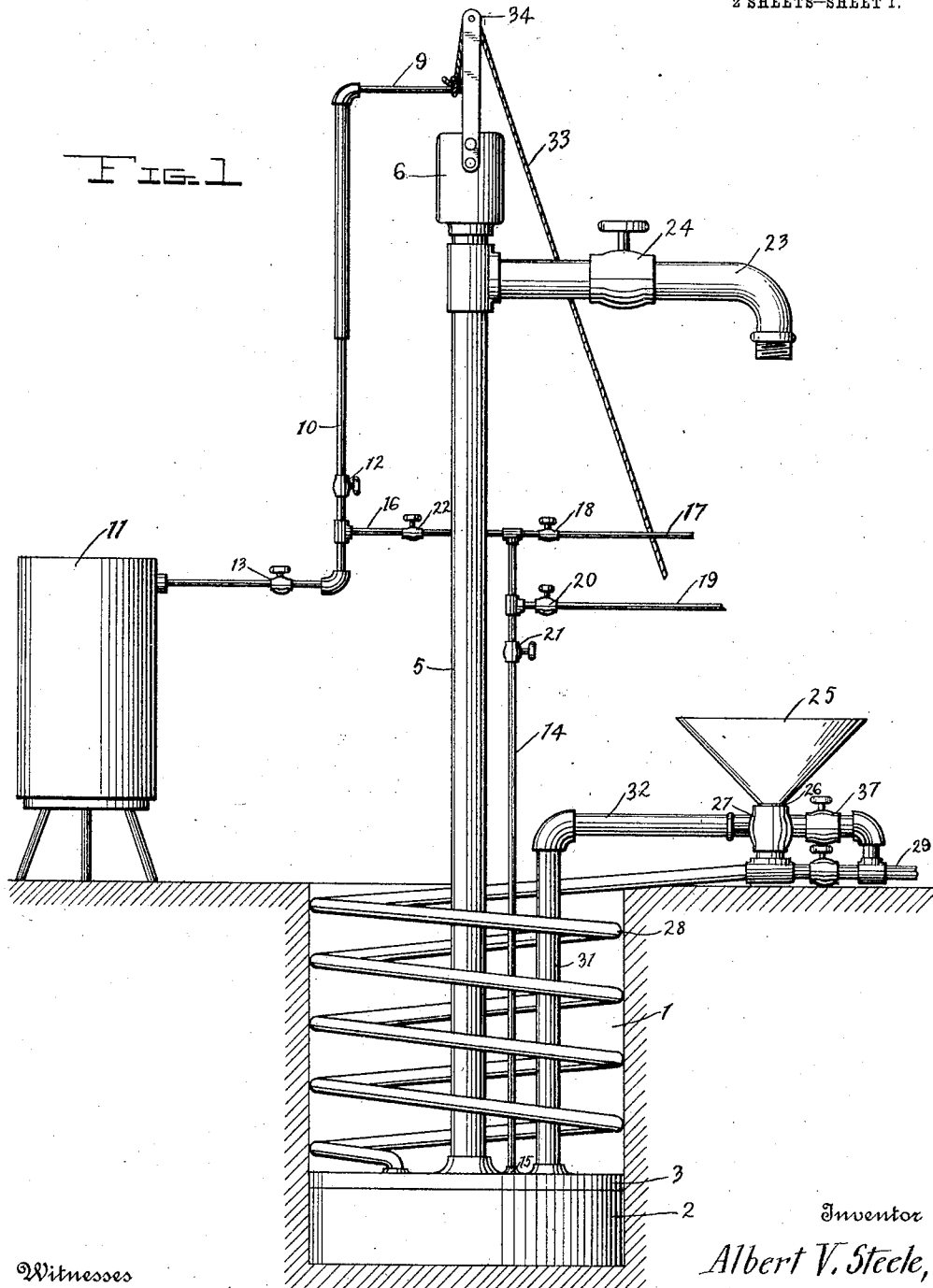


2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS--SHEET 2.

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UNITED STATES PATENT OFFICE.

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SAND-PUMP.

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To all whom it may concern:

Be it known that I, ALBERT V. STEELE, a citizen of the United States, residing at Bedford, in the county of Lawrence, State of Indiana, have invented certain new and useful Improvements in Sand-Pumps; 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.

This invention relates to pumps for supplying sand or abrading material to a stone saw or gang of saws.

The object of the invention is to construct a device of this character for conveying sand to its place of use, and after using, the material may be returned to the pump to be used again.

A further object of the invention is to so construct a pump of this character that air is employed for forcing the sand to the saw or gang of saws.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a side elevation of the device, the lower portion of which being positioned below the ground level. Fig. 2 is a longitudinal sectional view of the apparatus.

Referring to the drawings, the numeral 1 designates a cavity formed below the ground line and in which the lower portion of the pump is placed. Formed at the bottom of the cavity 1 is a basin 2, said basin being shown as formed from concrete, but it will be of course understood that the basin may be formed from cast metal, the operation being the same.

The basin 2 is preferably circular and is provided with a closure 3 of cast iron, said closure being secured in any suitable manner. An opening 4 is formed in the center of the closure 3 and connected thereto is a discharge pipe 5, said pipe extending some distance above the ground level and has its upper end provided with an air chamber 6.

The top of the air chamber 6 is provided with a stuffing box 7 and through which is passed an air pipe 8, said pipe extending downwardly through the pipe 5 and having its lower end supported normally a short distance from the bottom of the basin 2. Connected to the upper end of the air pipe 8 is an elbow section 9, the lower end of said section being telescopically connected with an elbow section 10, said elbow section being connected to a compressed air tank 11. The elbow section 10 is provided with a valve 12 and a valve 13, the purpose of which will be hereinafter described.

