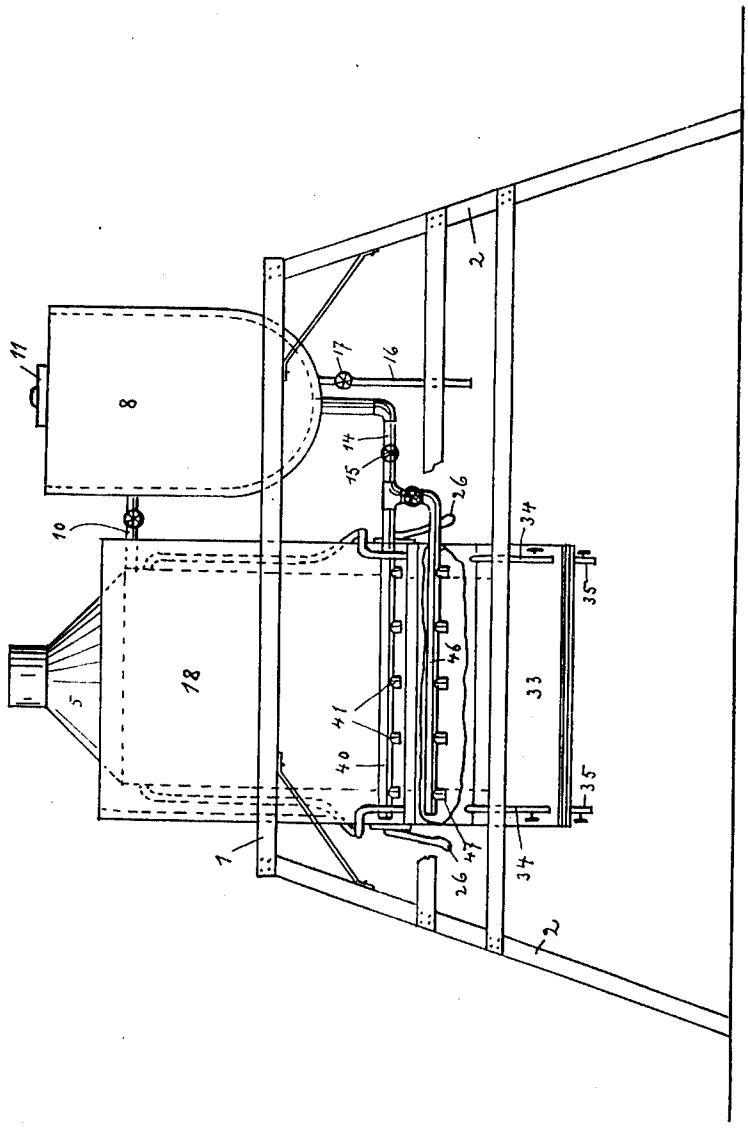


Fig. 2.

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3 SHEETS—SHEET 3.

