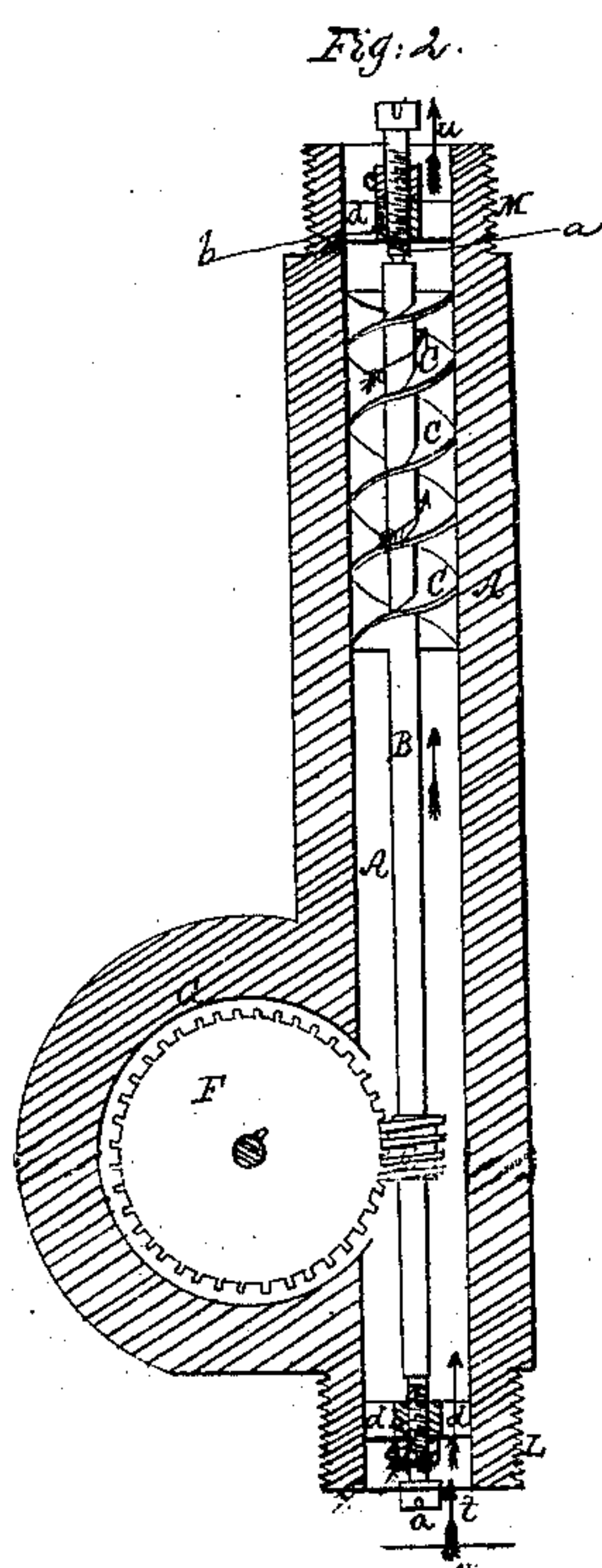
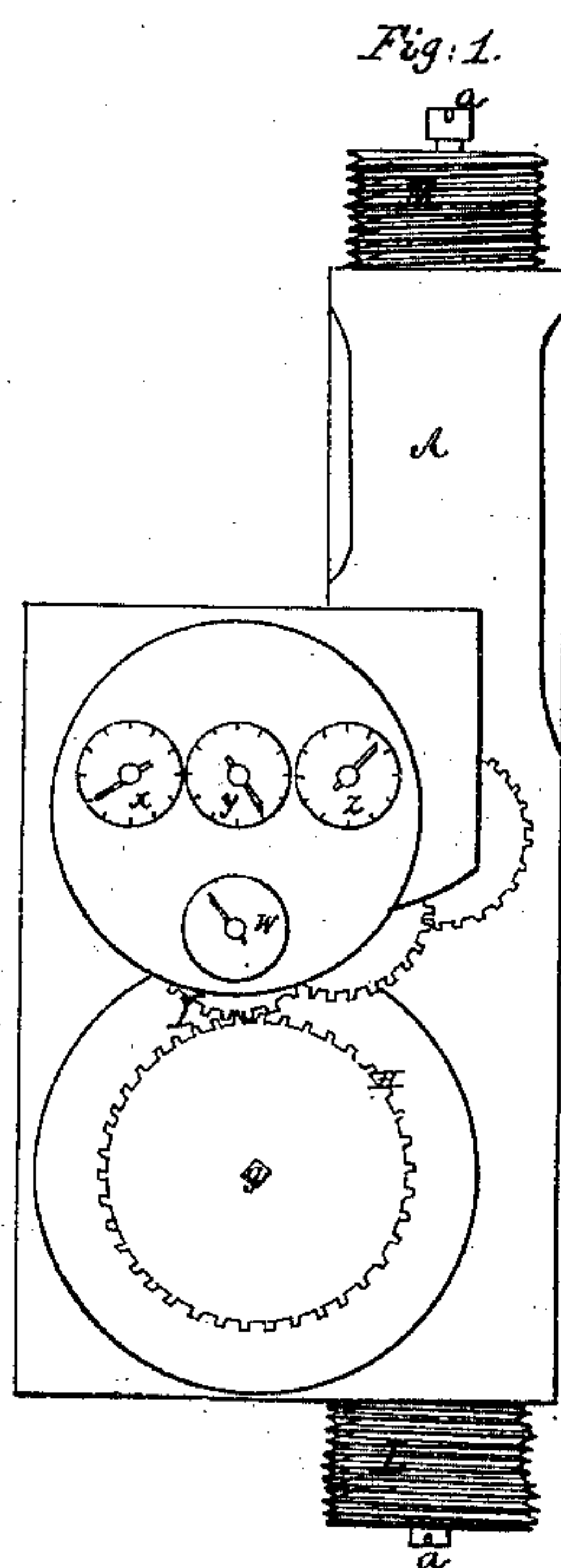


