A. KÜNDIG-HONEGGER.

STREET DUST REMOVING MACHINE.

APPLICATION FILED JUNE 8, 1906.

983,293. Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.

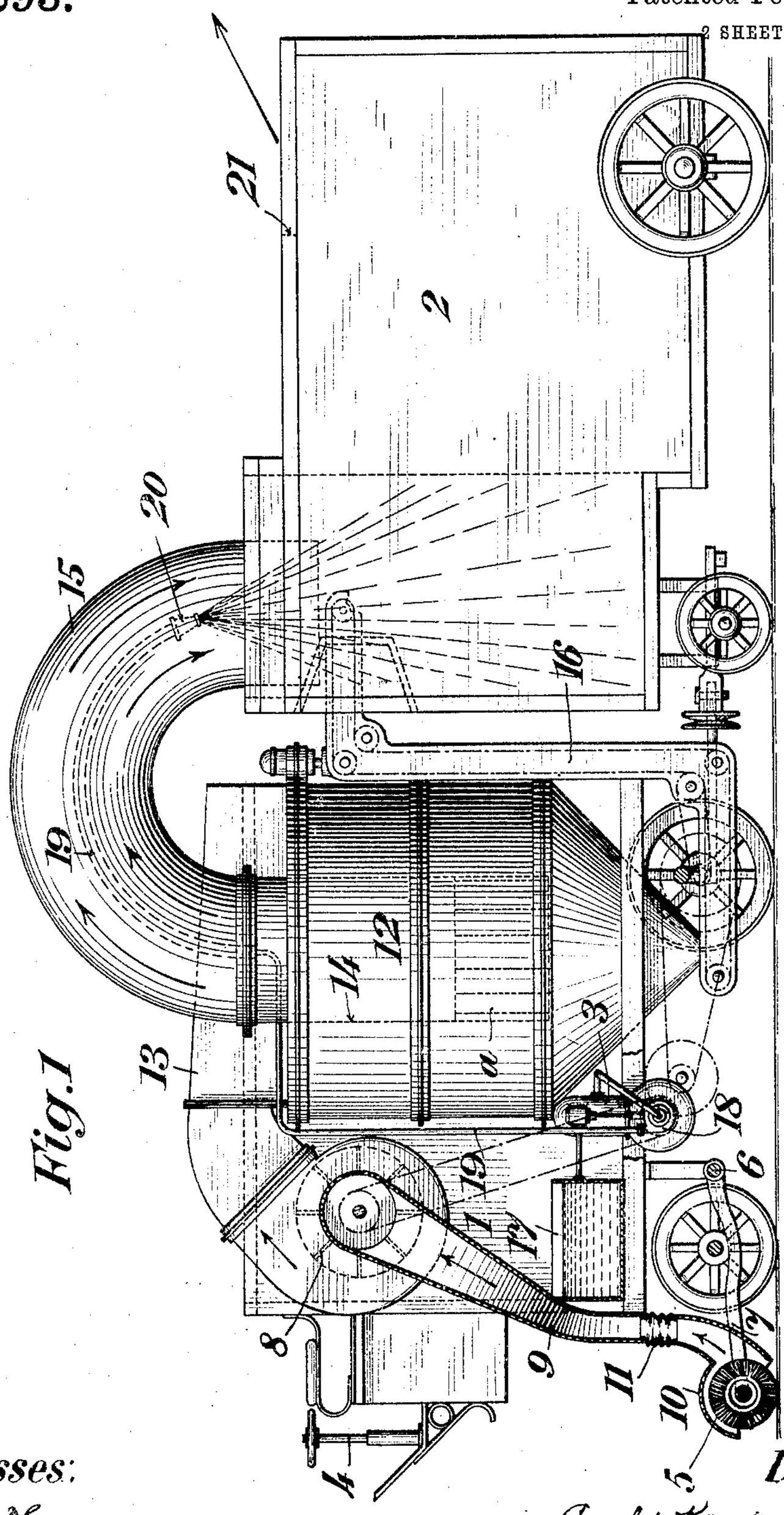

Fig. 1

Witnesses:

M. O. L. Higgins.

R. A. Helff.

Inventor:

Arnold Kündig-Honegger

by Henry Orth Jr.

