

(No Model.)

I. SMITH.  
ROTARY WATER METER.

No. 545,254.

Patented Aug. 27, 1895.

Fig. 2.

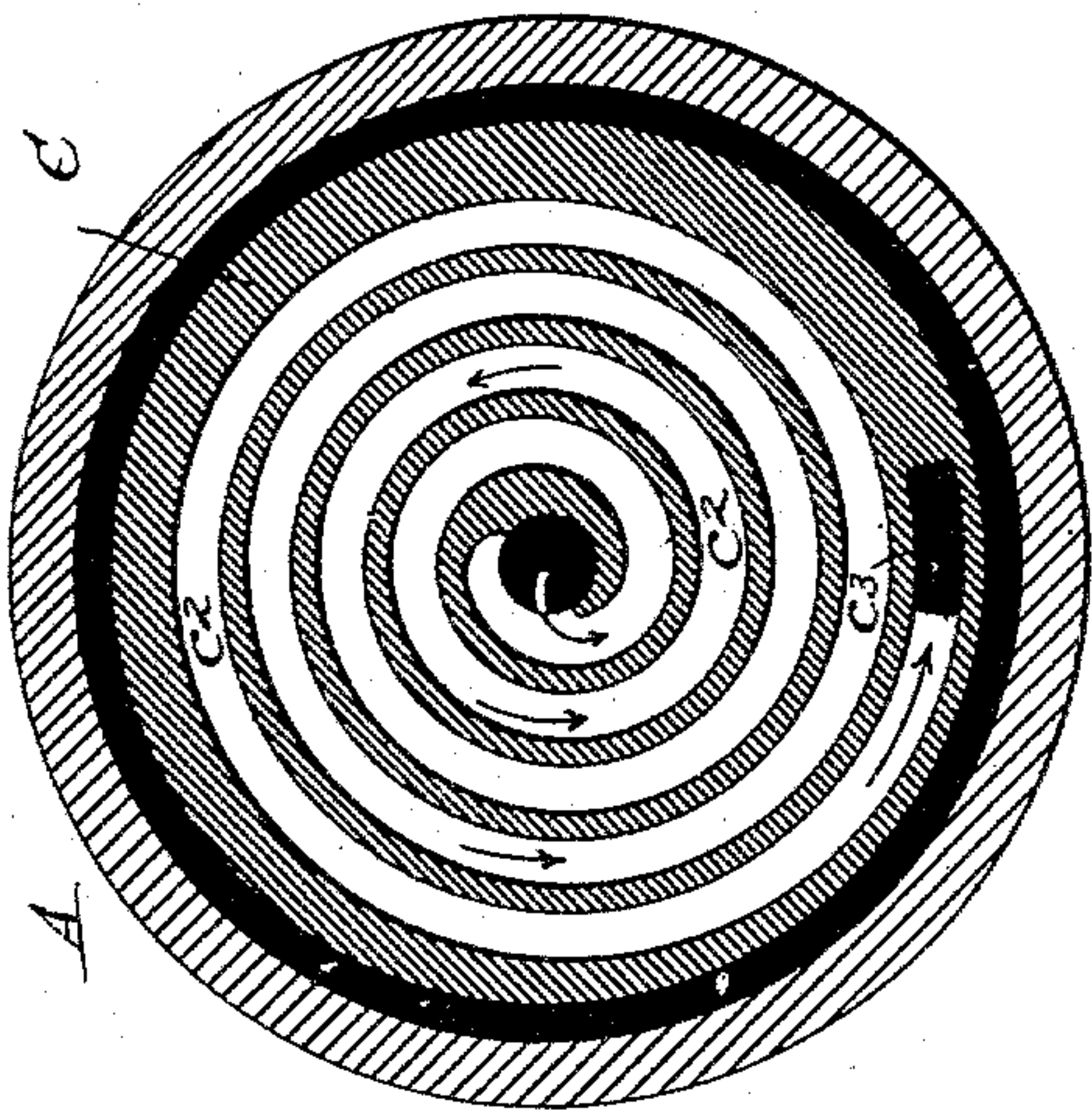
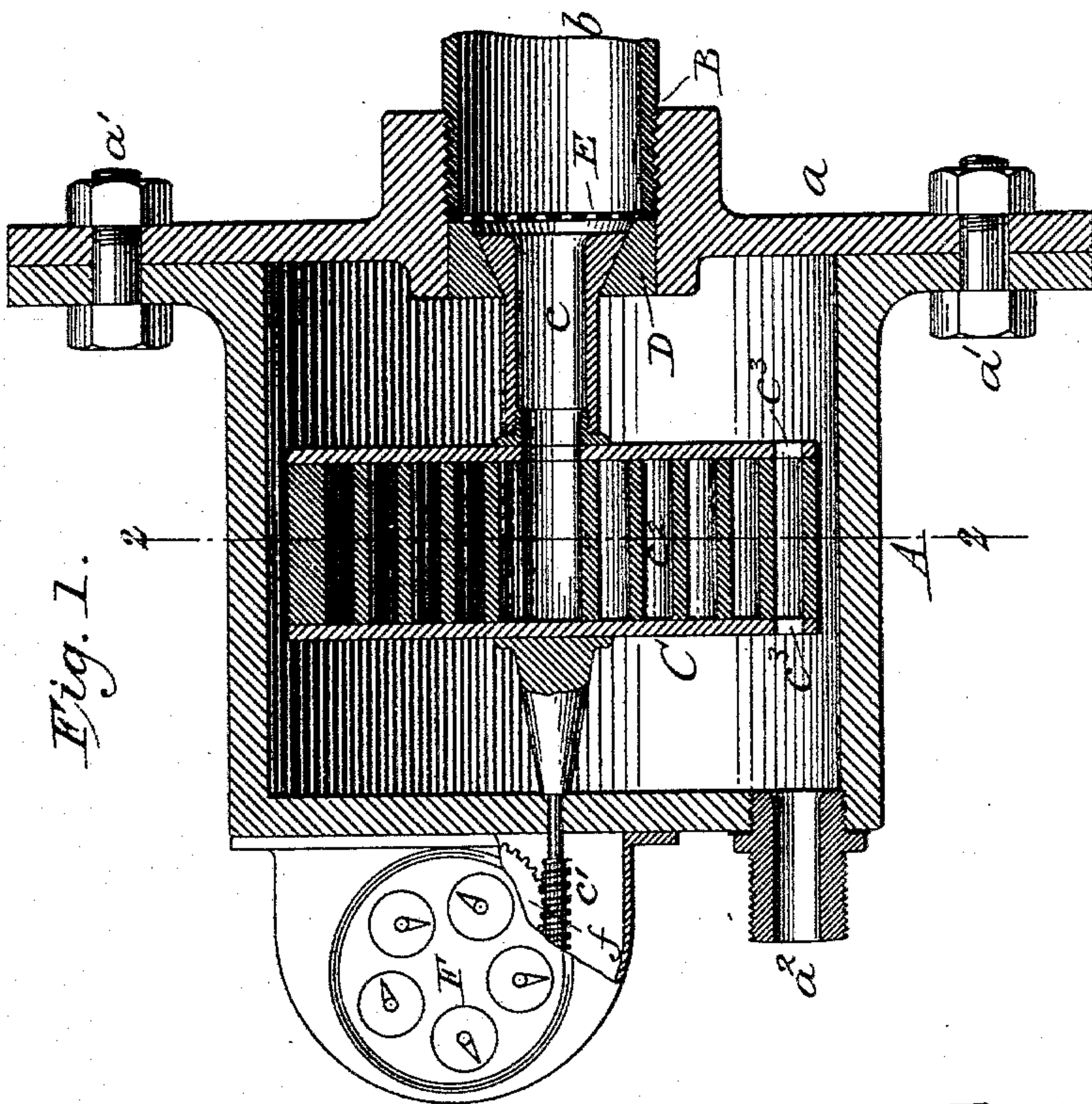


