

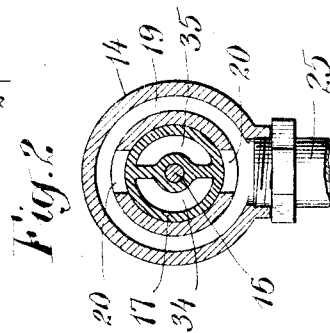
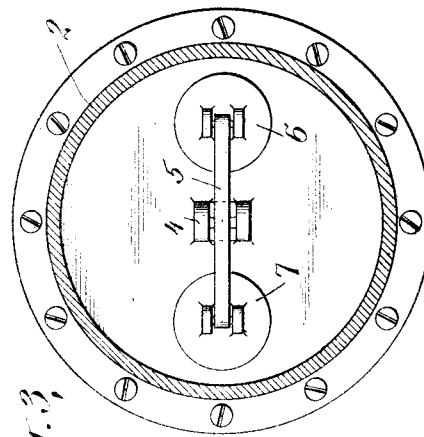
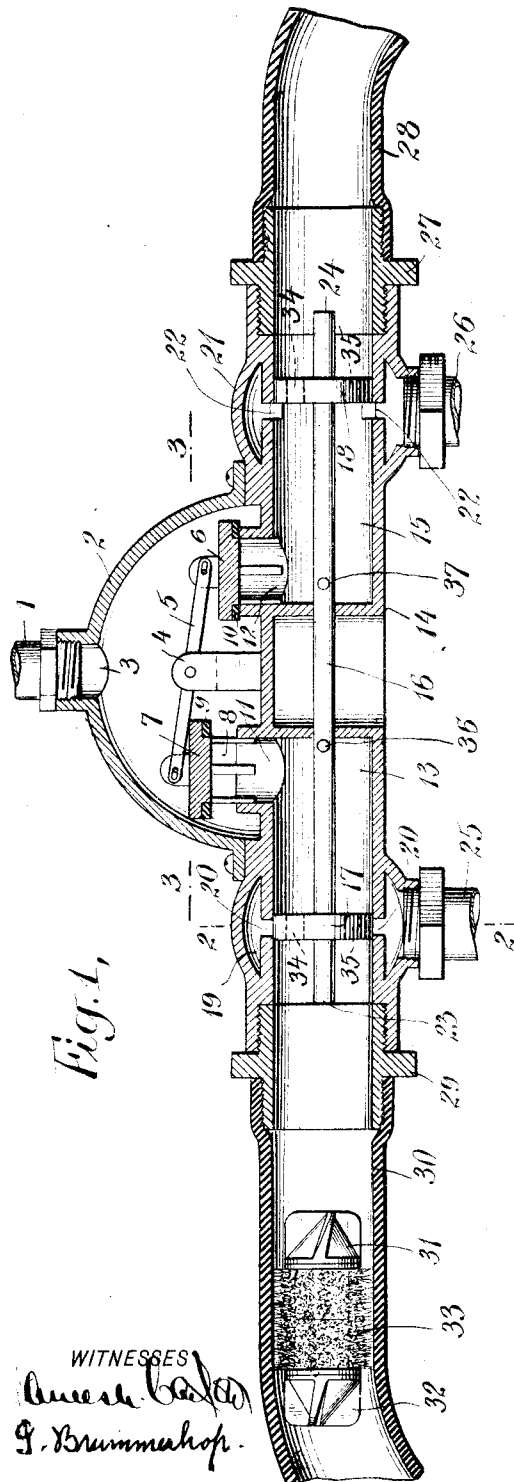
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PIPE CLEANSING DEVICE.

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1,049,012.

Patented Dec. 31, 1912



WITNESSES
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JACOB WEBER AND JULIAN E. HAMPSON, OF NEWARK, NEW JERSEY.

PIPE-CLEANSING DEVICE

1,049,012.

Specification of Letters Patent.

Patented Dec. 31, 1912.

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To all whom it may concern:

Be it known that we, JACOB WEBER, a subject of the Emperor of Germany, residing at No. 172 Bergen street, in the city of Newark, county of Essex, and State of New Jersey, and JULIAN E. HAMPSON, a citizen of the United States, residing at No. 145 Fairmont avenue, in the city of Newark, county of Essex, State of New Jersey, have made certain new and useful Invention Relating to Pipe-Cleansing Devices, of which the following is a specification, reference being made to the accompanying drawings, which form a part of the same.

15 This invention relates to an apparatus for cleaning tubes or pipes of either flexible or rigid material and is particularly adapted for use in cleaning flexible pipe or hose such as is used in breweries for conveying
20 beer.

