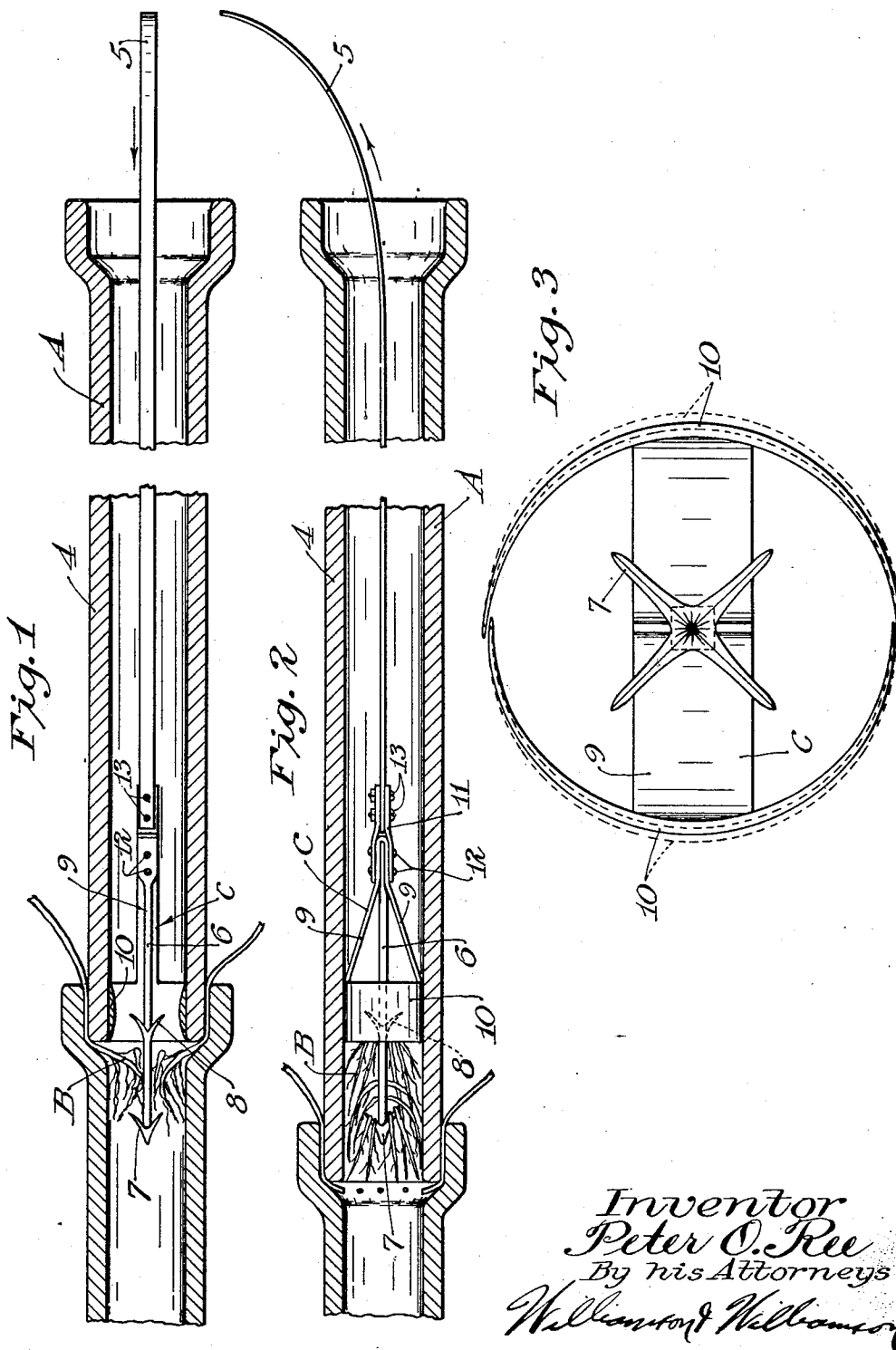


June 28, 1932.

P. O. REE  
SEWER CLEANER  
Filed Feb. 10, 1932

1,864,617



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## UNITED STATES PATENT OFFICE

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## SEWER CLEANER

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This invention relates to sewer cleaners.

