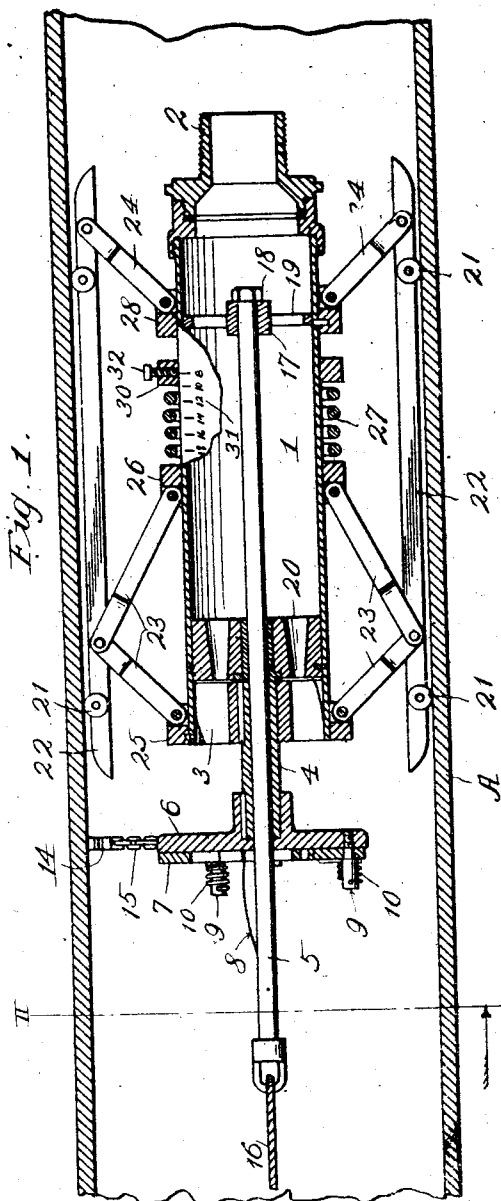


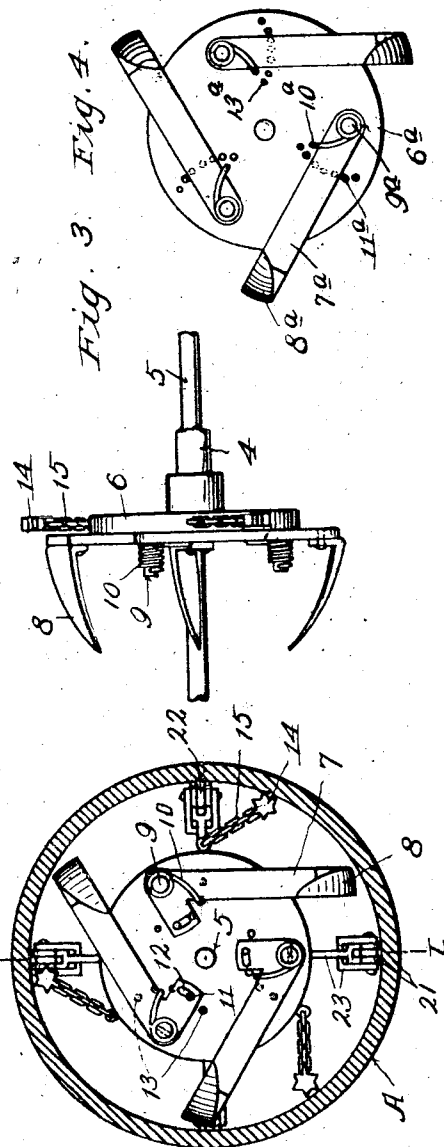
Patented Mar. 23, 1915.

1,132,691.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## SEWER-CLEANER.

1,132,691.

Specification of Letters Patent.

Patented Mar. 23, 1915.

Application filed November 24, 1913. Serial No. 802,760.

*To all whom it may concern:*

Be it known that I, HENRY SIEBEN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Sewer-Cleaners, of which the following is a specification.

My invention relates to improvements in sewer cleaners, and one object is to provide an apparatus of this character which can be readily adjusted to fit sewers of different diameters.

A further object is to provide a sewer cleaner wherein the cleaning elements are free to yield should they contact any hard substance—as cement—adhering to the interior of the sewer.

A further object is to provide a compact apparatus of this character which can be readily inserted into or withdrawn from a sewer through a manhole.

A further object is to provide a sewer cleaner which will reliably remove vines, sand, gravel and other debris clogging a sewer.

In order that the invention may be fully understood, reference will now be made to the accompanying drawing, in which:

Figure 1 is a vertical longitudinal section of the cleaner in a sewer, on line I—I of Fig. 2. Fig. 2 is a cross section on line II—II of Fig. 1. Fig. 3 is a side elevation of an armed head constituting an important feature of the invention. Fig. 4 is a modified form of armed head.

In carrying out the invention, I employ a tubular body 1 provided at its rear end with a hose coupling 2, so that it may be readily coupled to a hose and a hydrant (not shown) for the purpose of flushing the sewer A and driving a turbine 3 at the forward end of the tubular body 1. Turbine 3 is carried upon a tubular shaft 4, journaled upon a stationary shaft 5 and provided at its forward end with a disklike head 6, carrying a plurality of bell-crank levers 7 armed with forwardly-projecting blades 8 whereby debris in the sewer is cut away. The bell-crank levers 7 are pivotally mounted upon studs 9, projecting forwardly from head 6 and provided with springs 10 which bear against the bell-crank levers 7 and tend to press their outer ends carrying the blades 8 against the interior surface of the sewer A. The blades 8 are prevented from actually contacting the

interior of the sewer by pins 11 extending through curved slots 12 struck from the centers of the studs 10 to allow the bell-crank levers 7 and their blades 8 to slightly yield should the blades contact a hard substance, such as cement, adhering to the interior surface of the sewer.

