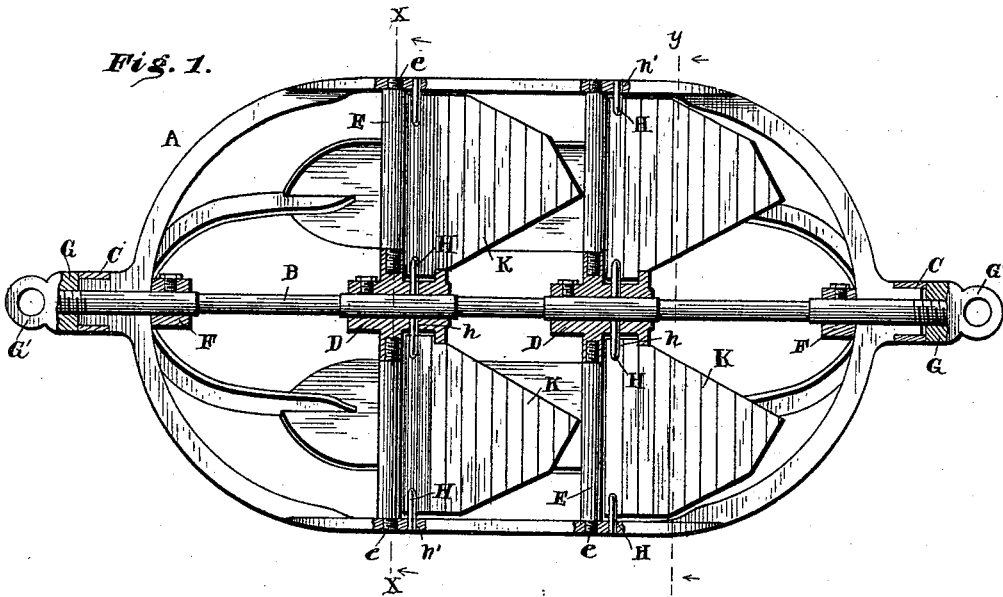


(No Model.)

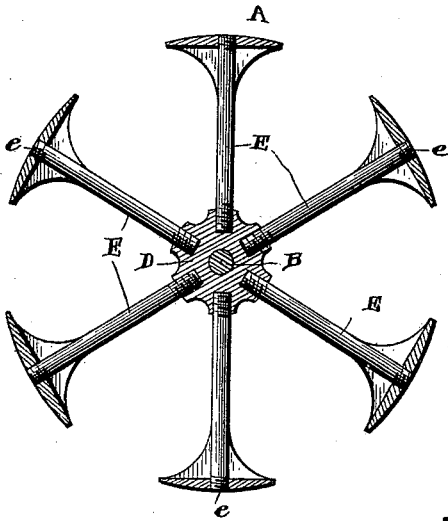
N. LACROIX & L. DUBOIS.  
SEWER CLEANER.

No. 494,427.

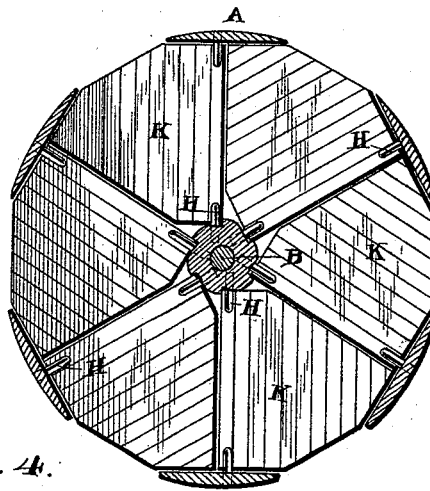
Patented Mar. 28, 1893.



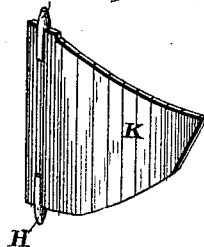
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses

*Chas. Ford.*

*J. E. & W. J.*

Inventors  
*Napoleon Lacroix & L.*  
*Louis Dubois.*

By their Attorneys,

*Chas. Snow & Co.*

# UNITED STATES PATENT OFFICE.

NAPOLEON LACROIX AND LOUIS DUBOIS, OF MONTREAL, CANADA.

## SEWER-CLEANER.

**SPECIFICATION** forming part of Letters Patent No. 494,427, dated March 28, 1893.

Application filed July 11, 1892. Serial No. 439,734. (No model.) Patented in Canada April 23, 1891, No. 36,456.

*To all whom it may concern:*

Be it known that we, NAPOLEON LACROIX and LOUIS DUBOIS, subjects of the Queen of Great Britain, residing at Montreal, in the Province of Quebec, Dominion of Canada, have invented a new and useful Sewer-Cleaner, (which has been patented in Canada, No. 36,456, dated April 23, 1891,) of which the following is a specification.