It is the general object of this invention to provide a novel and improved sewer cleaner particularly adapted for use in cutting away the roots of trees from sewers and removing the roots from the sewers to prevent obstruction thereof.

To this end, generally stated, the invention consists in the novel parts and novel combinations of parts hereinafter defined in the claims and described in the following specification, made in connection with the accompanying drawing, wherein like reference characters refer to the same or similar parts throughout the various parts and in which,

Fig. 1 is a sectional view taken through portions of a sewer and illustrating the sewer cleaner in section, disposed within the sewer, the sewer cleaner being located in position to cut out ingrowing roots which have accumulated in the sewer between sewer pipe sections;

Fig. 2 is a longitudinal sectional view taken through the sewer at right angles to the section shown in Fig. 1, but illustrating the sewer cleaner in a position that it will assume after the roots have been cut and while the roots and sewer cleaner are being withdrawn from the sewer, the sewer cleaner being shown in side elevation; and

Fig. 3 is a view in front elevation of the sewer cleaner, the cutting blades being shown in their normal contracted position in full lines as they will be disposed when located within a sewer pipe and being shown in dotted lines in the expanded position that they will assume when the sewer cleaner is withdrawn from a sewer.

Referring to the drawing, portions of a sewer A are illustrated, which include several sewer pipe sections 4, each pipe section having an enlarged portion at its rear end to receive the forward end of the pipe section 4 immediately rearward therefrom. After such a sewer as that illustrated has been in

use for some time, it often happens that roots B of trees and growing plants will work their way into the sewer between the joints of the various sewer pipe sections 4. Such roots B often accumulate in the sewer to such an extent as to block the sewer to prevent the passage of matter therethrough.

To cut away the ingrowing roots, such as the roots B, in the sewer without necessitating digging up the sewer and to also clear the sewer from all foreign matter, I have provided my present sewer cleaner which consists of a head C and a sewer rod 5. The head C includes a shank 6 having rearwardly extending projecting barbs 7 at its forward pointed end and rearwardly extending projecting barbs 8 in spaced relation rearwardly from its forward end. A pair of bar springs 9 illustrated as being formed from a single strip of material embracing the rear end of the shank 6, project forwardly and outwardly from the shank in opposing relation. Formed integral with or secured to the forward ends of these springs 9, are a pair of arcuate cutting blades 10, the concave surfaces of which are oppositely opposed as best shown in Fig. 3. These cutting blades 10 are preferably of semi-circular shape and are composed of spring material and the ends of one blade are preferably disposed to bear against the ends of the other blade against the inner side thereof, as illustrated. Preferably, the two blades 10 are of slightly less thickness at their ends than at their central portions, so that the ends of the blades will have greater flexibility than the central portions thereof to move radially slightly to and from the shank 6. The forward edges of the cutting blades 10 are sharpened, as shown in Fig. 1, while the rear edges of the blades are also preferably sharpened. Short straps 11 are placed against the rear ends of the springs 9 to project rearwardly therefrom in spaced relation, and the straps, springs 9 and shank 6 are secured together as

by rivets 12. The sewer rod 5 consists of a flat bar of spring material projecting at its forward end between the rearwardly extending spaced portions of the straps 11 and secured to the straps as by means of nutted bolts 13. It will be seen that the shank 6, barbs 7 and barbs 8 form a spear. The arcuate cutting blades 10 are preferably located in radially spaced relation from the barbs 8.

In using the sewer cleaner for cleaning such a sewer as the sewer A within which roots B have accumulated to form a stoppage, the sewer cleaner head C will be first projected into the sewer from the rear open end of a sewer pipe section 4. The sewer rod 5 will then be worked forwardly through the sewer in the direction as indicated by the arrow Fig. 1, to push the head C into the sewer to a point adjacent the roots B forming the obstruction in the sewer. The bar springs 9 permit the central portions of the two arcuate cutting blades 10 to move radially toward each other as the head C is first inserted in the sewer, whereby the springs 9 may be placed under compression to urge the central portions of the cutting blades outwardly from each other against the walls of the sewer pipe sections 4. The resiliency of the ends of the blades also permits the ends of the blades to be compressed to place tension on the ends of the blades to move radially outwardly against the walls of the pipe sections. The two blades 10, therefore, as the head C is pushed through the sewer, conform to the openings in the pipe sections and bear against the walls of the pipe sections.

