Sept. 22, 1964 R. G. HUNT 3,149,480

PLUMBERS' SNAKE

Filed Aug. 10, 1962

Fig. 1

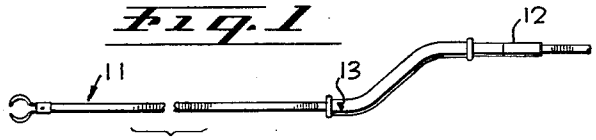


Fig. 2

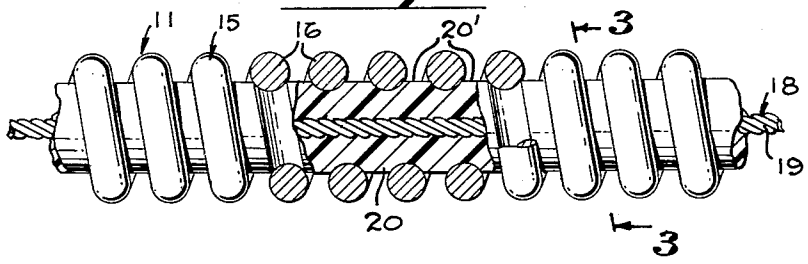


Fig. 3

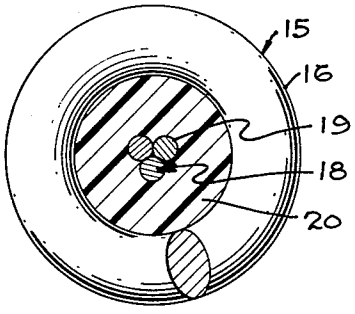
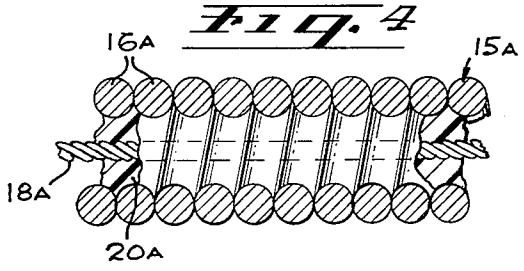


Fig. 4



ROBERT G. HUNT
INVENTOR.

BY Mason & Graham

ATTORNEYS

United States Patent Office 3,149,480 Patented Sept. 22, 1964

3,149,480

PLUMBERS' SNAKE

Robert G. Hunt, Los Angeles, Calif., assignor to Marco Products Company, Los Angeles, Calif., a firm

Filed Aug. 10, 1962, Ser. No. 216,113
1 Claim. (Cl. 64—2)

This invention relates generally to elongated, flexible resilient members used in cleaning out plumbing fixtures and waste pipes by being inserted therein and rotated to clear obstructions, such members commonly being termed plumbers' snakes.

A common form of plumbers' snake comprises an elongated, helically coiled spring steel wire. Under some conditions this type of member proves to be too flexible and attempts have been made to stiffen and strengthen it by providing a core of wire strands. This latter type of snake has the disadvantage that it has a tendency to assume a permanent set when it is left for any length of time in coiled condition, and the further disadvantage that the core tends to kink, which in many cases renders the snake unfit for use with the conventional tools employed. Also considerable difficulty has been encountered with such metal strand cores where they are of large diameter and gripped by the helically coiled body of the snake, since the entire member is then too stiff and lacks the flexibility required. On the other hand, if the core is of small diameter, it is unsatisfactory, since there is considerable space left between the two elements which can become filled with rust, products of corrosion and other foreign matter, making the snake impracticable to clean as it is withdrawn from the pipe into the tool. Consequently the life of both the snake and the tools used to operate and house it is short.

An object of the invention is to provide a new and improved plumbers' snake designed to overcome the various disadvantages and objections of conventional snakes and those which have previously been devised utilizing a metal core.

A further object is to provide a novel snake which embodies a steel or metal core within an outer coiled spring wire member together with novel means for coating and tightly embracing the core and maintaining the same centered with respect to the outer member, thereby to supply body and strength to the coiled spring wire and still retain proper flexibility and also protect the core and the inner surface of the outer member against rust and corrosion.

Another object is to provide a novel construction by means of which the desired degree of strength, flexibility, body and stiffness can be built into a plumbers' snake to meet given requirements.