Arranged in parallel relation with the discharge pipe 5 is a pipe 14, said pipe having its lower end passed through a stuffing box 15 formed in the closure 3, the lower end of said pipe being supported a short distance above the bottom of the basin 2. The pipe 14 has leading therefrom a pipe 16 which has its end connected to the elbow section 10 and between the valves 12 and 13. A steam pipe 17 has one of its ends connected to the pipe 14 and may be placed in communication with a suitable steam supply. A valve 18 is provided for the pipe 17. Connected to the pipe 14 and slightly below the steam pipe 17 is a water pipe 19, said pipe being also provided with a valve 20. Arranged within the pipe 14 and below the pipe 19 is a suitable valve 21. A valve 22 is provided for the pipe 16, said valve being normally closed and opened only when it is desired to force air through the pipe 14 into the basin 2.

Connected to the supply pipe 5 and at a point slightly below the air chamber 6 is a spout 23, said spout having mounted therein a regulating valve 24. The outlet opening of the spout 23 is arranged above the stone saw or gang (not shown), and upon which the sand containing a certain amount of water is adapted to be projected. Arranged directly below the gang of saws or saw is a hopper 25, said hopper having a neck 26 and in which is mounted a regulating valve 27. The neck 26 of the hopper 25 is connected to the upper terminal of a pipe coil 28, said coil surrounding the supply pipe 5 and the pipe 14 and has its lower terminal suitably connected to the closure 3. The upper terminal of the coil 28 is provided further with an extension 29 which leads to a sewer or the like. Placed within the extension 29 is a valve, said valve being normally closed. The spout 23 may be provided with any

suitable nozzle so that the sand or water may be either applied to a single saw or a gang of saws as the occasion may require.

The air pipe 8 may be raised or lowered within the supply pipe 5 by a line 33 which may be passed over a suitably supported pulley 34 so that the distance between the lower end of the air pipe and the bottom basin may be regulated as desired. The adjustment of the air pipe 8 is readily accomplished owing to the telescopic relation between the elbow sections 9 and 10.

Sand and water after being properly proportioned is placed within the hopper 25 and will by gravity pass through the coils until the same are filled to a point near the neck 26 of the hopper, and the basin 2 is filled, and the sand and water will then rise in the pipe 5 within a few inches of the ground level. Detachably connected to a suitable casting 35 rigidly secured at the bottom of the basin 2, is the lower end of a vertical pipe 36, the upper end of said pipe being open and through which the lower end of the air pipe 8 is passed until the same is positioned at any point below the upper end of said pipe, it being understood that the air pipe 8 may have its lower end, by the line 33 supported at any distance desired above the bottom of the basin. This vertical pipe 36 serves to prevent any sand or the like from clogging in the pipe 8.

The operation of the device is as follows: After the properly mixed water and sand has been placed within the coil 28 and pipe and has risen to the desired point within the discharge pipe 5, air, after the proper manipulation of the valves 12 and 13, from the compressed air tank 11 is passed through the air pipe 8 and is then directed upwardly within the pipe 36 thereby forcing sand and water upwardly and through the pipe 23 and upon the saw or gang of saws. The amount of sand and water may be regulated by the valve 24 within the spout 23. It is quite frequent that the sand within the pipe 5 and basin 2 becomes slightly hardened and to stir the same water may be allowed to enter through the pipe 19 and into the pipe 14 which will agitate the same so that the sand may be then acted upon by the air supply.

From an inspection of the drawings it will be apparent that the coils of the pipe 28 are arranged in a substantially horizontal plane which retards the passage of the sand therethrough causing the pipe to be very readily filled. The coiled arrangement of this pipe 28 makes it possible for a greater quantity of sand to be contained therein than were the said pipes to be formed otherwise.

To clean the coils it is only necessary that the air, upon manipulation of certain of the valves be projected through the pipe 14, whereby a portion of the sand in the basin and that in the coils is forced through the pipe 29 and into a sewer or the like. To accomplish this it will be of course understood that the valve 27 is closed and the valve 30 opened. To remove all of the sand from the basin 2, the pipe 31 has been provided, and through which passes the sand under air pressure through the extension 32 after the valve 37 has been opened and from thence to the sewer or the like.

From this construction it will be seen that after the abrading material has passed over the saw or gang of saws the same then passes to the hopper and from thence through the coils and into the basin to be used again.

What is claimed, is:—

1. In a pump of the class described, comprising a discharge pipe having a spout, a basin, said discharge pipe being connected to the basin, an air pipe passed through the discharge pipe and having its lower end supported within the basin, a coil surrounding the lower end of the discharge pipe and having its lower terminal in communication with the basin, said coil being for the purpose of entering sand and water to the basin and supply pipe, whereby when air is passed through the air pipe the sand and water is forced upwardly and through the spout to its place of use.

2. In a pump of the class described, comprising a supply pipe having a spout at its upper end, a basin, said supply pipe being connected to and in communication with the basin, a short pipe secured to the bottom of the basin and extending upwardly within the discharge pipe, an air pipe passing through said discharge pipe and having its lower end supported within the short pipe, a coil surrounding the discharge pipe and having its lower terminal connected to and in communication with the basin, the upper terminal of said coil having a hopper connected thereto, whereby sand and water may be fed to the coil and basin and the discharge pipe, an air supply in communication with the air pipe whereby when air is admitted to the same the sand and water will be forced upwardly through the discharge pipe and spout to its place of use.

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

ALBERT V. STEELE.

Witnesses:

JOHN H. UNDERWOOD,
THOS. C. UNDERWOOD.