As the sewer cleaner head C approaches the obstruction formed by the root B, the forward end of the spear will be projected centrally through the mass of roots B, whereupon the forward edges of the cutting blades 10 will cut off the roots at points where they enter the central passage of the sewer. The barbs 7 as the roots are cut, prevent the roots from passing forwardly beyond the barbs, while as the roots are cut, the barbs 8 cooperating with the inner surfaces of the blades 10 will be caused to engage with the roots. After the roots have been cut as described, the sewer rod 5 may be pulled rearwardly in the direction as indicated by the arrow Fig. 2, whereupon the barbs 7 and 8 will catch the cut roots and pull the same rearwardly out of the sewer as the head C is removed therefrom. If any obstruction should stand in the way of this rearward movement of the head, the rear cutting edges of the blades 10 will cut through the obstruction. After the roots have been cut from the sewer, the head C will preferably be run completely through the sewer again to cut away and loosen all accumulations of dirt and other foreign matter that may have lodged within the sewer. The sewer may

then be flushed out with water, whereupon the cleaning job is completed.

The device of the invention is simple in construction and in operation. If desired, other types of springs than the bar springs 9 may be employed. The sewer cleaner has been successfully demonstrated in actual practice.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of the present invention.

What is claimed is:—

1. A sewer cleaner comprising a spear having a shank and barbs at the forward end of the shank, cutters having sharpened forward edges and means for holding said cutters in radially spaced relation from the shank of said spear.

2. A sewer cleaner comprising a spear having a shank and barbs at the forward end of the shank, cutters disposed in radially spaced relation from said shank, said cutters having forward cutting edges and resilient means urging said cutters outwardly from said shank.

3. A sewer cleaner comprising a spear having a shank and barbs at the forward end of said shank, arcuate cutter plates having their concave surfaces oppositely disposed from each other, said cutter plates having sharpened forward edges and means for holding said cutter plates in radially spaced relation from said shank.

4. A sewer cleaner comprising a spear having a shank and barbs at the forward end of the shank, arcuate cutter plates having opposed concave surfaces and resilient means connecting said cutter plates with said shank to hold said cutter plates in radially spaced relation from the shank and urging said plates outwardly from the shank.

5. A sewer cleaner comprising a spear having a shank and barbs at the forward end of said shank, bar springs secured to the rear end of said shank and arcuate cutter plates disposed in radially spaced relation from said shank and connected to said bar springs and having their concave surfaces oppositely disposed, said cutter plates having sharpened forward edges.

6. The structure defined in claim 5, the rear edges of said cutter plates also being sharpened.

7. A sewer cleaner comprising a head including a spear having a shank and barbs at the forward end of the shank, bar springs secured to the rear end of said shank and having their forward ends disposed in outwardly spaced relation from said shank rearwardly from the forward end thereof, arcuate cutter plates connected respectively to the forward ends of said springs, the concave surfaces of said cutter plates being oppositely

disposed from each other and the forward edges of said cutter plates being sharpened and a sewer rod secured to the rear end of said shank.

- 5 8. A sewer cleaner comprising a spear having a shank provided with barbs at its forward end and provided with barbs in rearwardly spaced relation from its forward end, arcuate cutter plates having sharpened forward edges and disposed in radially spaced relation from said second mentioned barbs and means connecting said cutter plates with said shank.

10 In testimony whereof I affix my signature.

15 PETER O. REE.

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## DISCLAIMER

1,864,617.—*Peter O. Ree*, Austin, Minn. SEWER CLEANER. Patent dated June 28, 1932. Disclaimer filed September 22, 1933, by the patentee, and the assignee of one-half interest, *Ralph H. Peters*.

Hereby enter this disclaimer by disclaiming from claims 1 and 2 any sewer cleaner when such a sewer cleaner does not have cutters provided with forward edges spaced rearwardly from barbs mounted at the forward end of the shank of a spear, and by disclaiming from claims 3, 4, 5, 6, and 7 any sewer cleaner when such a sewer cleaner does not have cutter plates provided with forward edges spaced rearwardly from barbs mounted at the forward end of the shank of a spear.

[*Official Gazette October 17, 1933.*]