

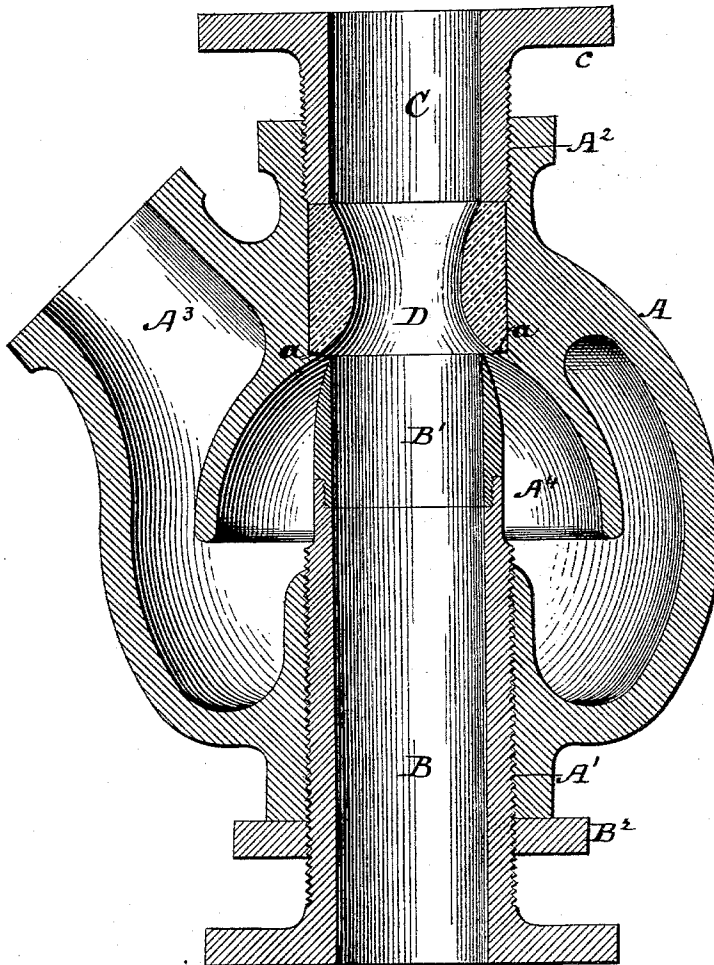
(No Model.)

W. S. SMITH & C. W. CLIFT.

SAND PUMP.

No. 323,458.

Patented Aug. 4, 1885.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM SOOY SMITH, OF CHICAGO, ILLINOIS, AND CHARLES W. CLIFT,
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SAND-PUMP.

SPECIFICATION forming part of Letters Patent No. 323,458, dated August 4, 1885.

Application filed June 5, 1884. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM SOOY SMITH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, and CHARLES W. CLIFT, a citizen of the United States, residing at Rockville Centre, in the county of Queens and State of New York, have invented certain new and useful Improvements in Sand-Pumps, of which the following is a specification, reference being had therein to the accompanying drawing, which represents a longitudinal section of the device constructed in accordance with our invention.

Our invention relates to improvements in sand-pumps in which a current of water under heavy pressure is used as the medium to elevate and force the sand or material to be excavated through pipes to any desired point; and the objects of our improvements are, first, to provide a simple and inexpensive device to direct the operating-current of water uniformly all around the edge of the nozzle of the sand-carrying pipe; second, to provide the device with a removable throat-piece, and adapt it to function properly under different circumstances; and, third, to provide the throat-piece of yielding and compressible material, so that the size of its internal passage can be regulated without taking the device apart. We accomplish these objects by the device illustrated in the accompanying drawing, in which—

A represents a substantially spherical body, of cast-iron, made hollow and provided with an opening, A', at one end to receive a suction-pipe, B, an opening, A², at the opposite end to receive the end of a pipe, C, through which the discharge is made, and one or more openings, A³, through the side of the body A, to bring a current of water from a pressure-pump or from a great elevation. To conduct said current of water uniformly around and past the inner end of the suction-pipe, the interior of the body A is provided with a conical or semi-spherical deflector, A', forming a part of said body at the discharge end thereof.

Within the discharge-passage is placed a removable throat-piece, D, preferably of soft compressible vulcanized rubber. This throat-piece is retained in position between the shoulder *a* at the inner end of the discharge-passage and the pipe C. The latter is pro-

vided with a polygonal flange, *c*, to permit it to be rotated and be more or less screwed into the body A against the outer end of the throat-piece D, and by this means the size of the passage through said throat-piece can be regulated, and at the same time the amount and velocity of the fluid or substances passing through the device can be regulated. The suction-pipe B is also screwed into the body A, and its inner end is provided with an outwardly-tapering nozzle, B', preferably made of steel or of chilled iron, and adapted to be brought close to or at a very short distance from the throat-piece D. After having brought the pipe B in proper adjustment, it is retained in position by means of a check-nut, B², placed upon said pipe, and made to abut against one end of the body A.

By the construction above stated, it will be seen that a very simple device is produced, that is peculiarly well adapted for removing semi-fluid or sandy substances from the bottom of rivers, in excavating to lay the foundation of walls, piers, &c., the semi-spherical deflector A' directing a current of water under pressure all around the end of the nozzle B' against the sandy or semi-fluid substances brought within the throat D by the suction-pipe B.

If the throat is contracted (within certain limits) the velocity and amount of material passing therethrough will be retained without materially wearing its yielding surface.

Having now fully described our invention, we claim—

The combination of a water-receiver having a semi-spherical deflector thereon, a suction-pipe entering said receiver at one end, a discharge-pipe at the other end, and a compressible throat-piece between said pipes, substantially as and for the purpose described.

In testimony whereof we affix our signatures in presence of two witnesses.

WM. SOOY SMITH.
CHAS. W. CLIFT.

Witnesses as to signature of Wm. Sooy Smith:

ROBERT F. PETTIBONE,
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Witnesses as to signature of Chas. W. Clift:

J. W. MERCER,
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