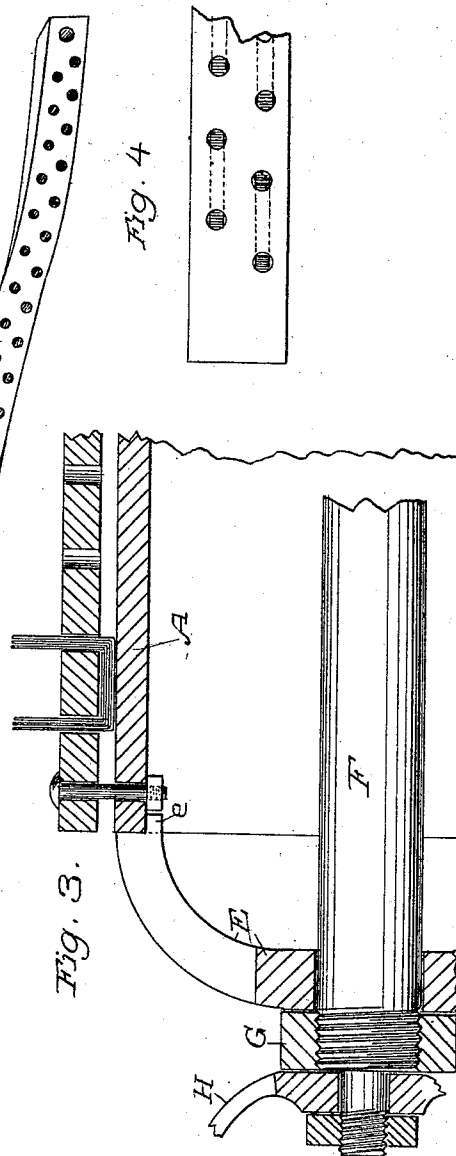
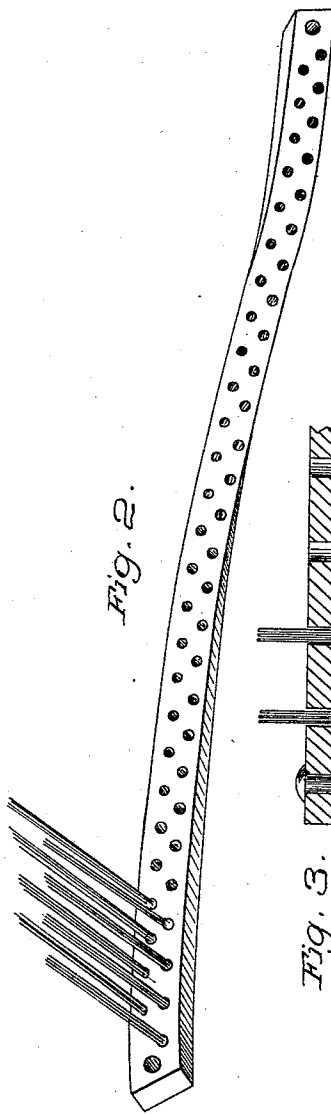
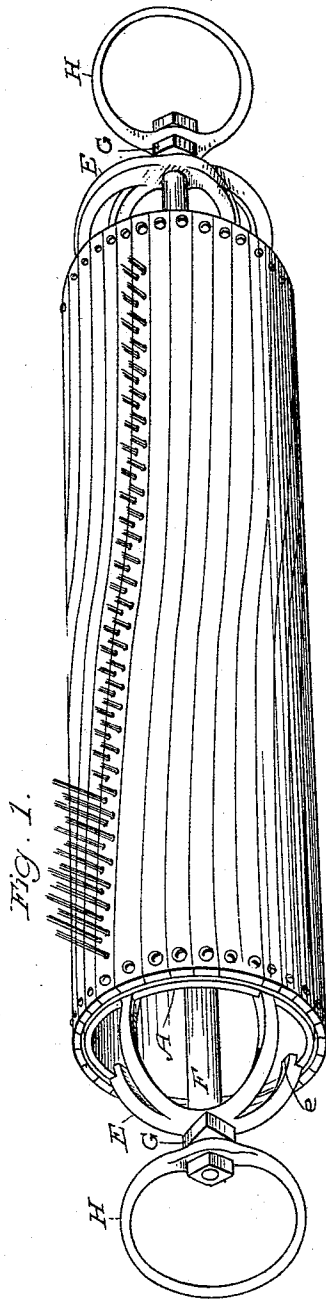


(No Model.)

S. E. JOHNSTON.
SEWER CLEANING BRUSH.

No. 498,659.

Patented May 30, 1893.



Witnesses,
R. House
J. A. Bayless

Inventor,
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UNITED STATES PATENT OFFICE.

SEPTER E. JOHNSTON, OF SELMA, CALIFORNIA.

SEWER-CLEANING BRUSH.

SPECIFICATION forming part of Letters Patent No. 498,659, dated May 30, 1893.

Application filed January 19, 1893. Serial No. 458,958. (No model.)

To all whom it may concern:

Be it known that I, SEPTER E. JOHNSTON, a citizen of the United States, residing at Selma, Fresno county, State of California, have invented an Improvement in Sewer-Cleaning Brushes; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device which is especially adapted for cleaning out vitrified stone and other sewer pipes.

It consists of a peculiarly constructed brush having attachments at its ends whereby it can be drawn backward and forward through the sewer to be cleaned; and in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my device. Fig. 2 is a view of one of the independent sections with the wires attached. Fig. 3 is an enlarged section of one end of the device. Fig. 4 is a plan view of one of the strips.

