

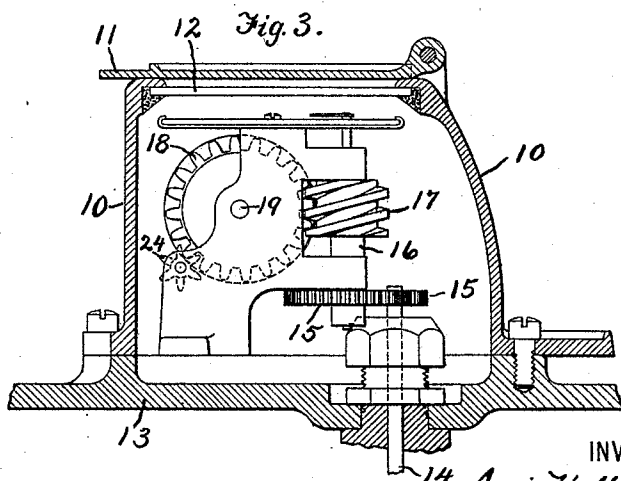
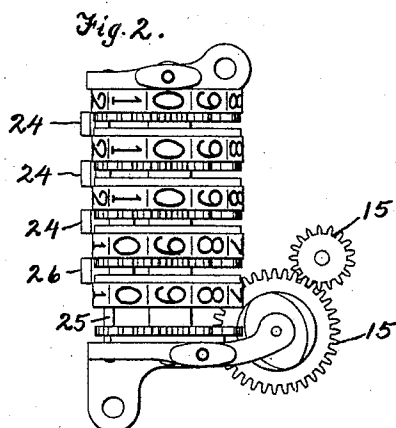
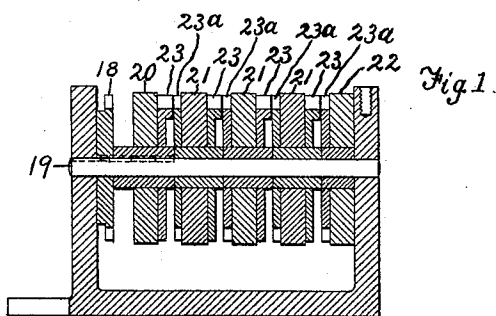
(No Model.)

2 Sheets—Sheet 1.

L. H. NASH.
METER REGISTER.

No. 577,387.

Patented Feb. 16, 1897.



WITNESSES:

Charles H. Johnson
Dennis A. Cowe

INVENTOR

Norris Hallock Nash

BY

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ATTORNEYS.

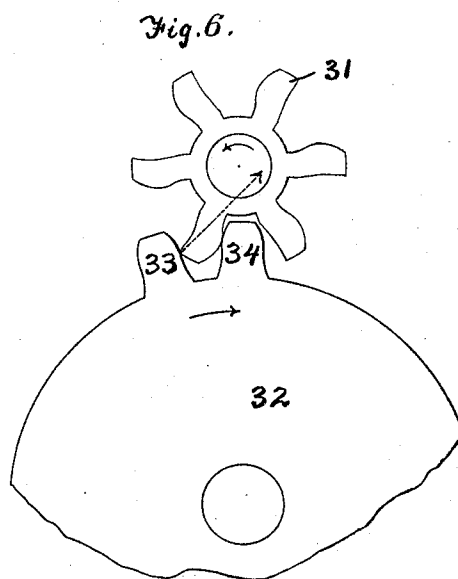
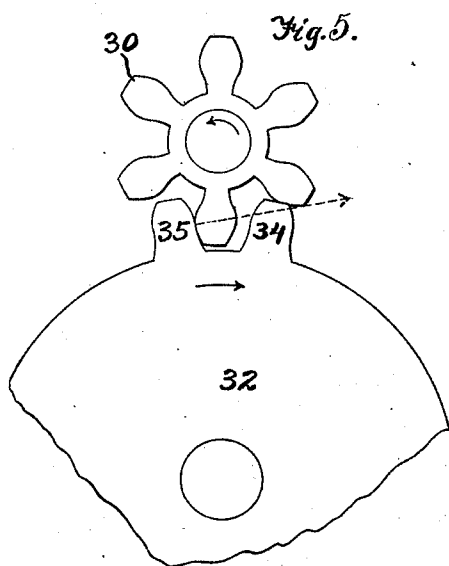
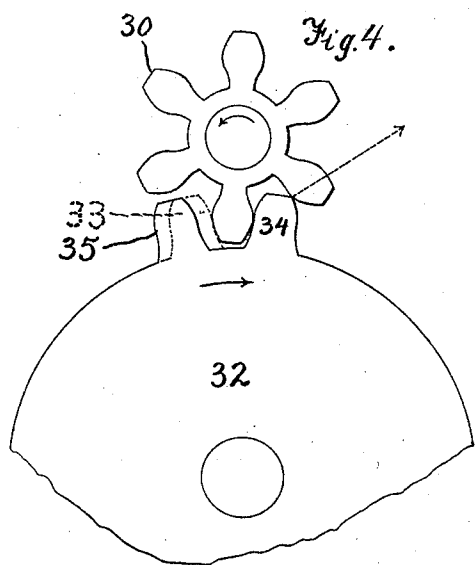
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2 Sheets—Sheet 2.