Our invention relates to an apparatus for cleaning sewers, and it is our object to provide a device which may be drawn through a sewer, from end to end, the same being fitted with valves to collect and remove the sediment and accumulation of filth which are not ordinarily removed by the flow of the water.

Our apparatus is described in detail hereinafter in connection with the accompanying drawings, and the novel features thereof are specifically pointed out in the claims hereto appended.

In the drawings: Figure 1 is a longitudinal, axial section of a cleaning apparatus embodying our invention. Fig. 2 is a transverse section, line  $x-x$  of Fig. 1. Fig. 3 is a similar view, line  $y-y$  of Fig. 1. Fig. 4 is a detail view of one of the valves, detached.

The frame of the cleaner is elliptical in longitudinal section and circular in cross-section, and is composed, essentially, of the radially-disposed trusses, or ribs, A A, of which six are shown in the drawings, although any number, more or less may be employed, the ends thereof being secured together, in contact with the axial draft-rod, B, by the encircling rings, C C, as shown clearly in Fig. 1. Within the skeleton thus formed, and at intermediate points of the draft-rod, are arranged hubs, D D, from which radiate the strengthening or brace-bars, E E, screwed at their inner ends in the hubs and at their outer ends in the trusses or ribs, at the points,  $e e$ , shown in Fig. 1. Collars, F F, are arranged upon the draft-rod, in contact with the inner sides of the ends of the trusses or ribs, to further strengthen the connections between the ends of the trusses and the rod. As shown in the transverse sectional views the outer surfaces of the trusses are convex, to conform to the general circular contour of the cleaner, the inner surfaces thereof being flat. The trusses are tapered laterally and are thickened ver-

tically toward their ends, to add strength and rigidity to the structure. The ends of the draft rod extend beyond the outer ends of the collars, F, and rings, C, and are screw threaded to receive the caps, G G, carrying the eyes, G' G', to which is adapted to be attached the draft cable by means of which the cleaner is drawn through the sewer pipe. Said cable may be operated in any suitable or preferred manner, and as this forms no part of our invention, we have not shown it in the drawings. The hubs are carried in front of the radial brace-bars and are provided with bearings, or sockets,  $h h$  which are in alignment with similar bearings or sockets,  $h' h'$ , in the trusses or ribs, and K K represent sectoral or triangular valves provided at their opposite ends, upon one side, with trunnions H H which are mounted in the said bearings or sockets. The aligned bearings in the hubs and trusses are so arranged that when the valves are mounted therein their pivoted edges are directly in front of the brace-bars, E E, one of the valves being provided for each brace-bar, as indicated in the drawings. The valves are slightly concaved on their front surfaces, and when closed their free edges lie in contact with the adjacent brace-bars, as indicated in Fig. 3.

The operation of the cleaner will be evident from the above description, and therefore it is only necessary to state, briefly, that as the device is drawn through the sewer the valves close and gather the sediment, filth, &c., whereby it may be brought within reach of those who are prepared to remove it; and by drawing the cleaner backward the valves will open automatically, thus preventing clogging.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. An apparatus for cleaning sewers, having a skeleton frame comprising an axial draft-rod and radially-disposed trusses, fixed at their extremities to the draft-rod, in combination with pivoted valves, arranged at intervals to close transversely across the frame, substantially as specified.

2. An apparatus for cleaning sewers, having a skeleton frame comprising an axial draft-rod, radially-disposed trusses or ribs, flat in transverse section, secured at their extremities to the draft-rod, and the radially-

disposed brace-rods fitted at their ends in topped apertures in the trusses or ribs and hubs secured upon the draft-rod, in combination with sectoral or triangular valves pivoted within the frame respectively adjacent to the braces, substantially as specified.

3. An apparatus for cleaning sewers, having a skeleton containing frame, provided with radial brace-bars, in combination with sectoral or triangular valves, pivoted at one edge radially in the frame and adapted to close the spaces between said brace bars, substantially as specified.

4. An apparatus for cleaning sewers, having an axial draft-rod, provided at its ends with eyes, radially-disposed trusses or ribs, secured at their extremities to said draft-rod,

hubs attached to the intermediate points of the draft-rod, radial brace-bars secured at their opposite ends in the said hubs and ribs or trusses, and the sectoral or triangular valves, provided with trunnions which are mounted in bearings respectively in the hubs and in the trusses, in front of the brace-bars, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

NAPOLEON LACROIX.  
LOUIS DUBOIS.

Witnesses:

RENÉ BANSET,  
NARCISSE CHS. MATHIEU.