The cleaning device as shown may consist of a cleaning brush which is adapted to enter the circuit of pipe and to be forced through the same and simultaneously rotated by the pressure of the water or other fluid used for cleansing purposes. The cleaner may also operate the controlling valve device so as to reverse the direction of the water pressure and force the cleaner
30 back again around the pipe circuit which alternating action is continued until the pipe is thoroughly cleansed.

In the illustrative embodiment of this invention shown in the drawings, Figure 1 is a vertical section of the device; Fig. 2 is a cross section taken at the line 2—2 of Fig. 1, and Fig. 3 is a plan view at the line 3—3 of Fig. 1.

Referring to the drawings in detail, 1 represents a feed pipe for water or other cleansing fluid connected to a suitable casing having a cover or shield 2 made of water tight material having the entrance 3 for the water pipe 1 which shield is fastened to the device so as to protect the valve devices which may be of any desired description preferably actuated by the cleaner for controlling the alternating or other desired admission of cleansing fluid to the casing and
50 cooperating pipe.

4 is a support secured to the standard 14 into which support is loosely pivoted a rocking arm 5, at the opposite ends of which are loosely pivoted the valves 6 and 7 respectively, the apertures in said rocking arm being elongated so that said rocking arm

will slide on said pivots which pass there-through to connect the valves, in such manner as to permit the lineal reciprocation of said valves. The valves 6 and 7 are provided with guide pins such as are shown at 8 for the purpose of guiding the reciprocation of said valves in the sleeves 11 and 12, spaces being left between said pins for the purpose of permitting the cleansing fluid
65 to pass through said spaces and said sleeves as either valve is opened. 9 and 10 are cushions or packages on said valves for the purpose of permitting them to fit snugly on the sleeves 11 and 12 when said valves are
70 closed.

Connecting and communicating with the sleeves 11 and 12, respectively, are the tubes 13 and 15 which tubes are separated from each other by the standard 14, in which support is mounted the reciprocating rod 16, the travel of which is limited by the pins 36, 37. On this reciprocating rod is fixed valves 17 and 18 which are adapted to slide with the rod in the respective tubes 13 and 15 and thereby alternately open and close the discharges 20 and 22, respectively. These discharges are provided with auxiliary discharge chambers 19 and 21 through which, and through the discharge pipes 25
85 and 26, respectively, the used cleansing fluid is discharged from the said device.

In order to clean a tube by this device a cleansing medium, which is shown in the form of a brush at 33, is inserted in the tube
90 sought to be cleaned. One end of the tube is then coupled to the device as is shown by the coupling 29 and the other end of the tube is coupled to the opposite end of the device as is shown by the coupling 27, the
95 tube 30, 28, being continuous. While this cleansing medium may be of any suitable form we prefer one with winged ends for the purpose of giving the same spiral movement in its travel through the tube. These
100 winged ends of the cleansing medium are designated by the numerals 31 and 32.

Referring to the slide valves, 17, 18 which are shown in section in Fig. 2, these valves are provided with passage ways, 34, 35
105 therethrough for the purpose of enabling the cleansing fluid to pass through the same.

To operate this device, a continuous tube is fixed thereto as shown, one end of the
110 tube being connected with one end of the device and other end of the tube being con-

nected with the other end of the device, the
 cleaning medium having been placed in the
 tube to be cleaned. The cleansing fluid,
 such as water, is then turned into the device
 5 through the pipe 1, discharging thereinto
 at 3, and in the position shown in the draw-
 ings, flowing under the valve 7, then through
 the sleeve 11 into the tube 13 through the
 passage ways 34, 35 of the valve 17, and
 10 against the winged end 31, of the brush 33,
 forcing the brush through the tube in spiral
 manner. The brush will thus continue in
 its travel the full length of the tube until it
 strikes the end 24 of the rod 16 and will
 15 move said rod and the valves 17 and 18
 thereon to a position limited by the pin 37.
 The valve 18 will then close the discharge
 22 and the valve 17 will have moved so as
 to open the discharge 20. Upon the dis-
 20 charge 22 being closed the water which has
 issued through the valve 7 will force itself
 against the under side of valve 6 raising the
 same and closing valve 7 there being no re-
 sistance against the closing of this valve by
 25 reason of the fact that the discharge 20 is
 open. Valve 7 now being closed and valve
 6 open the water will pass under valve 6,
 through the sleeve 12, the tube 15 and the
 passage ways 34, 35 of the sliding valve 18
 30 of the brush 33 forcing the same back in a
 rotating manner until it strikes the end 23
 of the rod 16 and forces said rod the limit of
 its travel as fixed by the pin 36, closing the
 discharge 20 and opening the discharge 22,
 35 the force of the water lifting the valve 7 and
 resistance from the valve 6 being taken
 away by the opening of the valve 22 the
 valve 6 will then close upon the sleeve 12.
 This reciprocal motion of the cleansing
 40 medium can be continued until the tube is
 thoroughly cleansed or as long as may be de-
 sired.