L. H. NASH.
METER REGISTER.

No. 577,387.

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WITNESSES:

Charles M. Delan
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INVENTOR

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UNITED STATES PATENT OFFICE.

LEWIS HALLOCK NASH, OF SOUTH NORWALK, CONNECTICUT.

METER-REGISTER.

SPECIFICATION forming part of Letters Patent No. 577,387, dated February 16, 1897.

Application filed April 28, 1896. Serial No. 589,430. (No model.)

To all whom it may concern:

Be it known that I, LEWIS HALLOCK NASH, a citizen of the United States, and a resident of South Norwalk, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Meter-Registers, of which the following is a specification.

My invention relates to registers, and is especially adapted to the register of a water-meter, although it might be used for other purposes; and it consists of certain novel parts and combinations of parts particularly pointed out in the claim concluding this specification.

The following is a description of a meter-register embodying my invention in the forms which are at present preferred by me; but it will be understood that various modifications and changes may be made without departing from the spirit of my invention and without exceeding the scope of the concluding claim.

In the accompanying drawings, Figure 1 is a longitudinal section through a part of the meter-register. Fig. 2 is a top view of the registering apparatus removed from the case. Fig. 3 is a cross-section through the case in front of the register. Figs. 4, 5, and 6 are detail views of driving teeth and pinions.

The following is a description of the structure shown in the said drawings.

Referring to Fig. 3, 10 is the case, provided with a cover 11, hinged thereto. 12 is a plate of glass through which the dials may be read. 13 is the upper part of the case containing the meter proper. 14 is a spindle operated by the meter-piston. 15 15 are gear-wheels connecting the spindle 14 with the shaft 16, which carries worm 17. The worm 17 meshes with the gear-teeth on the wheel 18, which is carried by a shaft 19.

20, Fig. 1, is an index-wheel which is also carried on the shaft 19. 21, 21, 21, and 22 are similar index-wheels. 23 are two lateral spurs, and 23^a are complete spur-gears attached to the sides of the wheels. 24, 24, 24, and 26 are pinions mounted on shaft 25. These pinions each intermesh with teeth and spurs on adjacent wheels in such a manner that one wheel is caused to advance one step at each complete rotation of its fellow. This

is accomplished by reason of the fact that each of the pinions 24 is in driving relation with one wheel and driven relation with its fellow. It is only driven, however, one step at each complete rotation of the driving-wheel, at other times remaining at rest. As this construction is now well known in the art, a fuller description is deemed unnecessary.

Referring to Figs. 4, 5, and 6, 30 and 31 are pinions. 32 is a gear-wheel, only two of the teeth being shown. 33 shows in dotted lines a tooth in normal relation to the tooth 34. It is now a common practice to lay out intermeshing teeth, as shown in Fig. 4, by the teeth 30 on the pinion and the teeth 33 and 34 on the gear-wheel.

My present invention consists in making the spaces between the teeth on the driving part greater than on the driven part. The object of this improvement is to diminish injurious strains after the teeth become worn.

In Fig. 6 I have shown a pinion-wheel 31 with the teeth worn, and it will be observed that the tooth 33, but not the tooth 34, is in driving relation with the pinion. This gives rise to a force in the direction of the arrow, which, being toward the point of support, tends to bind the wheel and increases friction and also to unduly wear the tooth 33.

Fig. 4 in full lines shows the teeth constructed according to my present invention. In this position the tooth 34 is doing the work, and the force exerted is in the line of the arrow, which is away from the support of the pinion. As this tooth is leaving and not entering contact, the friction is at a minimum.

In Fig. 5 I have shown the wheel 32 in the next position, in which the tooth 33 is doing the work, the resultant force being in the line of the arrow away from the support of the pinion. It will therefore be observed that the space between the driving-teeth is greater than between the teeth being driven, so that driving force is exerted between teeth which are leaving contact and not between teeth which are approaching contact, (as is usual,) and friction is thereby reduced, while injurious strains are avoided after the teeth are worn. This results in a somewhat intermittent motion of the driven part; but it will of course be understood that the illustrations

are exaggerated and that in practice a much smaller difference between the teeth on the two parts is permissible.

5 In the foregoing specification I have described for clearness a complete registering device containing my present invention; but it will be understood that my invention may be embodied in any other desirable form of registering device, since my claim is not limited to these features, but relates solely to the
10 form and relation of the gear-teeth on the driving and the driven parts.

15 In a divisional application filed December 22, 1896, Serial No. 616,624, I have claimed the features of improvement in the registering device herein referred to which are inde-

pendent of the form and relation of the gear-teeth on the driving and the driven parts, and I therefore make no claim herein to such features.

What I claim is—

20 In a registering device the combination in cam-gearing of a driving part consisting of a spur-gear and a driven part consisting of a spur-pinion, the teeth on the driving part being farther apart than the teeth on the driven
25 part.

LEWIS HALLOCK NASII.

Witnesses:

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CHAS. H. SERGEANT.