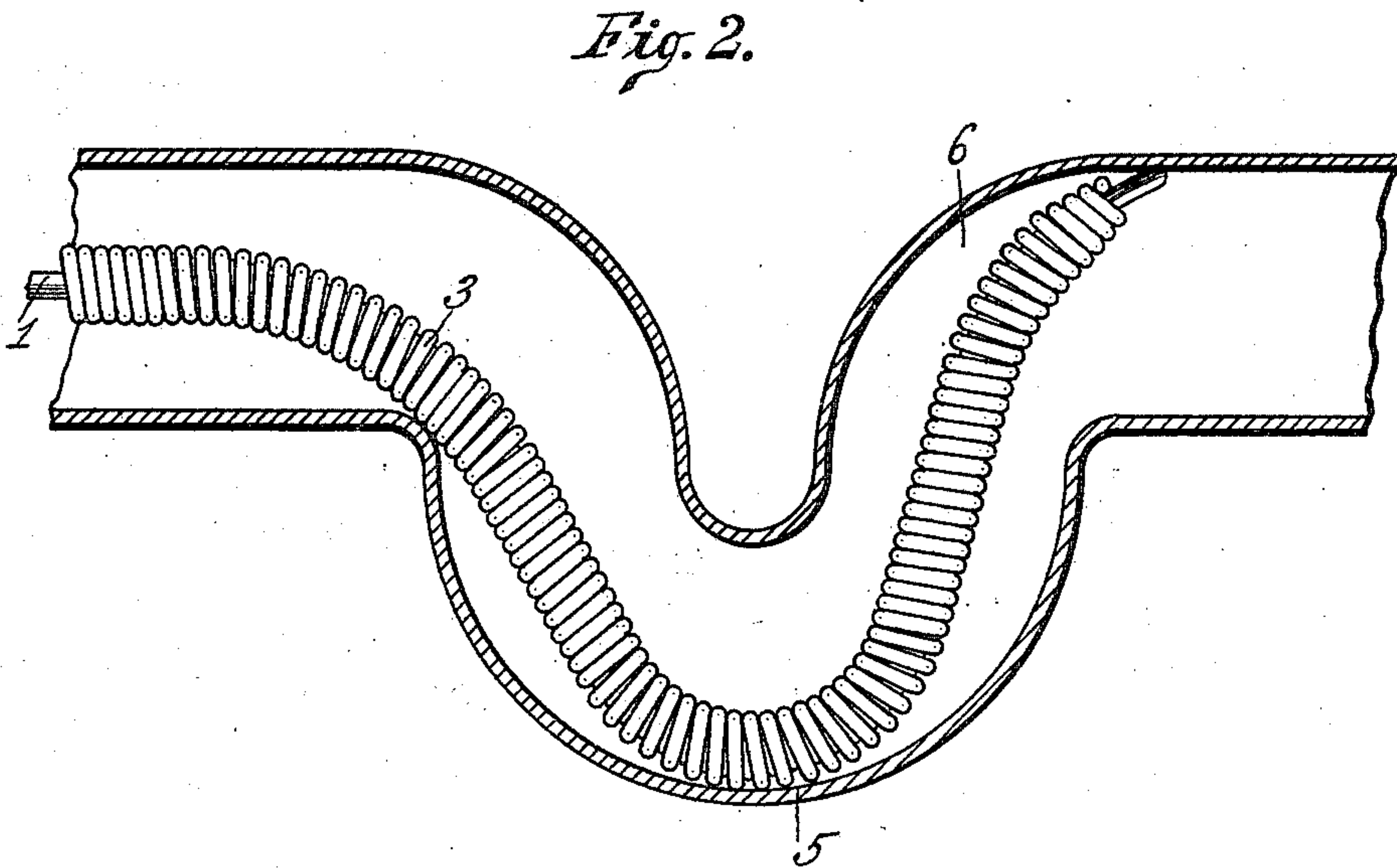
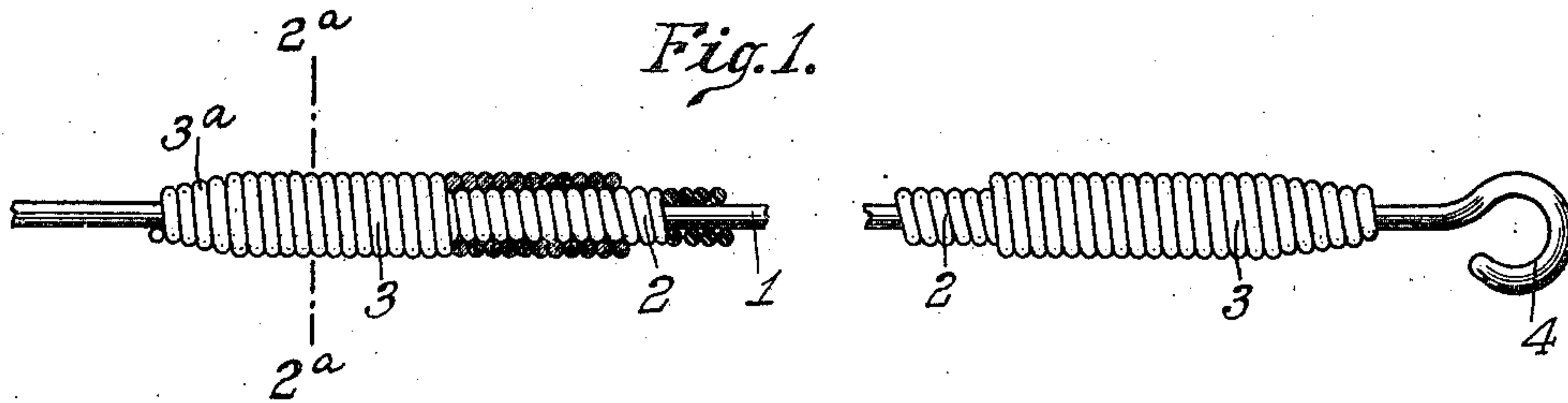


