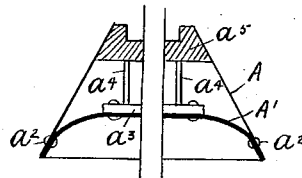
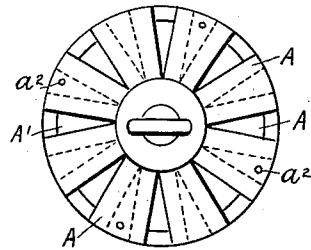
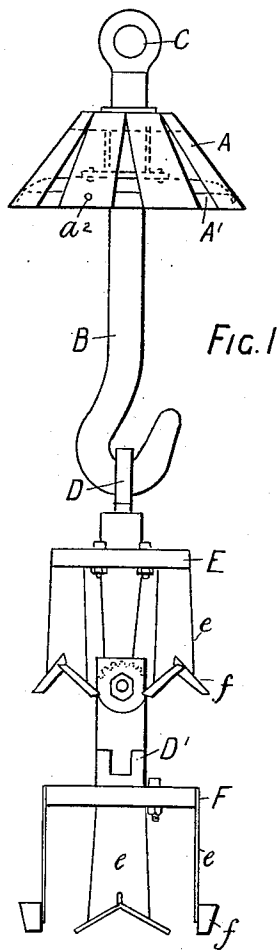


F. W. HAMMOND.
 WATER MAIN SCRAPER.
 APPLICATION FILED JULY 17, 1912.

1,058,175.

Patented Apr. 8, 1913.



Witnesses:-
Edw. Schmidt
Edw. Schmidt

Frederick William Hammond
 Inventor
 by Frank P. Wentworth
 his Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK WILLIAM HAMMOND, OF CHEPSTOW, MONMOUTH, ENGLAND, ASSIGNOR TO
THE ERIC (PATENT) WATER MAIN SCRAPER CO. LIMITED, OF CHEPSTOW, MON-
MOUTH, ENGLAND, A CORPORATION OF ENGLAND.

WATER-MAIN SCRAPER.

1,058,175.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed July 17, 1912. Serial No. 710,088.

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM HAMMOND, a subject of the King of Great Britain and Ireland, residing at Crossway Green, Chepstow, Monmouth, England, have invented certain new and useful Improvements in Water-Main Scrapers, of which the following is a specification.

This invention relates to water main scrapers of the cone type, in which one or more cones have the apex in the direction of motion and the periphery which scrapes the tube, consists of a series of overlapping plates or blades. The said blades which are made up of a number of pieces of metal hinged or jointed together to render them flexible, and a leather cup is placed in position, extending about two thirds from the base to the apex of the cone. In this position the blades under heavy pressure were found to bind against the side of the pipe to be cleaned, causing heavy wear to the blades.

This my invention relates particularly to equalizing the water pressure on the periphery of the head blades by a new construction and arrangement of the leather cup.

In order that my invention may be readily understood, reference is made to the accompanying drawings, in which—

Figure 1 is an elevation of the whole apparatus; Fig. 2 is a plan view of cone; Fig. 3 is a section of cone showing how the leather is attached by rods to the frame of the cone.

A is the cone whose base when extended is larger than the diameter of the tube to be cleaned. This cone is secured to the shank of the hook B provided with eyelet C to which the cable or the like is attached. The hook B is passed through the eyelet D on the rod, whereon are secured scrapers E, F. These are shown as of approximately cylindrical form, having spring blades *e* supporting scrapers *f*. The form of these scrapers

is usually that of the letter Y reversed and they are so placed that the scrapers of E alternate in their action with the scrapers at F. The rod D is jointed at D¹ to add to its flexibility.

A¹ is the leather cup for retention of fluid pressure, the said leather being riveted at A² to alternate blades of the cone A and also riveted to a plate A³ supported by tubes or rods A⁴ secured to the frame A⁵. By thus attaching the leather to alternate blades, a pocket is formed below the leather and water, under pressure, acting on this pocket, will draw the blades inward.

The area of the plate A³, the pocket, and the edge of the blades are proportional to about 1/3rd each of the area of the head but in actual practice the ratios vary according to requirements. By increasing or decreasing either of these areas the pressure may be utilized in deflecting the blades. The position of the plate A³ to which the leather cup is attached acts in the same way. The nearer it is placed to the base of the blades the greater will be the pressure upon the peripheral edges of the blades.

This device counteracts excessive wear on the head blades and by causing them to deflect instantly with any acceleration of the pressure prevents shocks and consequent bursting of the pipes under operation.

I claim:

In cone scrapers for water mains equalizing water pressure on the periphery of the head blades by a leather cup A¹ riveted at A² to alternate blades of the cone A and riveted to a plate A³ supported by tubes A⁴ secured to the frame A⁵.

In testimony whereof I have affixed my signature in presence of two witnesses.

FREDERICK WILLIAM HAMMOND.

Witnesses:

FRED. SPEAR,
ARTHUR J. WEEKS.