(No Model.)

W. C. BLOOMER.

PNEUMATIC TUBE FISHER.

No. 526,141. Patented Sept. 18, 1894.

Fig. 1.

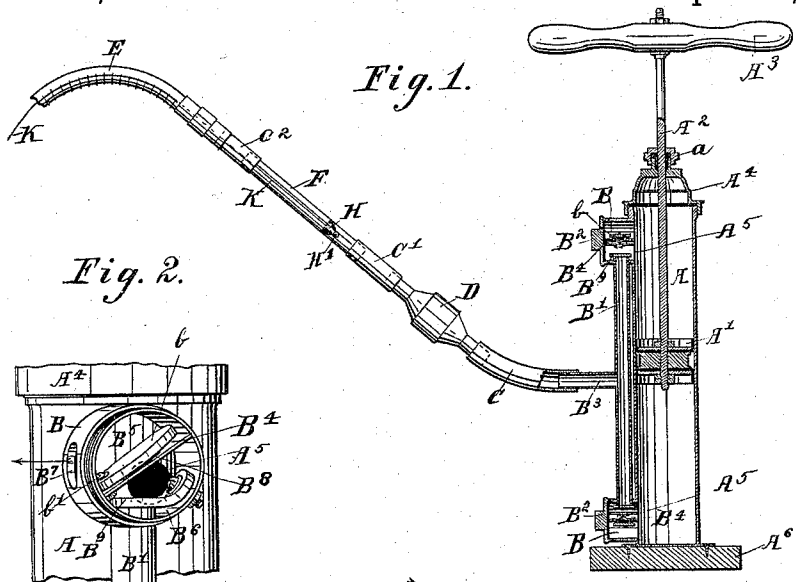

Fig. 2.

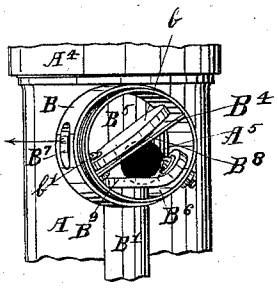

Fig. 3.

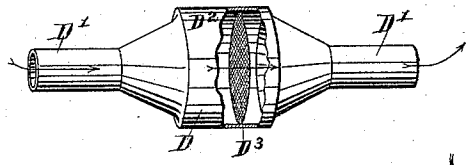

Fig. 4.

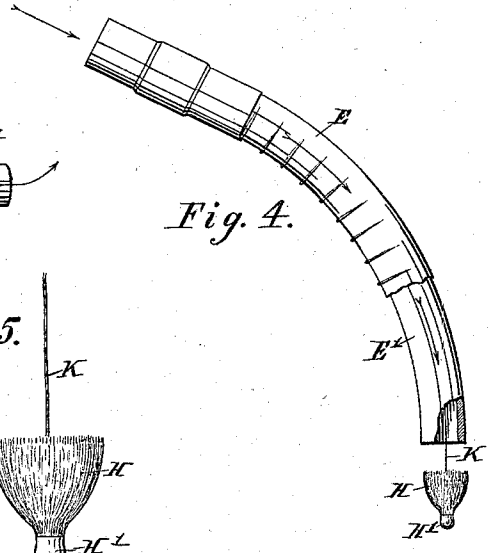

Fig. 5.

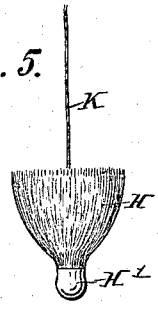

Fig. 6.

WITNESSES:

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PNEUMATIC TUBE-FISHER.

SPECIFICATION forming part of Letters Patent No. 526,141, dated September 18, 1894.

Application filed April 10, 1893. Serial No. 469,654. (No model.)

To all whom it may concern:

Be it known that I, WALTER C. BLOOMER, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Pneumatic Tube-Fishers, of which the following is a full and true description, enabling others skilled in the art to which it pertains to make and use the same.

My invention relates to tube fishers and more particularly to pneumatic tube fishers such as are adapted to fish tubes in and through which electric conductors are placed. Its object is to enable persons to fish or draw a string through a continuous tube which may have a number of bends or angles and by this means safely adjust electric conductors therein.

It consists of the device and parts described in the following description and illustrated in the accompanying drawings, in which like letters refer to like parts in each of the drawings.