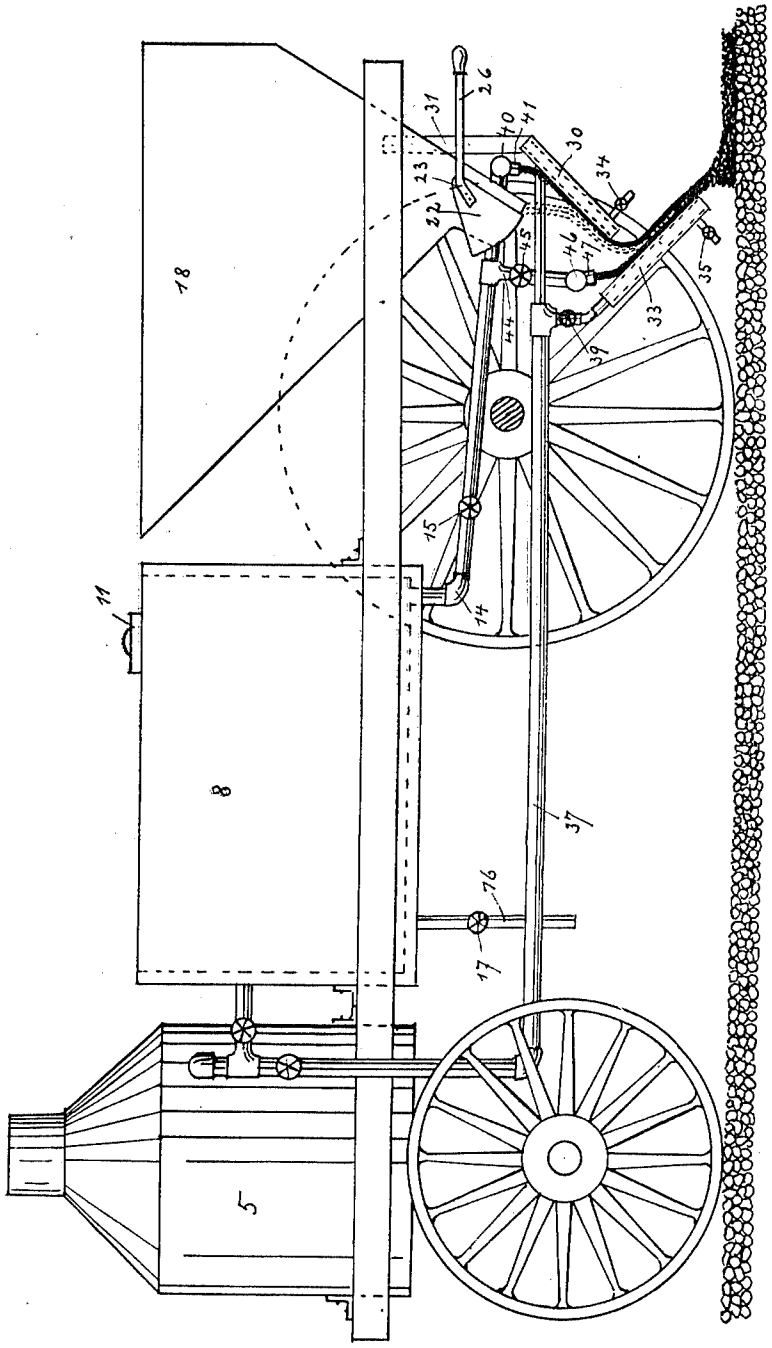


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES I. WILLIAMS, OF UTICA, NEW YORK.

MIXING-MACHINE.

1,066,772. Specification of Letters Patent. Patented July 8, 1913.

Application filed June 20, 1910. Serial No. 567,753.

To all whom it may concern:

Be it known that I, CHARLES I. WILLIAMS, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Mixing-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to an improved mixing machine, and I declare that the following is a full, clear, concise and exact description thereof, sufficient to enable one skilled in the art to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout.

In the drawings Figure 1 is a side view elevation; Fig. 2 is a rear view, parts being broken away, and Fig. 3 is a partial side view of the machine, on wheels, and operative in discharging the output on a road-bed. Fig. 4 is a perspective view of part of the device.

The device is shown in a form for mixing road-building materials, though it is applicable for other work.

The purpose of the invention is to provide a compact, simple and cheap apparatus having combined and coöperative different utilities for supplying and mixing, without the need of a power plant, body or base material, such as broken stone, and binding or matrix material, such as asphalt, under proper conditions as they are discharged from their several receptacles.

The invention includes a frame 1 mounted on standards 2. Supported on the frame is a boiler, 5, which includes also a suitable fire-box, but this portion is not essential since the materials may be of a character to be mixed and used without the use of heat. On the frame is mounted tank 8, for asphalt or other suitable binding material, having a jacket-wall, as indicated by dotted lines in Fig. 2, into which jacket steam is introduced from the boiler through the pipe 10 when the tank is to be heated or kept at a given temperature. The asphalt tank has a cap 11 for supplying the asphalt, or other binding material, and a discharge pipe 14 with valve 15. The jacket of the tank has also outlet pipe 16 with valve 17. On the frame 1 is also mounted a box 18 for stone or other suitable body material, of the general form indicated, with jacket supplied with heat by pipe 19 having stop-cock 20, and drips 21. The walls of the box converge toward an opening which runs transverse of the device, the walls being so disposed so as to discharge the stone or other base material through a gate-way in the bottom, as indicated. This gateway is closed by the following described parts: 22 is a bracket or arm pivoted on one side of the stone-box (Fig. 1), as at 23. There is a corresponding bracket on the other side, likewise pivoted. The arcs of these brackets have attached to them a plate 25, and a handle 26 is mounted on one of the brackets, or on each one of the same, so that the brackets can be swung to open or close the gate by means of the plate 25, so that I provide a swinging plate or blade to cut off the discharge of the stone by operating the handles which swing the plate mounted on the brackets.