One of the greatest difficulties to be met in the use of stone or clay pipe sewers is the frequent clogging by reason of the roots of trees forcing their way through the joints of the pipe and increasing in size within the sewer until the pipe is entirely choked up by a tangled mass of roots.

My invention is designed to keep such pipes clear of these roots, and also of any other form of matter which has a tendency to clog them.

In the construction of my apparatus I employ a tube of iron which for a ten inch sewer pipe is made about twenty-four inches long and four inches in diameter. Upon the outside of this tube are fitted strips of iron or steel about three-fourths of an inch wide and one-fourth of an inch thick. These strips are cut and arranged so as to extend spirally about the inner tube having a pitch of about one-eighth of an inch to the inch, and they are secured at each end by bolts passing through holes bored in the strips and in the inner tube secured by nuts either inside or outside as may be preferable. These sections or strips have small holes bored in them, near each side, extending from end to end, the holes being about one-eighth of an inch in diameter, and

about five-eighths of an inch between centers. The holes on one side of each strip are made to alternate with those on the opposite side of the strip, and also with those of the adjacent strips upon each side. Through these holes are passed the brushes which are made of several flat steel wires bent twice at right angles. The central portion is sufficiently long to extend from one hole to the next, and these wires are laid up in sets of four, being about one-eighth of an inch wide, and about one thirty-second of an inch thick, so that the set of four wires can be forced through the holes, thus making two projecting bristles of the brush, formed of four flat elastic plates each. All the holes in all the sections are thus filled, and the wires are thus made of such lengths that the full exterior diameter of the brush is about one inch less than the interior diameter of the pipe.

E E are arched yokes which may be made with three or four arms meeting in the center and the ends adapted to rest upon the ends of the inner tube A having short inwardly projecting flanges e which prevent their slipping off. Through the center of these yokes holes are made, and a rod F passes through the tube, and these yokes are screwed upon the ends of the rod until their outer ends are firmly pressed against the ends of the inner tube. A nut G screws down over each yoke and locks it in place. The rod is preferably about seven-eighths of an inch in diameter to the point beyond the nut at each end, where it is reduced in size to about three-fourths of an inch, which part is turned smooth and is adapted to receive the swivels H. These swivels are held in place by washers and nuts screwing down upon the ends of the rods, or by keys passing through the ends of the rod, or in any other suitable manner. When thus secured the rod is strongly anchored to the tube by the arched yokes, and by reason of their convexity at each end no strain which can be put upon the rod will bend them out of shape. In order to operate this brush, a floating ball or other device is sent through the sewer pipe by means of a current of water, a small string being attached to the ball, and when it reaches the opposite end a larger

cord can be drawn through by means of the smaller one and so on until a rope of sufficient strength has been passed through the pipe to be cleaned. Ropes are then attached to each
 5 of the swivels and the brush is hauled backward and forward through the pipe. The sharp elastic wires tear the roots away from the point where they enter the pipe, at which they are a very small diameter, and also scrape
 10 the pipe clean of any other substance which may clog it, while a current of water passed through the pipe will flush out any ordinary sediment, thus loosened, and the brushes will bring out any larger substances or roots.
 15 The brushes are easily cleaned and the interior of the tube serves as a channel through which the water can flow constantly while the brushes are at work.

If desired the rod can be taken out by simply unscrewing the nuts, removing the swivels and yokes and the rod, thus leaving the interior of the tube entirely clear. Any one of the outer sections may be removed by simply removing the bolts by which it is attached
 25 to the inner tube. As these sections are laid spirally around the inner tube, it will be manifest that the brush wires extend in the same manner from end to end of the tube, and by reason of this construction and the swivels at
 30 the ends of the rod, the brush will be caused to rotate slowly as it is dragged through the pipe.

Having thus described my invention, what I claim as new, and desire to secure by Letters
 35 Patent, is—

1. A sewer cleaning brush, consisting of a cylindrical tube, sections fitted spirally around said tube from end to end and bolted thereto,
 40 brush wires bent twice at right angles and fixed in sets, holes made in the sections so as to project radially from the surface of a tube, and swivels at each end of the tube for the attachment of ropes by which it may be hauled

backward and forward through the pipe to be cleaned, substantially as herein described. 45

2. A sewer cleaning brush, consisting of an inner hollow tube, independent sections fitted spirally upon the exterior, forming a complete covering therefor, said sections being bolted
 50 to the inner tube, and holes made to alternate with each other upon opposite sides of each of the sections, flat steel wires bent twice at right angles and forced into the holes in sets
 55 so as to project radially outward and form spirally arranged lines from one end to the other of the tube, and swivels turning loosely at opposite ends, and having ropes connected with them whereby the apparatus may be
 60 drawn backward and forward through the tube and caused to rotate about its axis during this movement, substantially as herein described.

3. A sewer cleaning brush consisting of an inner hollow tube, sections bolted spirally around the outside of said tube extending
 65 from end to end thereof, and having flat wires projecting radially and in sets through holes made in the sections, a rod extending centrally through the tube having its ends screw-threaded, and also formed with journals to
 70 receive loosely turning swivels, arched yokes having holes through the center screw-threaded to fit upon the ends of the rods, having the outer ends or feet adapted to rest and be locked upon the ends of the tubes, and a means for
 75 securing the swivels in place while allowing them to rotate freely about the shaft, so that the brush may turn about its axis as it moves from end to end of the pipe, substantially as herein described. 80

In witness whereof I have hereunto set my hand.

SEPTER E. JOHNSTON.

Witnesses:

S. H. NOURSE,
 J. A. BAYLESS.