

UNITED STATES PATENT OFFICE

2,397,328

METHOD OF DESTROYING VEGETABLE
MATTER IN PIPES

Arnold Chester Ripley, Windsor, Ontario, Canada

No Drawing. Application March 26, 1945, Serial
No. 585,004. In Canada August 28, 1944

2 Claims. (Cl. 134—22)

This invention relates to a method of destroying sewer roots and the like and to a composition of matter to be used therefor.

The composition dissolves in water, and when poured into the sewer, destroys the roots, thereby cleaning the sewer passage.

Prior to this invention the methods used to accomplish a partial cleaning of root blocked sewers, have been mechanical.

The ordinary sewer construction from the main street sewer to the building normally is a crock 24 inches in length, generally ranging in diameter from 6 inches up, being joined by a hub at one end and hub being sealed with Portland cement.

The moisture from a sewer will attract the roots of any nearby tree. Such roots will go down to a sewer quite readily in the loosened dirt replaced in a trench after a sewer installation. Penetration through the porous cement or between the crock hub and cement causes approximately 90% of sewer stoppages occurring between the main trap or sewer vent, and the street sewer. The process of removal in the past required the physical digging up of the sewer and removing the roots, or the use of a mechanical root cutter which will cut the roots leaving the stubs to continue to catch sewerage passing through the sewer and to grow again.

It has been proven that root stoppage can be removed by the use of the chemical herein described.

By placing this mixture into the sewer through the breather pipe at the main trap, it will dissolve in the water and sewerage in the blocked drain. Being heavier than water it will work its way down the sewer, attacking the roots where they enter the sewer, burning and dissolving the roots, allowing a clear passage for the sewerage. This saves the necessity and expense of digging the sewer for cleaning and removing the roots, which necessitates the destruction of many a lawn, requiring time and expense to replace.

This chemical has cleared all the sewer stoppages caused by tree roots in cases where this chemical has been used. It has not failed in any test. From use in twenty-four sewer stoppages, fourteen were cleared with one charge of the chemical, five were cleared with two charges, three were cleared with three charges, two were cleared with four charges, depending on the amount of obstruction in the sewer and the distance to the main sewer. There is no damage to either cast iron or crock sewer pipe from the use of this composition.

In use, the composition must be placed in sewer vent pipe or breather pipe, and followed immediately by several gallons of hot water, in order to hasten the dissolving of the chemical and increasing its effectiveness.

The ingredients constituting the composition, and the preferred approximate relative quantities thereof, are the following:

	Pounds
Caustic soda in flake form.....	100
Copper sulphate in crystal form.....	8
Ammonium sulphate in powdered form.....	½

all thoroughly mixed together.

The composition is dumped into the sewer, conveniently into the sewer vent opening or closed opening to the part of the sewer believed to be plugged or obstructed. Immediately following the dumping of the composition, several gallons of hot water are poured into the sewer, to hasten the dissolving of the composition.

Experience will dictate the quantity of the composition which should be used in each case, the quantity required being mostly a function of the mass of the obstructing matter, the nature and characteristics of such matter, the diameter of the pipe so obstructed, to some extent the slope of the pipe, but to the greatest extent, the site of the obstruction from the point of ingress of the composition.

My experience has shown that not less than one pound of composition, and usually not more than two pounds, should be used for each Imperial gallon of sewerage contained in the pipe between the site of the obstruction and the point of ingress. In the case of a 6 inch pipe, for instance, approximately 1½ to 3 pounds of the composition will be required for each 12 linear inches of pipe intervening between the site of the obstruction and the point of ingress. My experience has also shown that in the case of thirty sewers cleaned by the use of my composition, with varying distances between the obstruction and point of ingress, cleaning was effected by the use of 25 to 100 pounds per stoppage, requiring between 3 to 24 hours.

Usually the site of the obstruction may be fairly correctly guessed by taking into consideration the size and distance of the nearest tree.

What I claim is:

1. The method of cleaning obstructions in a pipe caused by the presence of vegetable matter, which consists in introducing into the pipe, to be dissolved into the sewerage and attack the vegetable matter, a quantity of a mixture of caus-

tic soda, copper sulphate and ammonium sulphate in the approximate relative proportions of 100 lbs., 8 lbs. and $\frac{1}{2}$ lb., respectively.

2. The method of cleaning obstructions in a pipe caused by the presence of vegetable matter, which consists in first introducing into the pipe a quantity of a mixture of caustic soda, copper

sulphate and ammonium sulphate in the approximate relative proportions of 100 lbs., 8 lbs. and $\frac{1}{2}$ lb., respectively, followed by the introduction of hot water, to cause the mixture to be dissolved rapidly in the pipe and attack the vegetable matter.

ARNOLD CHESTER RIPLEY.