In order that the bell-crank levers 7 may be adjusted outward or inward to accommodate sewers of greater or smaller diameter, I provide a series of holes 13 for each pin 11, said holes 13 being in an arc struck from the center of each stud 10.

In addition to the blades 8, the head 6 is armed with strikers 14 fixed to the outer ends of cables 15 secured at their inner ends to the heads 6. The strikers 14 are thrown with considerable force against the interior of the sewer when the head 6 is rotated at high speed by the turbine 3, and loosen and break away foreign matter adhering to the interior of the sewer not touched by the blades 8.

Shaft 5 is provided at its forward end with a cable 16 which may be run around a windlass as disclosed in my pending application Ser. No. 795,809, filed Oct. 17, 1913, in order to draw the cleaner through the sewer. The rear portion of the shaft 5 extends through a centrally-disposed bearing 17 and is provided with a nut 18 to prevent its withdrawal from said bearing when the cable 16 is pulled forward. Bearing 17 is secured to the interior of the body portion 1 by radial arms 19.

20 designates a nozzle member secured in the tubular body just in advance of the turbine 3, to concentrate the water flowing through the tubular body 1 from the hydrant, so that it will impinge the blades of the turbine 3 with considerable force and cause the same to rotate at high speed.

Tubular body 1 is held centrally within the sewer A, by rollers 21 which traverse the interior surface of the sewer and are mounted upon parallel bars 22, carried at their forward ends by toggles 23, and at their rear ends by links 24. Toggles 23 are pivotally connected at their forward ends to an annulus 25 fixed to the forward end of the tubular body 1, and said toggles 23 are pivotally connected at their rear ends to a sleeve 26, slidably mounted upon the tubular body 1 and pressed forward by a coil spring 27 embracing said tubular body

1. By placing the spring 27 in the rear of the sleeve 26, the latter is yieldingly-held in forward position and in turn yieldingly holds the rollers 21 against the interior of the sewer, so that said rollers may yield when contacting an obstruction adhering to the interior surface of the sewer. Links 24 are pivotally connected at their outer ends to the parallel bars 22 and at their inner ends to a collar 28 secured to the tubular body 1.

30 designates a collar in the rear of the coil spring 27 to regulate the compression thereof. Collar 30 is adjustable upon the graduated periphery 31 of the tubular body 1, so that it may be instantly set to properly adjust the rollers 21 and their parallel bars 22 to accommodate sewers of different diameters, and after such adjustment the collar is locked from accidental movement by a set screw 32.

Referring now particularly to the modified form, Fig. 4, 6<sup>a</sup> designates the rotary head, 7<sup>a</sup> levers pivotally mounted upon studs 9<sup>a</sup> projecting from the rotary head 6<sup>a</sup>, 10<sup>a</sup> springs mounted upon the studs 9<sup>a</sup> and normally pressing the levers 7<sup>a</sup> against the pins 11<sup>a</sup>. Pins 11<sup>a</sup> are adapted to enter any of the holes 13<sup>a</sup>. The levers 7<sup>a</sup> are armed with blades 8<sup>a</sup>.

While I have described my invention as a sewer cleaner, I desire to have it understood that it will prove equally as efficient in cleaning water mains of the accumulation of sediment and other foreign matter deposited by the water within said mains.

When the device is to be employed in cleaning water mains the blades 8—8<sup>a</sup>, are adjusted inward away from the interior surface of said mains, to avoid contacting service pipes and cocks which sometime project within the mains an eighth of an inch or more. The strikers 14, however, can contact these projections without injury and thus free them and the interior surface of

the mains of foreign matter not touched by the blades.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. In a sewer cleaner, a rotary head, a lever yieldingly-mounted upon said head, and a cleaning device secured to said lever and extending forwardly therefrom.

2. In a sewer cleaner, a rotary head, a plurality of levers yieldingly mounted upon said head and extending approximately at a tangent therefrom, and cleaning devices secured to said levers and extending forwardly therefrom.

3. In a sewer cleaner, a rotary head, a lever yieldingly-mounted upon said head, and a blade rigidly secured to said lever and extending forwardly therefrom.

4. In a sewer cleaner, a rotary head, a lever pivotally-mounted upon said head, means to limit pivotal movement of said lever and to adjust the same to different size sewers, and a cleaning device on said lever.

5. In a sewer cleaner, a rotary head, studs projecting from said head, bell-crank levers mounted upon said studs and having curved slots struck from the centers of the studs, pins adapted to extend through the slots and adjustably engage the rotary head, springs mounted upon the studs and bearing against the bell-crank levers to press their free ends toward the interior of a sewer, and cleaning devices on the bell-crank levers.

6. In a sewer cleaner, a rotary head, cleaning devices yieldingly-mounted upon the front side of said head, and a turbine to drive said head.

In testimony whereof I affix my signature, in the presence of two witnesses.

HENRY SIEBEN.

Witnesses:

F. G. FISCHER,  
L. J. FISCHER.