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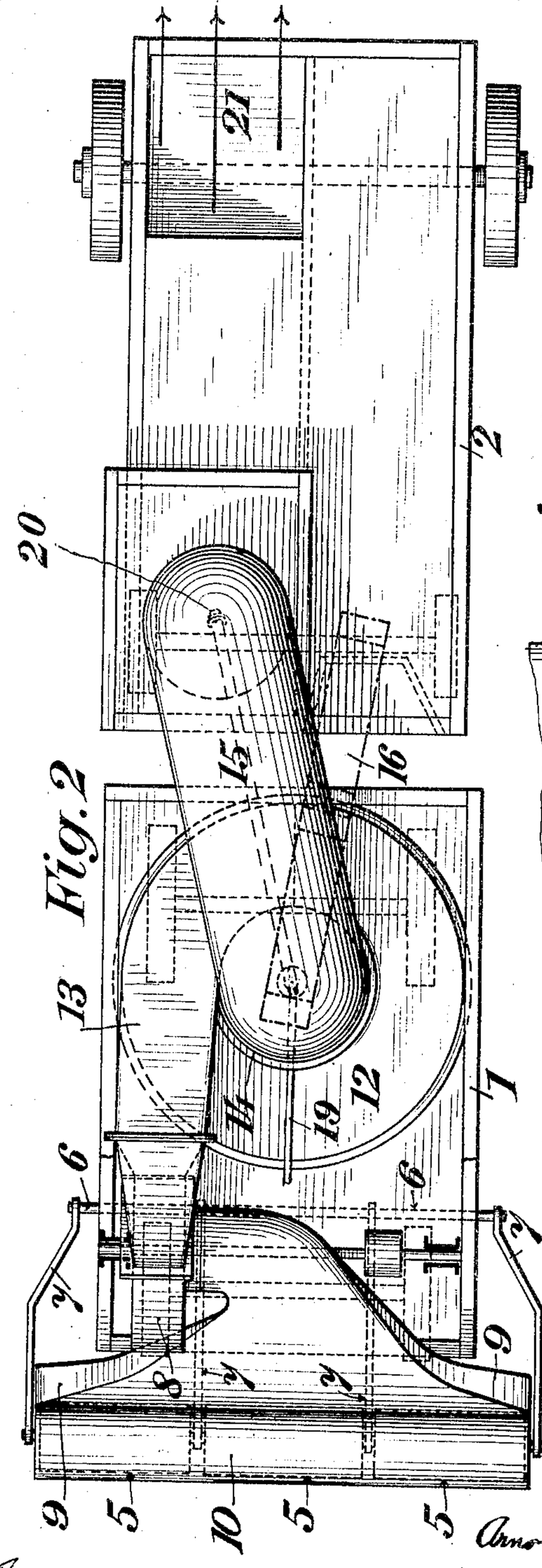

Fig. 2.

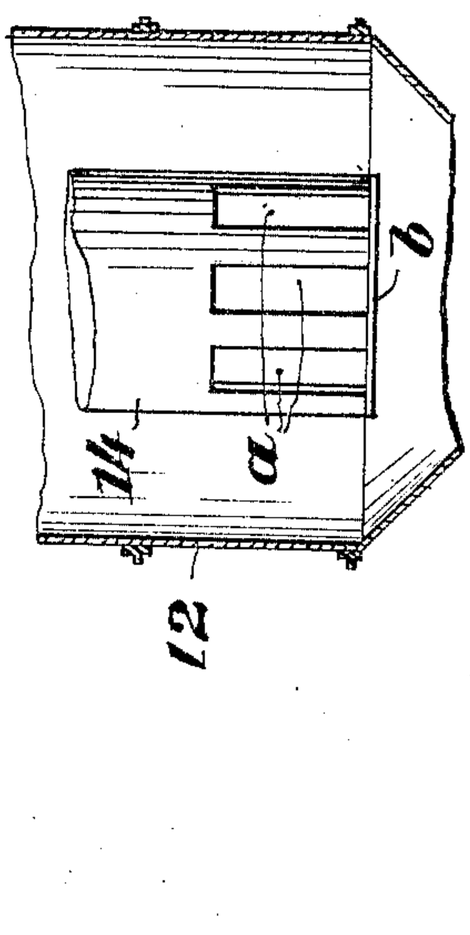

Fig. 3.

Witnesses:

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R. W. Huff

Inventor:

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UNITED STATES PATENT OFFICE.

ARNOLD KÜNDIG-HONEGGER, OF ZURICH, SWITZERLAND.

STREET-DUST-REMOVING MACHINE.

983,293. Specification of Letters Patent. Patented Feb. 7, 1911.

Application filed June 8, 1906. Serial No. 320,778.

To all whom it may concern:

Be it known that I, ARNOLD KÜNDIG-HONEGGER, a citizen of the Republic of Switzerland, residing at Zurich, in Switzerland, have invented certain new and useful Improvements in Street-Dust-Removing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to street cleaning machines and has for its object the collection of the dirt by a suitable suction device; the separation of the coarser from the finer dirt, before delivery to the receptacle for carrying it, and delivering the dust remaining after separation to the receptacle and settling the same by a water spray, while the separated dirt is delivered into the receptacle below the level of but not directly under the inlet for the dust and within range of the spray, whereby but a very small quantity of water will be necessary to settle the dust in the receptacle.

A form of construction of the invention is shown as an example in the accompanying drawings: Figure 1 being an elevation partially in section; and Fig. 2, a plan view. Fig. 3 is a detail view of the lower end of the delivery pipe.

The street dust removing machine consists substantially of a front part or main carriage 1 and a rear part or detachable wagon 2 releasably connected with the former, which wagon 2 serves as a collector or receiver for the dust taken up by the machine.

