No. 730,138. PATENTED JUNE 2, 1903.

P. H. LONG

SAND BLAST.

APPLICATION FILED DEC. 11, 1902.

NO MODEL.

Fig. 1.

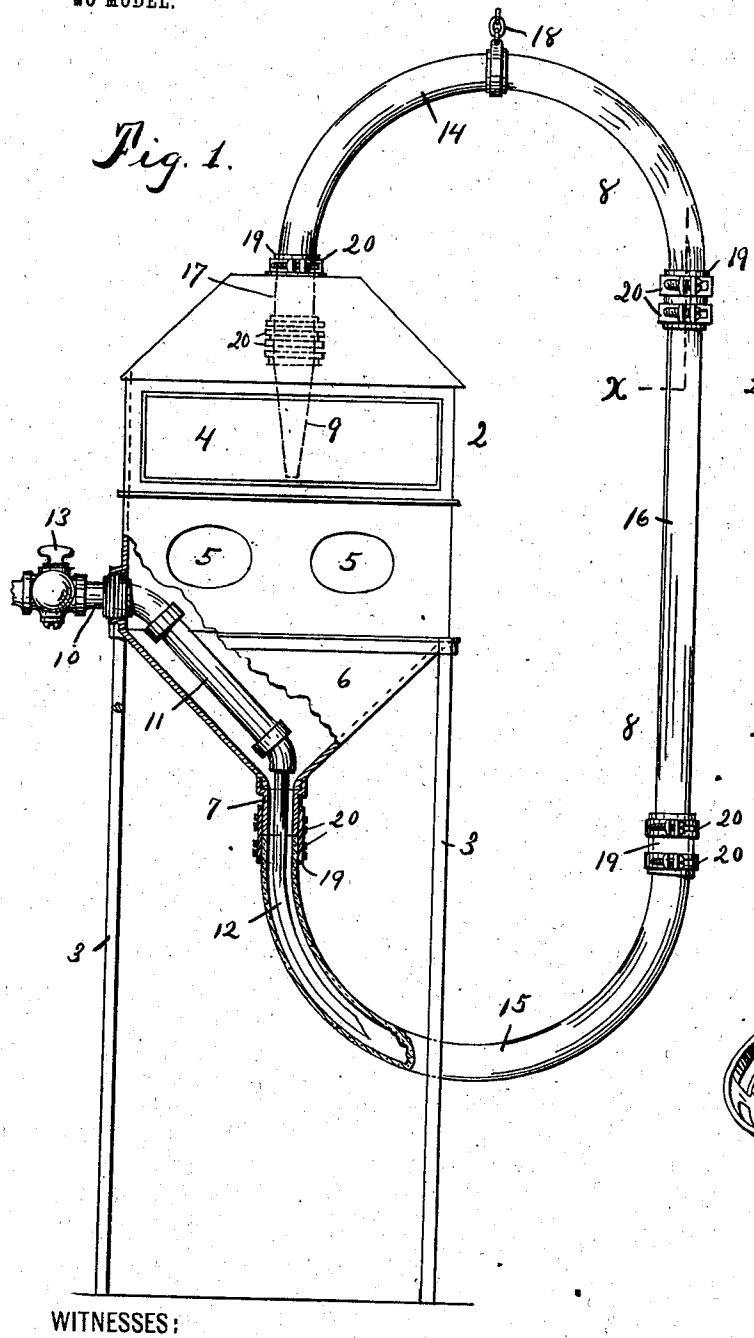


Fig. 2.

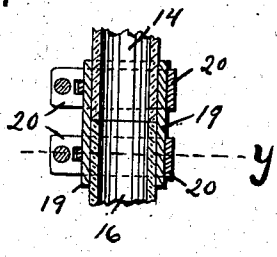


Fig. 3.

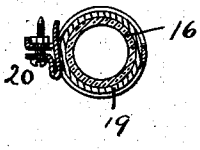
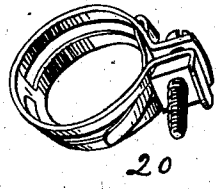


Fig. 4.



WITNESSES:

Henry Krug

Russell M. Everett.

INVENTOR

Philip H. Long,

BY Dyer & Co

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 730,138. Patented June 2, 1903.

UNITED STATES PATENT OFFICE.

PHILIP H. LONG, OF NEWARK, NEW JERSEY, ASSIGNOR TO LONG AND KOCH, OF NEWARK, NEW JERSEY.

SAND-BLAST.

SPECIFICATION forming part of Letters Patent No. 730,138, dated June 2, 1903.

Application filed December 11, 1902. Serial No. 134,763. (No model.)

To all whom it may concern:

Be it known that I, PHILIP H. LONG, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented and produced a new and original Improvement in Sand-Blasts; 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 numerals of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide a sand-blast apparatus of improved construction, to avoid excessive wear upon the pipe or tube through which the sand is blown, to obtain a construction in which said tube may be made of glass, and to secure other advantages and results, some of which will be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved sand-blast device and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of a sand-blast of my improved construction, the lower portion of the body or casing and the adjacent part of the tube leading therefrom being in section to disclose the air-supply pipe. Fig. 2 is a detail section taken longitudinally through one of the tube connections as on line x, Fig. 1. Fig. 3 is a cross-section of one of said connections as on line y, Fig. 2; and Fig. 4 shows in perspective one of the clamps employed in said connections.

