

(No Model.)

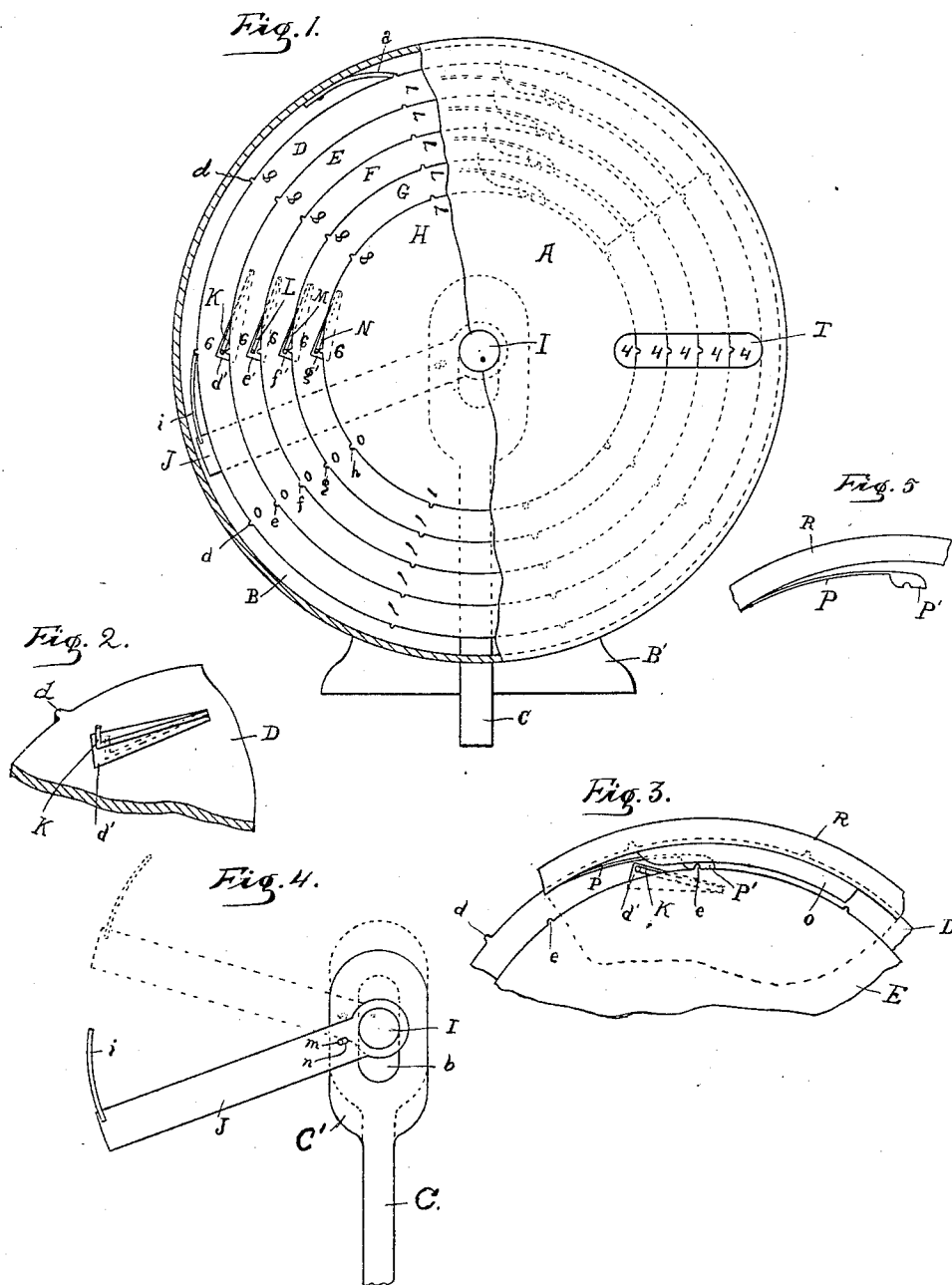
2 Sheets—Sheet 1.

H. D. STUDABAKER.

REGISTER FOR ROTATIONS OF VEHICLE WHEELS, &c.

No. 521,682.

Patented June 19, 1894.



WITNESSES:

Wm. H. Burns

Emmett V. Harris

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BY *Chapin & Denny*

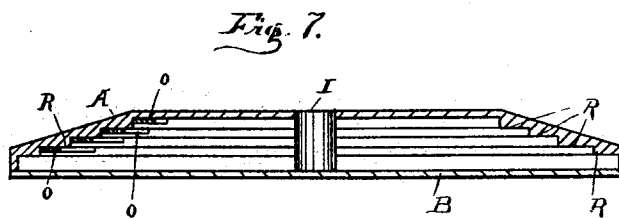
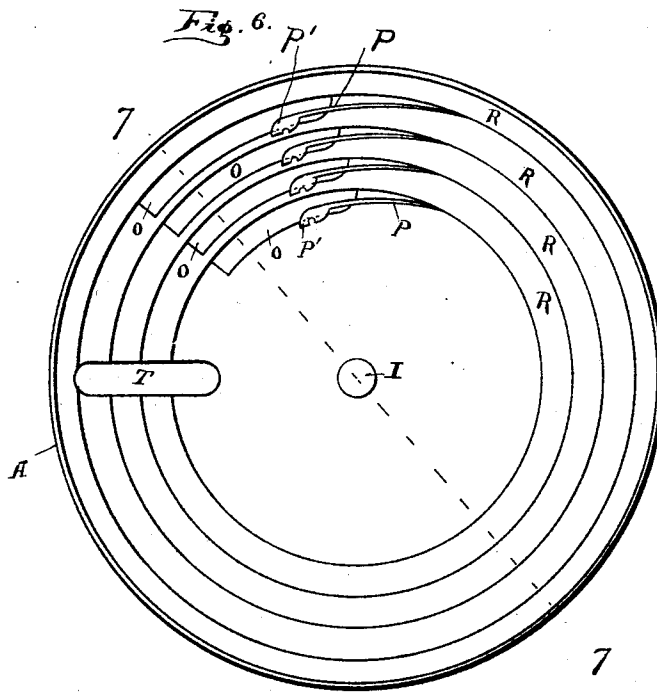
his ATTORNEYS.