No. 44,432.

PATENTED SEPT. 27, 1864.

H. J. KING.  
WATER METER.



Witnesses:

J. Henry Bell  
H. J. King.

Inventor:

Henry J. King.  
by his attorney.  
Thos. C. Dodge

# UNITED STATES PATENT OFFICE.

HENRY J. KING, OF WORCESTER, MASSACHUSETTS.

## IMPROVEMENT IN WATER-METERS.

Specification forming part of Letters Patent No. 44,432, dated September 27, 1864.

*To all whom it may concern:*

Be it known that I, HENRY J. KING, of the city and county of Worcester, in the State of Massachusetts, have invented certain new and useful Improvements in Water-Meters; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a side view of said water-meter. Fig. 2 represents a longitudinal central section through the same.

My invention relates to the combination of a spiral or grooved shaft within the water-pipe with the working and indicating mechanism of a water-meter, by means of which the water acts in a direct manner on the spiral or screw flanges of said shaft, which latter operates the indicating mechanism, and whereby a perfect operation of the apparatus is obtained by the use of a very simple arrangement.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the pipe through which the water passes. In this pipe a shaft, B, is placed upon two screw center pivots, *a*, in such a manner that it can turn upon said pivots. The screw-pivots *a* pass through open boxes *b*, within the pipe A, in which they can be adjusted with great accuracy, and they are permanently secured in the desired position by means of the screw-nuts *c*, while the openings *d* of said boxes admit of a free passage of the water through the pipe A. The shaft B is provided with a spiral or screw flange, C, of the same diameter as the inner diameter of the pipe A, against which the water, in passing through pipe A, acts and turns the shaft B on its axis. The shaft B is also provided with an endless screw, E, which turns a worm-wheel, F, the latter being secured upon the shaft *g* within the chamber G. The chamber G is cast in one piece with the pipe A, but is so shaped that its connection with said pipe does not in any manner obstruct the free passage of the water in a straight line through the pipe. The shaft *g* passes through a stuffing-box in the side of the chamber G, and the gear-wheel H is secured to the outer end of the shaft *g* and meshes with the gear-wheel I

of the indicating mechanism, by means of which the quantity of water in gallons or cubic feet by units, tens, hundreds, &c., is indicated by means of the dials *w x y z* on their respective dial-plates. This water-meter presents great advantages by the simplicity of its construction and its perfect operation. The meter is secured to the water-pipes by means of the screws L M, and the water is not forced around any sharp angles or turns in the pipes, but passes in a straight course through them until it comes to act upon the spiral flanges C of the shaft B, whose movement is transferred in a direct manner to the gearing of the indicating apparatus. Another great advantage consists in the facility with which the bearings of the screw-pivots *a* can be adjusted so as to cause the shaft B to turn freely and to operate with precision.

The apparatus is not liable to clog, as the passage of the water in a straight course through the pipe A will prevent any sediment from lodging therein and will thus keep the pipe clear.

In transmitting motion of the shaft B to the wheel F, by means of the endless screw E, I change the fast motion of the shaft B to a slow motion by one set of gears, which with ordinary gear-wheels would require several sets of wheels, and I thus materially simplify the apparatus. The water, in passing through the meter, enters the pipe A at *t*, and passing through the pipe it turns the screw C and shaft B and escapes at *u*, as indicated by the arrows.

Having thus fully described the nature of my invention, what I claim herein as new, and desire to secure by Letters Patent, is—

1. The shaft B, provided with the screw-flanges C, in combination with the endless screw E, worm-wheel F, and indicating mechanism, substantially as and for the purposes described.

2. The arrangement of the shaft B with the pipe A, having its inlet and outlet passages, as set forth, in combination with the chamber G of the main gear-wheel F, substantially in the manner and for the purposes described.

HENRY J. KING.

Witnesses:

J. HENRY HILL,  
THOS. H. DODGE.