In said drawings, 2 indicates a casing or box-like body portion of any suitable type, said casing being mounted upon legs 3 and having windows 4 in its sides and hand-holes 5, as usual. The interior of said casing forms at the bottom a funnel-like hopper 6, from the throat of which projects a tubular neck 7. To said neck is secured a tube 8, which leads downwardly to one side, as usual, and then upward and into the top of the casing or chamber 2, where its inner end is provided with a nozzle 9, adapted to direct the sand against the work held in said chamber. For driving the sand around said tube 8, from the hopper 6 to the nozzle 9, a stream of air is supplied through a pipe 10, entering the side of the casing 2, where its bottom begins to taper, and being continued along the sloping bottom of the hopper, as at 11, to the throat of the same. Here the said air-pipe is reduced, and said reduced portion 12 extends centrally within the tube 8 to or nearly to its lowest point. A stop-cock 13 is provided in the air-supply pipe 10 outside the casing 2.

Heretofore it has been common to use flexible-rubber tubes or metallic tubes to conduct the sand and air from the hopper 6 to the nozzle 9, and it has been found that those materials wear excessively under the action of the sand. By my improved construction, however, I am able to employ a tube of glass for carrying the air-driven sand to the nozzle, and thus not only secure a minimum friction, but also almost no perceptible wear. I furthermore expose the movements of the sand throughout its entire circuit to inspection. In carrying out this feature of my invention I form the said tube 8 of several sections of glass tubing, the ends of which are elastically united, both to each other and to the casing or body 2. Preferably upper and lower U-shaped sections 14 15, respectively, are employed, each being connected at its end away from the case to an upright middle section 16. The other end of the lower U-section 15 is connected to the neck 7 of the hopper 6, and the corresponding end of the upper U-section 14 is connected to a short section 17, of glass tubing, extending through the top of the casing 2, and to the inner end of which is connected, also elastically, the glass nozzle 9. A continuous glass passage-way is thus provided for the sand, and yet sufficiently yielding, so that it will not snap or break under the vibrations of machinery. The entire tube 8 is best supported by a chain 18, connected to the top U-section 14. In forming the said elastic connections of the different glass tube-sections their ends are ground to abut closely together, as shown in Fig. 2 more especially.

A piece 19, of rubber tubing, then covers the joint, extending a little distance onto each glass section and being firmly clamped thereto by any suitable encircling clamp—as, for example, the well-known form shown in the drawings and which is kept in stock by all dealers. A coupling is thus provided which nicely unites the ends of the glass tubes or sections and yet which will take up those vibrations which would snap in pieces a one-piece glass tube. Furthermore, great cleanliness in the work is obtained by the use of a glass tube and all blackening avoided.

Having thus described the invention, what I claim as new is—

1. In a sand-blast apparatus, the combination with a body portion or casing providing a chamber for the work and forming at its bottom an exit-hopper for sand and having at an upper point an entrance for the sand, said sand being taken from the bottom and forcibly injected at the top, of a glass duct extending from the said exit-hopper to the said upper entrance, and means for injecting a current of air into said tube to carry the sand therethrough, whereby the wear of the sand upon its duct produces an abrasive material substantially equivalent to the sand.

2. In a sand-blast apparatus, a body portion or casing providing a chamber for the work and forming at its bottom a hopper, a yielding duct leading from said hopper to the upper part of said chamber and terminating in a nozzle, said duct being formed of sections of glass tubing elastically coupled together end to end, and means for injecting an air-blast into said duct.

3. In a sand-blast apparatus, a body portion or casing providing a chamber for the work and forming at its bottom a hopper, a duct leading from said hopper to the upper part of said chamber and terminating in a nozzle, said duct being formed of sections of glass tubing abutting end to end and pieces of elastic tubing inclosing said abutting ends, and means for injecting air into said duct.

4. In a sand-blast device, the combination with a body portion providing a chamber for work, said chamber forming at its bottom a hopper, of a glass tubular duct leading from said hopper to the interior of said chamber and comprising upper and lower **U**-shaped sections, an intermediate straight section, a nozzle, elastic couplings for said sections and nozzle, and means for injecting air to said duct.

5. In a sand-blast device, the combination with a body portion providing a work-receiving chamber with converging bottom and a tube leading from said converging bottom and entering the top of the chamber, of an air-pipe entering said chamber and having a discharge end extending into said tube leading from the bottom of the chamber.

6. In a sand-blast device, the combination with a body portion providing a work-receiving chamber having a funnel-shaped bottom, and a tube leading from the lowest point of said bottom and entering the top of the said chamber, of an air-pipe entering the said chamber above its funnel-shaped bottom and leading downward along the slope of said bottom, and having a reduced end portion extending into the said tube substantially to its lowest point, the sand being permitted to enter said tube around said reduced end portion of the air-pipe.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of December, 1902.

PHILIP H. LONG.

Witnesses:
C. B. PITNEY,
RUSSELL M. EVERETT.