A hot plate 30 is suitably supported, as by brace 31, Fig. 3, in such position that the stone when discharged from the box 18 will fall upon it, and a hot plate 33 is also provided and suitably mounted and so positioned that the stone falling from plate 30 will fall upon plate 33, as plainly indicated. Each plate has a drip, as shown at 34 and 35, respectively. The plates are heated by steam from the boiler passing through the pipes 37 and 38 laid and extended so as to open into the plates, as indicated in Fig. 1, and preferably on each side of the structure. Suitable stop-cocks 39 and 40 are provided, as indicated, for cutting off the supply of heat to the plates, or either of them.

From the asphalt tank the pipe 14 leads to a header 40^a having nipples 41 which discharge the asphalt onto the hot plate 30 where it is raised or kept to the desired temperature. The pipe 14 has a branch 44 (with stop-cock 45) which leads to header 46 with nipples 47, so that the asphalt is distributed likewise onto the hot plate 33. The asphalt is distributed onto the plate 30, and the stone is fed onto the plate into the asphalt which coats it to a greater or less extent. The stone thus coated and the asphalt which has remained free fall onto the plate 33 where more asphalt is discharged from the nipples 47 which mixes further with the stone, so that the two supplies of asphalt thoroughly coat the fragments of the stone in their downward movement, so that when the stone is discharged from the apparatus it is thoroughly coated with the

asphalt and the mixture is in condition to be used in building the road. The ingredients are thus automatically mixed. By the term automatically is meant the result is accomplished as the natural consequence of the discharge of the materials, without the application of any other or further treatment, agitation or mechanical force, such as passing them through a mixer or drum whereby they are mingled by any means or process distinct from that involved in the free fall of the materials. The mixing is inclusive of that treatment, by which, for instance, the stone is thoroughly coated with the asphalt,—not that the one element is sprayed by the other, but that the two are tumbled together, intermingled or mixed, rolled into each other in passing over heated plates as though they were sent through a mixer, but not by the use of any separate mechanical means.

If the apparatus is on a fixed base, the mixture can be received in wheel-barrows or other receptacles and carried to the place where the work is being done and spread and tamped into place.

The apparatus can be built to be readily moved from place to place, the several elements being dismountable. It may be moved as an entire structure when built on a wheeled frame and the mixture be discharged directly into place as when it is used in road-making.

While I show and describe a means for heating the stone and the asphalt, or other such materials, the means being a steam-boiler as illustrative of any suitable means, such means is not essential to the working of the device nor a necessary element in the invention.

The materials may be brought to the apparatus in their prepared condition and passed therethrough when it thoroughly mixes them, automatically and without the use of any power or active mechanism, so that, it is seen, the invention may be called, primarily, an automatic mixer. On the other hand the materials may naturally be in suitable condition for mixing, without any preparation as by heat, for the binding element, such as asphalt, may be in a thin and very fluid condition, as by the addition of some volatile thinner, and the body element, such as stone, may be in a suitably dry condition. But if desired the apparatus may have the heat member, for the purpose of heating the asphalt and rendering it fluid, or of keeping it to a given temperature and for the purpose of drying the stone or keeping it dry, or for either one of such purposes alone.

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

1. A device of the character described comprising a tank for each of the ingredients for making a unified body, and means for heating each tank, a discharge outlet from each tank with means for regulating the discharge, a plate, provided with means for heating the same, placed below the outlets from the tanks, the plate being placed on a slant, a second plate, placed on a slant and below the former plate to receive the discharge therefrom and means to heat the said second plate.

2. A device of the character described comprising a tank for each of the ingredients for making a unified body, and means for heating each tank, a discharge outlet from each tank with means for regulating the discharge, a plate, provided with means for heating the same, placed below the outlets from the tanks, the plate being placed on a slant, a second plate, placed on a slant and below the former plate to receive the discharge therefrom, an outlet from one of the tanks arranged to discharge upon the second plate near the upper edge thereof, and means to heat the said second plate.

3. In an apparatus of the character described, tanks each having means to heat the contents, a plate with means to heat the same extending transverse the apparatus and mounted on a slant, means discharging the contents of the tanks near the upper edge of the plate, a second plate, with means to heat the same, extending transverse the apparatus, mounted on a slant to receive the discharge from the first plate, and means of discharging the contents of a given tank onto the second plate to commingle with the discharge from the first plate.

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

CHARLES I. WILLIAMS.

Witnesses:
HENRY M. LOVE,
ELEANOR T. DE GIORGI.