

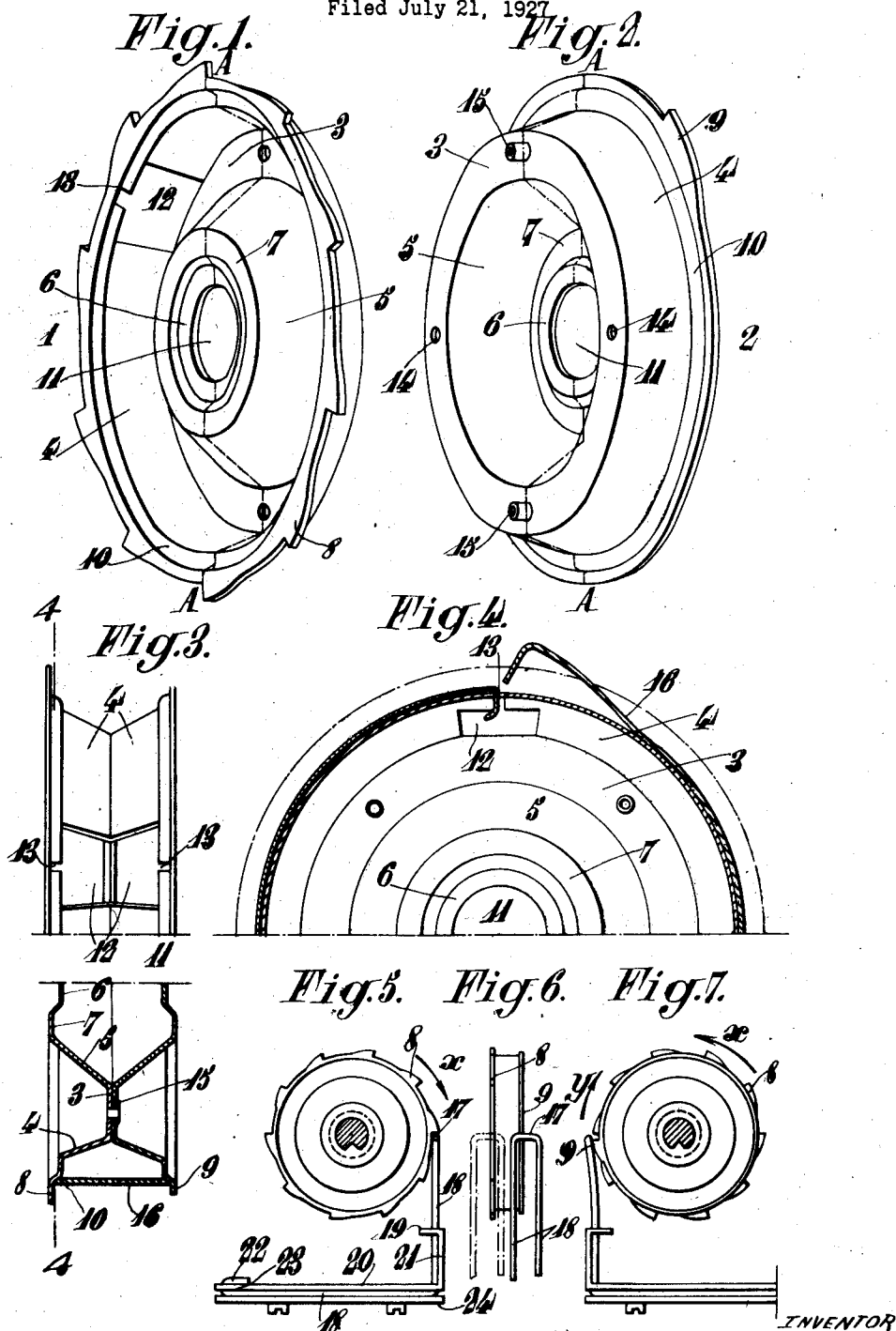
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REGISTER WHEEL

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## UNITED STATES PATENT OFFICE.

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## REGISTER WHEEL.

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It is known that registering devices for meters exist, in which the drums carrying the digits are arranged on a common fixed axis and are actuated by the driving pinion owing to the frictional stresses exerted between their opposite faces.

For obtaining such a registering device, use is generally made of cast drums on the cylindrical wall of which the digits are traced by any suitable means. These drums are provided, on their faces, on the one hand with a ratchet having ten teeth, on the other hand with a single tooth, so that the single tooth of one of the drums and the ratchet having ten teeth of the immediately adjacent drum can be combined with a suitable locking system. The single tooth actuates the locking system, upon the carrying forward operation, so as to release the teeth of the adjacent drum and allow the latter to advance to the extent of one division under the frictional stress constantly tending to cause it to rotate.