Still another object is to provide a novel plumbers' snake which is economical to manufacture easy to use, and is extremely durable. In this connection it may be noted that a core of strands of wire filling the interior of the outer coiled body would be both more expensive and too stiff as compared with the one disclosed herein.

These and other objects will be apparent from the drawing and the following description. Referring to the drawing:

FIG. 1 is a side elevational view of a plumbers' snake shown in relation to a handle member for operating the same;

FIG. 2 is a central longitudinal sectional view through a plumbers' snake embodying the invention, but on a much larger scale than FIG. 1;

FIG. 3 is a sectional view on line 3—3 of FIG. 2, but on a larger scale; and

FIG. 4 is a view similar to FIG. 2, but showing an alternate construction.

More particularly describing the invention, in FIG. 1 I show a plumbers' snake or cleaning element, designated 11, which is forced through the pipe to be cleaned and a handle-type tool 12 receiving the snake member and through which the snake is advanced. The tool serves as a crank for rotating the snake as is well known in the art, being provided with a a setscrew 13 for releasably engaging the snake member.

The snake itself is comprised of a main or outer body in the form of a helically wound wire 15 which is preferably made of spring steel. This member is preferably formed to provide some space between the individual convolutions or turns 16 of the wire, as shown in FIG. 2, although it may be wound with the turns in engagement, as shown in FIG. 4.

Referring now to FIG. 2, on the axis of the body I provide a core 18 in hte form of several strands 19 of wire and these may be either straight or twisted. In the particular example I show a core of three twisted strands of wire. The external diameter of this core should be substantially less than the internal diameter of the spring body 15. I provide a flexible, tough and preferably somewhat resilient intermediate body 20 acting as a covering or enclosure for the wire core and engaging the spring body. The body or covering 20 may be made of a vinyl plastic, or other suitable plastics, or of rubber or synthetic rubber. The intermediate body or covering 20 is applied directly to the wire core as a coating by any suitable process and thus it tightly embraces and adheres to or grips the core so that there is no relative movement possible between the two.

In the embodiment of the invention shown in FIG. 2 the individual turns of the spring body are spaced and the intermediate body 20 or core covering extends radially partially between the individual turns of the spring body, as shown at 20'. To achieve this construction the wire of the body 15 is wound about the plastic body 20 to firmly grip the same and partially embed the turns therein. Since the body 20 covers a substantial area of the inner surface of the coiled wire body 15, the individual turns are protected against corrosion due to the covering over of the incipient microscopic pores or cracks which may occur therein as a result of the stresses produced in the coiling and winding operation, thereby greatly prolonging the useful life of the body 15.

With the construction described the wire core is held centrally of the spring body and may be relatively small in diameter and yet provide the necessary strength and flexibility in conjunction with the covering or intermediate body 20. The latter serves to protect the wire from physical damage and from rust and corrosion. It also lends body to the entire device and provides a resilient cushion which readily stretches and compresses when the coil spring body 15 is flexed, subsequently returning to its original shape.

Referring to FIG. 4, I show an alternate form of the invention wherein the body of the snake, here designated 15A, is tightly wound with the individual turns 16A in engagement with each other. Within the coil body I provide a core covering 20A which tightly embraces a wire strand core 18A and which also extends radially outward into the areas between the turns of the wire forming the outer core body.

It will be thus apparent that the outer coiled spring wire body may be made with the individual turns either in engagement with each other as in a tightly wound coil spring as shown in FIG. 4, or it may be formed to provide spaced turns as in FIG. 2. With either type of spring body the core covering should tightly engage the core wire and extend partially between the turns of the coil spring body.

Although I have shown and described preferred forms of my invention, I contemplate that various changes and modifications can be made therein without departing from the inventioin, the scope of which is indicated by the following claim.

I claim:

A flexible plumbers' snake, comprising an inner, flexible metal strand core, a trough, resilient nometallic intermediate body covering said core and securely gripping the same, and an outer body formed of a single length of a helically coiled steel spring wire around said intermediate body and firmly gripping the same, the turns of said outer body being relatively closely coiled in axially spaced relation and being in indenting relation to the intermediate body.

References Cited in the file of this patent

UNITED STATES PATENTS

158,325	Starr	Dec. 29, 1874
400,970	Thompson	Apr. 9, 1889
2,382,966	Arens	Aug. 21, 1945

FOREIGN PATENTS

437,194	Great Britain	Oct. 21, 1935