The machine is arranged to be driven by a motor and the motor 3 is mounted in the main carriage and the motor shaft is connected with one of the rear wheel axles of the carriage by means of gear wheels and chain gearing; the carriage may also be guided by means of a steering wheel and post 4 adapted to be operated from the driver's seat to actuate any well known mechanism capable of steering the front wheels. A roller brush 5 of any desired construction is arranged in front of the front axle of the front carriage and is mounted in arms 7 pivoted on shaft 6. Behind the driver's seat a fan 8 is arranged, which is connected by means of a downwardly enlarging suction channel 9 with a cap or hood 10 arranged over the brush and inclosing it over the upper half of its periphery, an intermediate piece 11 of flexible material being interposed between the passage 9 and the hood 10, in order to give the hood 10, which moves up and down with the brush 5, the necessary mobility, relative to the fixed channel 9.

12 is a dust separator arranged in the carriage 1, and formed as a cylindrical vessel with a funnel-shaped bottom and closed at its top, which dust separator is connected with the fan by a tube 13, this tube opening into the interior of the vessel from above and in a direction tangential to the periphery of the vessel. The dust separator also incloses a cylindrical central delivery pipe 14 arranged co-axial therewith, the lower end of which pipe is closed by a bottom plate *b* and extends to the level of the upper edge of the conical bottom of the receiver, being provided with lateral openings *a* for the admission of dust ladened air. A curved prolongation 15 connects with the upper end of the pipe and opens into the attached collecting wagon or receptacle 2 from above.

16 is an elevator which is carried from the lower end of the receiver 12 to the wagon 2 beneath the level of the mouth of the delivery pipe prolongation 15.

17 is a water reservoir arranged in the carriage 1 beneath the fan, from which reservoir the water necessary for cooling the motor cylinder is drawn by a pump 18, mounted on the motor shaft, and is further forced through a pipe 19, which pipe extends inside the delivery pipe prolongation 15 to a point above its mouth in the wagon 2, and is provided at its end with a spraying nozzle 20.

21 is an aperture in the collecting receiver on wagon 2 provided for the escape of air.

The fan 8 is operated from the motor shaft and the elevator 16 from the rear wheel axle of the main carriage 1.

The method of working of the machine hereinbefore described and shown is as follows: On the machine moving forward, a

suction is produced in the channel 9, whereby the dust raised from the road by the brush 5 is drawn up before it is scattered, through the hood 10 and the channel 9 into the fan 8. From the fan, the dust laden air is further forced into the dust separator 12, 14, making a downwardly directed and circular movement in the receiver 12, the heavier constituents of the dust thus drop into the funnel-shaped bottom of the receiver, while the lighter particles enter the lateral apertures *a* formed in the lower part of the air shaft or pipe 14 and are forced farther through the shaft 14, 15, to the collecting vehicle 2, being precipitated there by the water spray emerging from the pipe 19 and nozzle 20. The dust particles accumulating on the bottom of the separator 12 fall into the elevator 16 and are mechanically conveyed by it also to the receiver 2 and delivered below the level of the prolongation 15 and somewhat to the side thereof so that the air can escape to the outside through the aperture 21 of the receiver 2 without carrying dust with it and at the same time the coarser dirt when falling from the elevator into the vehicle 2 will be within range of the spray. This machine has a fan for taking the dust from the roadway which is preferably loosened from the surface of the road by a brush of any desired type mounted in arms 7 and the dust laden air is delivered to a centrifugal dust collector wherein the greater part of the dust is settled; the partially cleaned air being delivered into a wagon with a water spray. The greater bulk of the dirt is also delivered to the wagon, but in a dry condition, and the amount of water required to settle the dust in pipe 15 is considerably less than if the whole of the dirt were delivered through said pipe. Moreover, the elevator delivers the dirt removed by the centrifugal separator to the side of and below the level of the pipe 15, and some of this dust will, by reason of its fall, form a cloud, which will also be settled by the water spray.

I claim:

1. In a machine of the character described the combination with a suction conduit, of a separating chamber communicating therewith provided with a discharge orifice in its bottom, a dust removing conduit having its receiving end inside the chamber near the orifice and its discharge end extending out of the chamber, a conveyer beneath the orifice extending to a point near the discharge end of the conduit, and a moistening device in the latter near its discharge end.

2. In a machine of the character described, the combination with a suction conduit, of a separating chamber communicating therewith and having a funnel-shaped portion open at its bottom, a conveyer having its receiving end under the opening of the bottom, a dust conduit extending into said chamber having lateral receiving apertures above said funnel-shaped bottom portion and a discharge aperture near the discharge end of the conveyer, a water pipe in the dust conduit and a spraying nozzle on said pipe near the discharge end of the conduit.

3. The method of collecting and settling trash and the like which consists in agitating the trash in a dry state and simultaneously sucking the same into a conduit, blowing the sucked in trash into a receptacle tangential to the periphery of the latter, mechanically conveying the heavy particles of trash from the bottom of the receptacle and entraining the dust through a spray of water and onto the heavy particles previously removed from the receptacle.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

ARNOLD KÜNDIG-HONEGGER.

Witnesses:

GUSTAVE ANTON WIEDERKEHR,

A. LIEBERKNECHT.