The present invention relates to an improvement in the construction of registering devices for meters. This improvement consists in obtaining the drums by pressing. Each drum is constituted by the assemblage of two pressed discs in the shape of a bowl, with a projecting central portion, for forming the corresponding friction disc; the outer ledge of each bowl being cut out so as to obtain the ratchet having ten teeth, or the single transfer tooth. In the groove of the pulley thus obtained is mounted and secured a metal band, forming a cylindrical rim for carrying the digits. The particular arrangement of the ratchet and of the single tooth allows use of simple springs, made of a piano string, as the locking system of the drums.

In the accompanying drawing and by way of example:

Figs. 1 and 2 respectively illustrate, in perspective view, each of the two pressed discs, the line A—A representing a virtual diametral section of each of these discs.

Fig. 3 illustrates, partly in external view and partly in section, the drum constituted by the assemblage of the discs.

Fig. 4 is a partial cross section made according to line 4—4 of Fig. 3.

Figs. 5, 6 and 7, are, on a reduced scale, views of a drum with its locking system, respectively in left-hand side view, elevation, and right-hand side view.

Each drum is formed by the juxtaposition

and assemblage of two discs 1—2 similarly pressed. Each disc 1—2 presents the shape of a bowl with a projecting central portion, so that the flat bottom 3 of this bowl is formed by a ring, surrounded by two conical walls 4—5 the apices of which are arranged on either side of the said disc. The projecting central portion is pressed at 6, so as to form a plane ring 7 acting as a friction surface for ensuring the rotation of the drum.

The plane ledge of the bowl is cut out for forming a ratchet 8 having ten teeth (Fig. 1) or for carrying a single tooth 9 (Fig. 2). Between the ledge of the bowl and the conical surface 4 is formed a circular shoulder 10. Each disc is provided with a central circular opening 11 and a notch 12 formed in the conical surface 4. In this notch 12 opens a slot 13 diametrically extending on the circular shoulder 10.

A disc carrying ratchet teeth (Fig. 1) and a disc carrying a single tooth (Fig. 2) are applied against each other, the annular plane bottoms 3 of the bowls corresponding to each other. They are then assembled in any suitable manner so as to constitute the flanges of a kind of pulley (Fig. 3) having a hollow rim, and a V-shaped cross section. It will be seen that, owing to this assemblage, the inclination of the teeth of the ratchet 8 is reverse to that of the single tooth 9.

Preferably, for effecting the assemblage of the discs, on the bottoms 3 of the bowls are formed by pressing, openings 14 and perforated bosses 15; the openings 14 of one of the discs corresponding, relatively to the position, to the perforated bosses 15 of the opposite disc and vice versa. The perforated bosses 15 are fitted in the corresponding openings 14 and the whole is riveted for ensuring the junction of the discs (Fig. 3).

The rim of the drum is constituted by a metal band 16 resting on the circular shoulders 10 and the folded ends of which are engaged into the slots 13. The notches 12, provided in the conical surfaces 4 of the discs permit folding the ends of the band 16 in order to definitely fix it. On this band 16 are printed the digits.

The drums thus obtained are mounted, in the ordinary manner, on the common axis adapted to carry them. The edgewise teeth are combined with a locking system solely formed by springs, made of a piano string bent in the shape of a hair pin. The trans-

verse horizontal member 17 of this pin engages both with the single tooth 9 of a drum and with the ratchet 8, having ten teeth, of the following drum (Fig. 5). The branches 5 18 of each pin enter into openings provided in the flanges 19—20 of a U-shaped support, by fitting against the web 21 of this support, then they are folded or bent under one of the flanges 20 and, finally, they are shaped so as 10 to form hooks 22 at their ends, in order to be secured in notches 23 provided in the edge of the flange 20 of the said support. A counter-plate 24 holds the whole in position. Each spring normally locks a drum by engagement 15 with the corresponding ratchet 8 (Fig. 5). At the time of effecting the carrying forward operation, the single tooth 9 of the preceding drum pushes back the spring (Fig. 7) and thus releases the ratchet 8 from the drum 20 which is to be moved one unit. The latter is driven by friction in the direction of the arrow  $x$  until the single tooth 9, allowing the spring to escape, permits the latter to come in engagement with the teeth of the ratchet 8 25 for again locking the drum against any rotary movement.

For bringing back the drums to zero, it suffices to cause them to rotate in the direction

of the arrow  $y$ . The drums are aligned by engagement of their single tooth 9 with the 30 locking springs.

What I claim as my invention and desire to secure by Letters Patent is:

1. Register wheel comprising two pressed discs forming the side members, and a rim 35 formed by a metal band the ends of which hook on the said side members characterized in that each disc is in the shape of a bowl having a flat bottom and a projecting central 40 portion; the flat bottom of each disc fitting against the corresponding flat bottom of the other disc, while the plane face of central portion constitutes a driving friction surface, the ledges of the bowls respectively carrying 45 ratchet teeth and a single tooth for carrying operations.

2. Register wheel as claimed in claim 1, further characterized in that the flat bottoms of the discs are provided with tubular rivets, these rivets passing through corresponding 50 openings of the opposite disc so as to permit the assemblage by riveting.

In testimony whereof I have signed my name to this specification.

CHARLES HILAIRE HENRI RODANET.