Fig. 1.



Witnesses,

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# UNITED STATES PATENT OFFICE.

ISAAC SMITH, OF NOTTINGHAM, ENGLAND.

## ROTARY WATER-METER.

SPECIFICATION forming part of Letters Patent No. 545,254, dated August 27, 1895.

Application filed July 6, 1894. Serial No. 516,743. (No model.)

*To all whom it may concern:*

Be it known that I, ISAAC SMITH, a subject of the Queen of Great Britain, residing at Mount Hooton Road, Nottingham, England, have invented a certain new and useful Rotary Water-Meter, of which the following is a specification.

According to this invention I provide a meter especially adapted for measuring water in which registering and indicating mechanism is driven by apparatus caused to rotate by the friction of a steam or fluid, such as water, passing through it. The moving part of the apparatus consists of a disk having a spiral passage in it leading from its axis, which is hollow, to its circumference. One end of the passage is connected to the supply and the other to the exit port. If a stream of fluid flows through this passage, its friction causes the disk to rotate. In order to increase the friction, the sides of the passage may be roughened or serrated. The rotating part of the apparatus is preferably arranged in a casing into which the fluid passes, and from which it is discharged through a suitable pipe. The shaft of the rotary disk gears with mechanism which drives a train of gearing connected with registering and indicating devices.

In the accompanying drawings, Figure 1 is a vertical central section through a water-meter constructed in accordance with my invention. Fig. 2 is a transverse section on the line 2 2 of Fig. 1.

The motor proper is preferably made of aluminium, so that strength and lightness are combined.

The casing A is provided with a removable end plate  $a$ , secured by bolts  $a'$ . It is provided with a central opening B, into which is screwed the supply-pipe  $b$ . The shaft  $c$  of the motor proper C is hollow, one end being mounted in a bearing-washer D, which is preferably coned, as shown. A sieve E may be

employed for preventing the entrance of solid matter. The opposite end of the shaft  $c$  extends through the casing and is provided with a worm  $c'$ , gearing with a cog  $f$ , which drives a train of gearing operating the recording or registering and indicating mechanism F. The motor disk or wheel C is formed with a spiral passage  $c^2$ , which extends from the hollow shaft at the center of the periphery of the disk, exit ports  $c^3$  being provided, as indicated in Fig. 1. The spiral passage  $c^2$  is of the same cross-section throughout its length, and it winds around the axis of the hollow shaft, communicating at one end with the hollow shaft and at the other end with the exit-port. The fluid passing through the spiral passage and through the exit-ports  $c^3$  enters the casing A and discharges through the pipe  $a^2$ . By this mechanism the quantity of water passing through the apparatus may be accurately measured.

It is well understood that in a water-meter it is essential that the speed of rotation of the index should vary directly as the rate of flow of the water passing through the meter. My apparatus is so organized as to operate in this way.

I claim as my invention—

The combination of the casing, the hollow shaft mounted to revolve therein, the disk mounted on the shaft and having in it a spiral passage of the same cross section throughout its length, winding around the axis of the hollow shaft, communicating at one end with the hollow shaft and at the other end with the exit port, an outlet to the casing, and registering mechanism connected with the shaft and driven thereby.

ISAAC SMITH.

Witnesses:

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