Figure 1 is a perspective view of the device with exhaust pump in section. Fig. 2 is an enlarged view of one of the valves B. B. Fig. 3 is a perspective view partly in section of the dust and dart arrester. Fig. 4 is a perspective view enlarged, of bend. Fig. 5 is a perspective view of dart. Fig. 6 is a perspective view of connecting cone.

In the drawings A represents a vacuum pump having a plunger A′ connected by the rod A^2 to the handle A^3. A cap A^4 screws on tightly through which the rod passes. A stuffing box *a* is located at the upper portion of this cap. There are two lateral openings A^5, which communicate with the valve chambers B. B. The pump is mounted on a foot board A^6.

The valve chambers B. B. communicate with the main chamber A through the openings A^5. These valve chambers are on the outside of the main chamber A and communicate with each other by means of the pipe B′. They are closed on their outer end by the screw cap B^2. Within the valve chamber B there is a diaphragm B^4 which divides each chamber into two sections, B^5 and B^6. One of these sections has an opening B^7 communicating with the air. The other has a communicating opening with the chamber A. The diaphragm B^4 has an opening B^8 which is covered by a flexible flap *b* secured at one end by a screw *b′* to the diaphragm. Another flap B^9 of like character covers the end of the tube B′ which enters one section of this valve chamber and is secured to the wall of the valve chamber. About the center of the connecting tube B′ is a pipe B^3 at right angles to B′ and the inlet to the same. This pipe B^3 is attached to the flexible tube C and to this C is attached the arrester D. Another section of flexible tube C′ is attached to the other end of the arrester D. The sight tube F is joined on to this C′ and at the other end of F another flexible tube C^2 is fixed.

The arrester D, see Fig. 3, is a tube having reduced ends D′ to admit of connection to the flexible tubes C and C′. The central portion D^2 has fixed within it the mesh D^3. The object of this mesh is to arrest dust or other matter that might enter the valve chambers, and also the dart H when used.

The sight tube F is made of glass. When used it is placed between the flexible tubes C′ and C^2. Its office is to permit any one to see when the dart H arrives. As it is transparent this is readily done. As this sight tube could not be easily attached to rigid tubing, a flexible section C^2 is placed between it and the rigid bend E.

When the tubing to be fished is lodged in a wall or other place difficult of access, the cone tube C^3 is adjusted inside of the rigid tube E′ and the rigid tube E is placed inside the larger end as shown in Fig. 6. By forcing the rigid tube E into this flexible tube C^3 and the small end into the rigid tube E′ an air tight joint can be made through which the tube E′ may be fished.

The operation of this device is as follows: When the tubing has been placed in a structure through which electric wires are to run, the pump and its parts as shown in Fig. 1 are connected to one end of the tubing by the flexible section C^3. At the other end the dart H is placed in the mouth of the tube with the head H′ downward. This end is preferably covered with a metal cap, but the dart is made preferably of hair. A long string K is attached to the dart as shown in Fig. 5. The plunger of the pump is now worked up and down the two valve chambers,

admitting of a compound action of the exhaust. This exhaust drawn through the openings A^5 communicates with the valve chambers, the openings of which are controlled by the flexible clacks and thus through the connecting pipe B^3, tubes C and arrester D. The pressure induced causes the dart to pass through the tube carrying the twine K, until it is arrested by the mesh in D. Its arrival at this point is noted through the sight tube F. The flexible tube C is now unjointed and the dart and string are drawn through the length of the tubing it has traversed, bringing with them the electric wire which may be attached to the end of the string upon the other end of which the dart is attached. In this operation the suction is so great through the tube as to cause the dart to turn many bends in its path. The dart being very flexible it will pass through collapsed portions of the tubing readily adapting itself to the conditions of the tube.

What I claim, and desire to secure by Letters Patent, is—

1. The combination in an insulating tube fisher of the vacuum pump A flexible connection tubes C and C′ rigid tube F and dart H as herein shown and described.

2. The combination in a pneumatic tube fisher of the pump A, flexible tubes C and C′, dart arrester D, and dart H, as herein shown and described.

3. The combination in a pneumatic tube fisher of the vacuum pump A, flexible tubes C, and C′, arrester D, and sight tube F, as herein shown and described.

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Witnesses:
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