F. D. HEAFER & J. H. LEAGUE.

DITCH SAND STRAINER.

APPLICATION FILED MAY 16, 1912. RENEWED MAR. 25, 1914.

**1,115,534.** Patented Nov. 3, 1914.

Fig. 1.

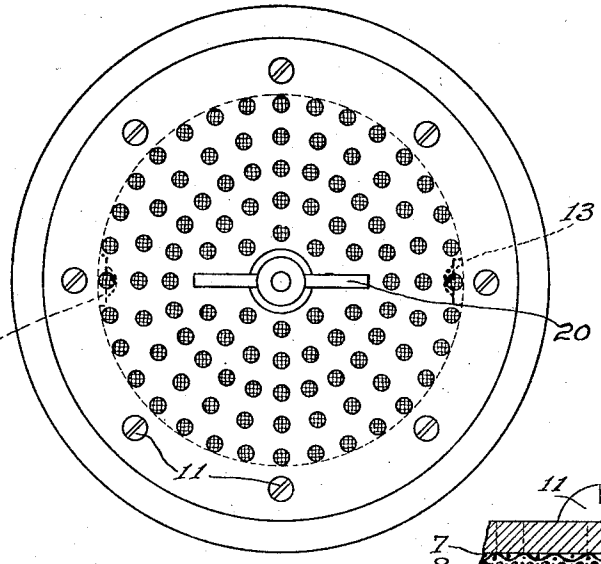



Fig. 3.

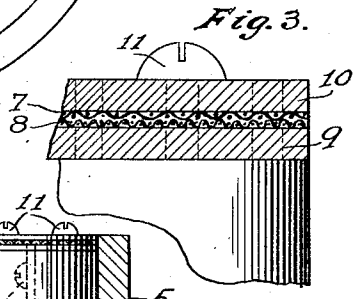
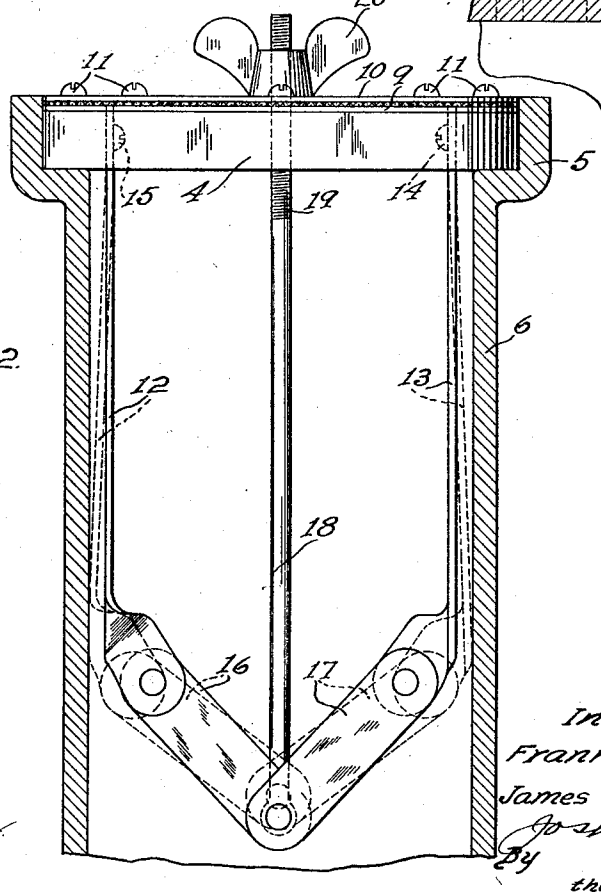



Fig. 2.




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# UNITED STATES PATENT OFFICE.

FRANK D. HEAFER AND JAMES H. LEAGUE, OF CHICAGO, ILLINOIS, ASSIGNORS OF ONE-THIRD TO WILLIAM BALMER, OF CHICAGO, ILLINOIS.

## DITCH SAND-STRAINER.

1,115,534. Specification of Letters Patent. Patented Nov. 3, 1914.

Application filed May 16, 1912, Serial No. 697,661. Renewed March 25, 1914. Serial No. 827,245.

*To all whom it may concern:*

Be it known that we, FRANK D. HEAFER and JAMES H. LEAGUE, citizens of the United States, and residents of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Ditch Sand-Strainers, of which the following is a specification.

Our invention relates to strainers for straining sand from water through conduits and the object of this improvement is to provide a device of this character which will be simple of construction and efficient in operation.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing forming a part of this specification, and in which,

Figure 1 is a plan view of our device, Fig. 2 is an elevation of the same showing its application in a conduit, and Fig. 3 is a fragmental section of the straining head.

The preferred form of construction, as illustrated in the drawing, comprises an annular frame 4 adapted to fit into the flange 5 of a conduit 6 which is of a conventional pattern. Secured on the face of the annular frame 4 between foraminate disks 9 and 10 by means of nuts 11 are straining fabrics 7 and 8, which are fabrics of different sized meshes so that the warps and woofs of one fabric will not be in line with the warps and woofs of the other of said fabrics. The perforations in the foraminate disks 9 and 10 are in registration with one another, as indicated in Fig. 1.

The arms 12 and 13 are secured to the inner surface of the annular frame 4 by means of screws 14 and 15 and extended to provide means for securing the strainer in the conduit. A rod 18 is pivotally connected with the free ends of the arms 12 and 13 by means of connecting rods 16 and 17 in a manner to, when the rod 18 is moved longitudinally, flex the arms 12 and 13 to their dotted lined positions shown in Fig. 2 to engage the walls of the conduit 6 to secure the strainer in said conduit. A manually operative thumb nut 20 is threaded on the rod 18 on the outer face of the outer foraminate disk to manually move the rod 18 longitudinally to accomplish the securing of the device in the conduit. The arms 12 and 13 are preferably formed of a resilient material, such as spring steel so that they will instantly take their normal positions when released by the manually operative thumb nut 20.

By providing wire fabrics of different meshes in proximity with one another the water is permitted to pass through the perforations in the foraminate disks and the wire fabrics straining out the sand and floating particles in the water thus preventing them from entering the conduit.

While we have illustrated and described the preferred form of construction for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We, therefore, do not wish to be limited to the precise details of construction as set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claim.

Having described our invention what we claim as new and desire to secure by Letters Patent is:

A device of the kind described the combination with a sewer pipe having a flange at one end, of an annular frame in said flange; a covering over the opening of said frame; two resilient arms rigidly secured to the inner side of said annular frame diametrically opposite each other and in parallel relation when in normal conditions; a rod through said covering; connecting rods connecting one end of said rod with the free ends of said resilient arms; and a thumb nut threaded on the other end of said rod and adapted to cause flexing of said resilient arms, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANK D. HEAFER.
JAMES H. LEAGUE.

Witnesses:
JOSHUA R. H. POTTS,
JANET E. FARRELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."