Having described this invention in con-
 nection with a number of illustrative em-
 45 bodiments, forms, proportions and arrange-
 ments of parts, to the details of which dis-
 closure the invention is not of course, to be
 limited, what is claimed as new and what is
 desired to be secured by Letters Patent is set
 50 forth in the appended claims.

1. In pipe cleaners, a casing comprising a
 feed pipe, communicating admission ports,
 duplex admission valves each cooperating
 with one of said admission ports, connections
 55 between said admission valves operating on
 a pivot rocking arm to alternately open one
 of said admission ports, discharge ports pro-
 vided in said casing adjacent said admission
 ports and cooperating discharge pipes con-
 60 nected to said casing, discharge valves con-
 trolling said discharge ports, controlling
 means connected to said discharge valves to
 simultaneously operate them and alternately
 65 open one of said discharge ports, couplings

pipe connected to said couplings, a travel-
 ing cleaner in said pipe circuit to be circu-
 lated through said pipe circuit by the clean-
 ing fluid therein, said cleaner actuating said
 controlling means when reaching each end
 70 of pipe circuit to operate said discharge
 valves and thereby reverse the flow of clean-
 ing fluid in said pipe circuit.

2. In pipe cleaners, a casing comprising
 a feed pipe and communicating admission
 75 ports, duplex admission valves operating on
 a pivot rocking arm alternately opening one
 of said admission ports, discharge ports and
 cooperating discharge pipes connected to
 said casing, discharge valves controlling said
 80 discharge ports, a controlling rod connect-
 ing said discharge valves to simultaneously
 operate them, and alternately open one of
 said discharge ports, couplings on said cas-
 85 ing and a continuous circuit of pipe con-
 nected to said couplings, a rotary traveling
 cleaner in said pipe circuit and provided
 with spiral rotating vanes at its ends to ro-
 tate said cleaner by the current of cleaning
 fluid simultaneously moving said cleaner
 90 around said pipe circuit, said cleaner en-
 gaging said controlling rod at each end of
 the pipe circuit to operate said discharge
 valves and thereby reverse the flow of clean-
 ing fluid in said pipe circuit. 95

3. In pipe cleaners, a casing comprising a
 feed pipe to supply cleaning fluid thereto
 and comprising discharge pipes, couplings
 on said casing and a continuous circuit of
 pipe connected to said couplings, valve de-
 100 vices operating on a pivot rocking arm in
 said casing controlling the admission of
 cleaning fluid to said pipe circuit, and con-
 trolling means for said valve devices and a
 traveling cleaner in said pipe circuit to be
 105 circulated therethrough by the cleaning
 fluid therein and engaging said controlling
 means adjacent the ends of said pipe circuit
 to thereby actuate said valve devices and
 reverse the flow of cleaning fluid in said pipe
 110 circuit.

4. In pipe cleaners, a casing comprising a
 feed pipe to supply cleaning fluid thereto
 and comprising discharge pipes, couplings
 on said casing and a continuous circuit of
 115 pipe connected to said couplings, valve de-
 vices operating on a pivot rocking arm in
 said casing controlling the admission of
 cleaning fluid to said pipe circuit, and con-
 trolling means for said valve devices and a
 120 rotary traveling cleaner in said pipe circuit
 and provided with spiral rotating vanes to
 rotate said cleaner by the current of clean-
 ing fluid simultaneously moving said cleaner
 around said pipe circuit, said cleaner co-
 125 operating with said controlling means and
 thereby reversing the flow of cleaning fluid
 in said pipe circuit.

5. In pipe cleaners, a casing comprising a
 feed pipe to supply cleaning fluid, a dis- 130

charge opening and coupling means, a continuous circuit of pipe connected to said coupling means, valve devices operating on a pivot rocking arm controlling the admission of cleaning fluid to said pipe circuit and a traveling cleaner in said pipe circuit to be circulated therethrough by the current of cleaning fluid and means to operate said valve devices to thereby reverse the flow of cleaning fluid in said pipe circuit.

6. In pipe cleaners, a casing comprising a feed pipe to supply cleaning fluid, a discharge opening and coupling means, a continuous circuit of pipe connected to said coupling means, valve devices operating on

a pivot rocking arm controlling the admission of cleaning fluid to said pipe circuit, a rotary traveling cleaner in said pipe circuit and provided with rotating means to rotate said cleaner as it is circulated through said pipe by the current of cleaning fluid therein and means to operate said valve devices to reverse the flow of cleaning fluid in said pipe circuit.

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