J. KOHRMAN.
 CLEANER FOR WATER MAINS AND WASTE PIPES.
 APPLICATION FILED MAR. 4, 1910.

985,604.

Patented Feb. 28, 1911.



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JOHN KOHRMAN, OF NEW YORK, N. Y.

CLEANER FOR WATER-MAINS AND WASTE-PIPES.

985,604.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed March 4, 1910. Serial No. 547,333.

To all whom it may concern:

Be it known that I, JOHN KOHRMAN, of New York, in the county of New York and State of New York, have invented certain
5 new and useful Improvements in Cleaners for Water-Mains and Waste-Pipes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the
10 art to which it appertains to make and use the same.

The object of my invention is to provide an improved article of manufacture adapted to clearing obstructions from water mains
15 and waste pipes.

My invention has special reference to that class of pipe cleaners employing a coil or coils of wire forming a flexible structure which may conform to bends, elbows and
20 other irregular formations of water mains and waste pipes. In order to render the article more efficient, however, I make the flexible structure with a main or body portion elastic and an extremity pliable but inelastic,
25 that is to say, for the greater part of its length the cleaner is resilient or tends to maintain its normal straight form, while the extremity will readily bend but will tend to remain in the disposition it has been caused
30 to assume.

In the accompanying drawing, Figure 1 shows the cleaner partly in side elevation and partly in section. Fig. 2 shows the cleaner in use within the pipe.

Referring to the drawing, 1 designates a steel wire forming the core of the cleaner. Spirally wound upon this steel core is a copper wire 2, while a second copper wire 3 is spirally wound upon the wire 2. As will be
40 readily understood, a structure of this kind is highly elastic. I terminate the helix 3 a little short of the extremities of helix 2 and the core 1 as at 3^a. This tends to lessen the elasticity of the structure toward its extremity. In order to further attain this purpose,
45 however, I draw the temper of the extremity, that is, for about five or six inches of its length, as at the left of line 2^a, Fig. 1. This is preferably done by subjecting it to a
50 flame. The result of this step is to render the extremity pliable but inelastic. The other extremity of the cleaner may be similarly formed, and I have shown it provided

with a hook 4 preferably an elongation of the core 1. This end may be inserted into short
55 lengths of pipes to withdraw obstructions.

Practice has demonstrated that my improved pipe cleaner is highly efficient. When being pushed through a pipe as indicated in Fig. 2, the extremity, on contacting
60 with bend or curve 5, will not resist the obstruction. On the contrary, it will readily bend, but in advancing will maintain the disposition it has assumed, and in progressing the extremity will extend partially across
65 the passage. This enables it to encounter any obstructions that may clog the pipe at that point and push them ahead of it. Upon encountering the curved part 6, the extremity will readily bend to conform to that sur-
70 face. In the meanwhile, however, the elastic body portion, upon which considerable force may be exerted, insures a proper advance of the cleaner without retardation by reason of the shape of the pipe.
75

I claim as my invention:—

1. As an article of manufacture, a pipe cleaner comprising a flexible metallic structure having its main body portion elastic and its extremity pliable but inelastic.
80

2. As an article of manufacture, a pipe cleaner comprising a steel core and a wire helix inclosing said core, said core and helix having their body portions elastic and their extremities pliable but inelastic.
85

3. As an article of manufacture, a flexible cleaner for mains and pipes comprising a steel core and a plurality of wire helices inclosing said core throughout its length, the extremity of the article having its temper
90 drawn to render said extremity pliable, but inelastic.

4. As an article of manufacture, a flexible cleaner for mains and pipes comprising a steel core and a plurality of wire helices in-
95 closing said core throughout its length, said cleaner having its body portion elastic and having its extremities pliable but inelastic, and a hook on one of said extremities.

In testimony whereof, I have signed this
100 specification in the presence of two subscribing witnesses.

JOHN KOHRMAN.

Witnesses:

WILLIAM A. TENNEY,
GRAFTON L. MCGILL.