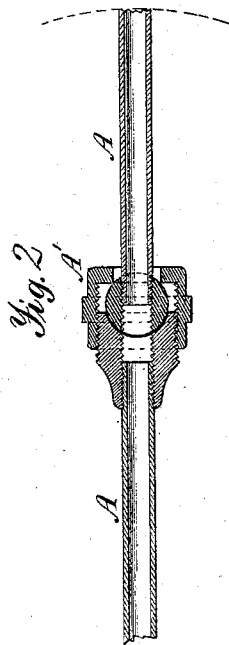
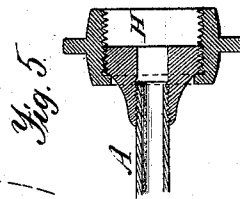
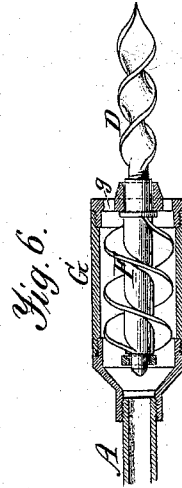
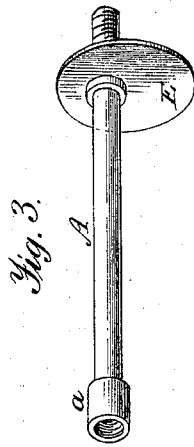
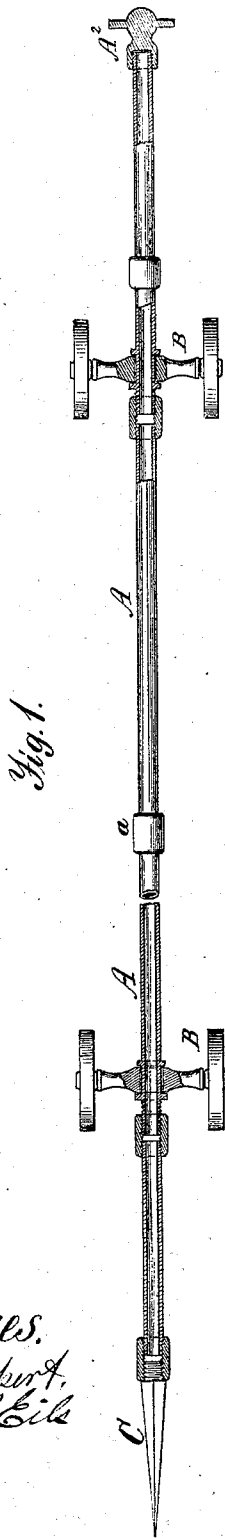


W. H. CHASE.

Apparatus for Cleaning Sewers.

No. 137,290.

Patented April 1, 1873.



Witnesses.
A. Ruppert.
C. E. Cole.

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UNITED STATES PATENT OFFICE.

WILLIAM H. CHASE, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN APPARATUS FOR CLEANING SEWERS.

Specification forming part of Letters Patent No. **137,290**, dated April 1, 1873; application filed March 1, 1873.

To all whom it may concern:

Be it known that I, WILLIAM H. CHASE, of Washington, in the District of Columbia, have invented a certain Improved Machine for Cleaning Sewers, of which the following is a specification:

The nature of my invention consists in providing a machine which may be run any required distance into a sewer up to an obstruction therein, and which can be operated from the mouth of the sewer, or the point where it is introduced, to remove said obstruction, if it is of a nature that it can be displaced by boring or scraping and a stream of water. My improved machine is composed, in the main, of a sectional tubular shaft mounted upon small trucks, which will admit of its introduction into small-sized sewers. The end of the shaft extending into the sewer will be provided with a suitable device for operating upon the obstruction, and a stream of water may be conducted through the shaft to aid in removing the obstruction. Another feature of my invention consists in combining with the tubular shaft and an auger or dart a small turbine to revolve the auger by the stream of water passing through the shaft. The sections of the tubular shaft may also be united by universal joints for use in crooked sewers.

Figure 1 is a sectional plan view of my improved machine. Fig. 2 illustrates, in section, two ends of the tubular shaft united by a universal joint. Figs. 3, 4, 5, and 6 illustrate various appliances used in connection with the machine, and hereinafter more specifically referred to.

The same letters of reference are used in all the figures in the designation of identical parts.

The tubular shaft is composed of short sections A, which may be united by the ordinary union couplings *a*, or by means of universal-joint couplings A', such, for instance, as illustrated in Fig. 2. The shaft is mounted upon small trucks B, two or more of which may be employed, according to the length of the shaft it is necessary to employ to reach the obstruction in the sewer. The shaft rests in bearings on the axles of the trucks so that it may be revolved by means of cross-bar A² or other suitable device attached to the end of the last section. Upon the other end it may be armed

with a dart, C, or an auger, D, as shown respectively in Figs. 1, 4, and 6, for piercing an obstruction, or with a scraper, E, as indicated in Fig. 3.

It is always desirable to have the scraper operate—which is done by moving the shaft and its adjuncts back and forth—in conjunction with a stream of water, and to this end the scraper is secured to the shaft, leaving its inner end open. The dart or auger may also be made to operate in conjunction with a stream of water introduced through the tubular shaft. In that case I prefer to revolve the auger or dart by the force of the water, and to that end connect them to a small turbine, F, Fig. 6, which is fitted in a case, G, attached to the end of the shaft. The water, after having acted upon the turbine, escapes through apertures *g* in the head of the case. Water will be supplied to the shaft through an ordinary hose, to be attached to the shaft by means of a coupling, H, such as shown in Fig. 5.

In using this machine, one section of shaft, suitably armed and mounted upon a truck, is first introduced into the sewer, and then section after section added, supplying trucks as needed, until the obstruction is reached. Should the obstruction be of such a nature that it cannot be removed without taking up the sewer at that point, the machine I have described will be of service in indicating the exact spot where the obstruction is located.

In many cases the obstruction may be removed by the force of a stream of water, when it acts with its full pressure directly upon it, as it does in my machine, without the necessity of resorting to the use of mechanical devices for boring or crumbling purposes. The scraper, it will be observed, is so attached to the shaft that it may be turned up, by giving a half-turn to the shaft, to clear the dirt on the bottom of the sewer on running the machine inward, and then turned down again to take hold of the dirt and carry it along with it on withdrawing the machine.

The sections of the shaft should not exceed in length the size of an ordinary man-hole for sewers through which they will in most cases be introduced.

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

1. A machine for cleaning sewers, composed of a sectional tubular shaft mounted upon trucks, substantially as and for the purpose specified.

2. A machine for cleaning sewers composed of sections A of pipe united together by universal joints A', and mounted upon trucks B, substantially as and for the purposes specified.

3. A machine for cleaning sewers composed of a sectional tubular shaft mounted upon trucks, in combination with a turbine, F G, to operate a boring-tool, substantially as specified.

4. The sectional tubular shaft mounted in bearings upon trucks, in combination with an eccentric scraper-blade, E, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. H. CHASE.

Witnesses:

RD. A. HYDE,
A. R. ALLEN.