My invention relates to a sewer cleaner and has for its principal object, to provide a simple, practical and highly efficient device which may be conveniently and economically used for the removal of sand, gravel, mud or other obstructing material which frequently accumulates in sewers and the like, so as to restrict and in some instances, completely clog the flow of water through the sewer.

Further objects of my invention are, to provide a sewer cleaner that is readily collapsible in order that it may be placed in the sewer in collapsed condition, then opened and forcibly driven forward by water discharging under pressure into the sewer, to the rear of the cleaner and then collapsed by manually operable means, so as to be readily withdrawn from the sewer, or from the obstruction in the event that the cleaner has become stuck therein.

A further object of my invention is, to provide a sewer cleaner of the character referred to, having an umbrella-like body including an elongated conical flexible member provided in its forward end with one or more jet openings which discharge jets of water against and into the body of clogging material and thereby bring about rapid disintegration thereof.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more fully described and claimed and illustrated in the accompanying drawings, in which:

Fig. 1 is a vertical longitudinal section taken through the center of a sewer and showing my improved cleaner positioned for use therein.

Fig. 2 is a sectional view similar to Fig. 1 and showing the cleaner in collapsed condition.

Fig. 3 is an enlarged cross section taken on the line 3-3 of Fig. 1.

Fig. 4 is an enlarged cross section on the line 4-4 of Fig. 1.

Fig. 5 is a fragmentary view partly in section and showing the connection between the ribs or stays and central rod of the cleaner.

Fig. 6 is a fragmentary sectional view showing the manner of connecting the canvas member to the rod.

Fig. 7 is a perspective view of the cleaner in expanded condition.

Referring by numerals to the accompanying drawings which illustrate a preferred embodiment of my invention, 10 designates a rod of wood or light weight metal, in the forward end portion of which are formed a plurality, preferably six, short slots or recesses 11.

Encircling rod 10 and overlapping the slots 11, is a ring 12, preferably of wire which passes through the called portions 13 forward at the forward ends of stays 14 or ribs 14 of wire, similar in structure and function to the ribs of an umbrella. Coiled portions 15 function as torsional springs tending to normally expand stays 14.

From the forward end of rod 10, ribs 14 extend rearwardly over an elongated conical member 15 of flexible material such as canvas, the small forward end of which is suitably secured by a coiled wire or band 16 to rod 10, just behind slots 11 and ring 12.

Formed through the small forward end of member 15 is a series of apertures 17, which serve to direct jets of water forwardly from the cleaner while same is in use.

The ends of stays 14 to the rear of the called portions 13, may rest directly on rod 10 to the rear of recesses 11, as shown in Fig. 5, or upon the forward end of member 15, as shown in Figs. 1 and 2.

The rear ends of stays 14 terminate in loops 18, which are secured by stitching or staples to the rear end portion of member 15.

The forward ends of cords or cables 19 are secured to loops 18 and extend therefrom rearwardly to and through longitudinally disposed grooves 20 formed in the rear portion of rod 10 and retained in said grooves by an encircling band or wire ring 21. The structure just described provides definite segregated lines of travel for the cords 19 relative to rod 10 and effectively prevents the cords from "kinking" and fouling with each other during the opening and closing movements of collapsible member 15 and while said cords are under strains and stresses of the heavy semi-liquid pipe clogging material being removed.

The looped rear ends 22 of cables 19 pass through an eye 23 formed at the end of a cable 24 that is used for collapsing and/or pulling the cleaner rearwardly through and from the sewer.

In cleaning the pipe or conduit, for instance, a sewer section between manholes, a suitable plug P is seated in the end of the sewer pipe S, where it connects to the wall M of the manhole, said plug being provided with an aperture A for the accommodation of the cable 24 and a duct D leads from a suitable source of water under pressure, to and through said plug.

Before the plug is positioned in the end of the sewer pipe S, member 15 in collapsed condition is placed in the sewer pipe, and after said plug
is seated in the end of said pipe, water is permitted to flow from duct D into the sewer pipe, with the result that member 15, under the force of the water and torsional action of springs 13 on stays 14, opens or expands to the position as shown in Figs. 1 and 7, and moves through the pipe until the body of sand or other material that clogs the pipe is encountered.

Jets of water under pressure issue from apertures 17, thereby softening and disintegrating the sewer clogging body and the driving force of the water behind the cleaner, forces same forwardly through the pipe, thereby quickly and effectively removing the body of clogging material.

Should the cleaner fail to pass through the obstruction in the sewer, cable 24 may be pulled rearwardly from a point within the manhole, thereby first collapsing said cleaner, then drawing same away from the obstruction and the pull on said cable is now suddenly released so as to permit the cleaner to expand, and in such condition, driven forcibly against and into the clogging body with a hammer-like blow, which tends to quickly disintegrate and remove said body.

After the obstruction has been removed from the sewer, the cleaner may, by pulling on cable 24, be readly collapsed and drawn from the sewer.

Thus it will be seen that I have provided a clogged sewer cleaner that is simple in structure, inexpensive of manufacture and very effective in performing the functions for which it is intended.

It will be understood that minor changes in the size, form and construction of the various parts of my improved sewer may be made and substituted for those herein shown and described without departing from the spirit of the invention, the scope of which is set forth in the appended claim.

I claim as my invention:

4. In a sewer cleaning and cleaning device, a rod, a series of stays connected to the forward end of said rod, an elongated conical member of flexible material arranged within said stays, the forward end of which conical member is connected to said rod and provided with a series of jet apertures, the rear end of said flexible member being connected to the rear ends of said stays, the rear end portion of said rod being provided with a series of spaced longitudinally disposed grooves, cords secured to the rear ends of said stays and extending into said grooves and thence rearwardly from the rear end of said rod and a ring surrounding the rear portion of said rod for retaining said cords for movement in said grooves.

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