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UNITED STATES PATENT OFFICE.

HUGH D. STUDABAKER, OF BLUFFTON, INDIANA.

REGISTER FOR ROTATIONS OF VEHICLE-WHEELS, &c.

SPECIFICATION forming part of Letters Patent No. 521,682, dated June 19, 1894.

Application filed November 27, 1893. Serial No. 492,046. (No model.)

To all whom it may concern:

Be it known that I, HUGH D. STUDABAKER, a citizen of the United States, residing at Bluffton, in the county of Wells, in the State of Indiana, have invented certain new and useful Improvements in Mechanical Movements for Registers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in mechanical movements for registers.

The object of my improvement is to provide a mechanical movement adapted for registering the number of revolutions made by any kind of a vehicle wheel in traveling, or for measuring the number of paces in walking.

My invention consists of a series of rotatable disks concentrically mounted on a supporting shaft rigidly fixed in a suitable containing case, the first or primary disk registering units, the second disk registering tens, the third hundreds, &c., my improvement as shown being adapted to register any number from 1 to 99,999, each disk being provided with ten peripheral spurs and the said disks being rotated by an operating lever and a radial arm mounted on said shaft.

The novel feature of my improvement consists in the construction and arrangement of its operating parts whereby it is conveniently adapted for a variety of uses.

Referring now to the drawings, Figure 1 is a front elevation of my invention with a portion of the case or front inclosing plate, cut away to show the arrangement of the rotating or registering disks. Fig. 2 is a detail of the unlocking spring in its containing slot, adapted to engage the radial spurs of the adjacent disks. Fig. 3 is a detail of the guide plate *o* and the locking spring and adjacent parts. Fig. 4 is a detail of the operating lever and the radial arm pivotally connected thereto and adapted to rotate the said disks. Fig. 5 is a detail showing the locking spring in engagement with one of the peripheral spurs of the rotating disks. Fig. 6 is a plan view of the lower face of the plate A showing the

steps R, with the guide plates *o* and the locking springs P in position thereon. Fig. 7 is a cross section of the devices shown in Fig. 6 on the line 7—7.

The outer cover or casing in which the operating mechanism is inclosed, consists of the convex or front plate A, having integral annular steps R, upon its inner surface, preferably four in number, as seen in Figs. 6 and 7, perforated at its center for one end of the shaft I on which the registering disks are mounted, and having a radial slot T through which the figures on the said disks may be read, and is provided with a holding spring *a* adapted to engage with the peripheral spurs on the primary disk D and acts as a holding-pawl, and a flat rear plate B secured to the plate A in any proper manner, and provided with an extension or base portion B' for securing my improvement in any desired position. The said plate B also has a central perforation in which the other end of the shaft I is rigidly secured.

The lower or primary disk D, rotatably mounted on the pivot or shaft I, is provided upon its periphery with a series of radial spurs *d*, ten in number at equal distances apart. The said disk D is also provided with a triangular slot *d'* adapted to contain a forwardly movable spring K adapted to engage the radial spurs of the secondary disk E in a manner hereinafter described.

The registering disks E, F, G, and H, are likewise rotatably mounted on the pivot or shaft I and are provided upon their peripheries with a like number of radial spurs *e*, *f*, *g*, and *h*, respectively, and the said disks E, F, and G, are respectively provided with the triangular slots *e'*, *f'*, and *g'*, containing respectively the engaging or unlocking springs L, M, and N, each of the said springs being adapted to engage the radial spurs of the next adjacent disk in a manner hereinafter to be described. At suitable points on the inner surface of the said plate A, and near the slot T, as seen in Fig. 6, are arranged the guide plates *o* rigidly secured to the said steps R, and each plate being of less thickness than the height of the said steps. These curved and rigid guide plates *o* are but little longer than the distance between two of

the spurs of the adjacent and overlapping disk, and are so arranged as to nearly touch the said adjacent spurs in passing.

Upon the inner surface of the plate A is firmly secured a series of locking springs P having a suitable head P', as seen in Figs. 5 and 6, for engaging the said spurs, as seen in Fig. 3, and are placed immediately behind the guide o, as seen in Fig. 3.

The operating lever C is provided with a head C' having a longitudinal slot b, Fig. 4, through which passes the pivot or shaft I, and a pin m arranged thereon parallel to the said shaft I and adapted to elevate the free end of the arm J, in a manner hereinafter described. Immediately in front of and adjacent to the head of the said lever C is arranged the radial operating arm J, loosely mounted on the shaft I and provided with a bent spring or finger i, arranged at right angles thereto and adapted for engagement with the radial spurs d on the periphery of the disk D, as seen in Fig. 1. The said arm J is also provided with a small longitudinal slot n adapted to admit and retain the said pin m. The said lever C and the said arm J are both arranged on the shaft I between the plate B and the primary disk D, as seen in Fig. 1. The said radial or peripheral spurs of each of the said registering disks are all consecutively and similarly numbered from right to left, or in a direction opposite from that in which the said disks are adapted for rotation when in use and are arranged to register units, tens, hundreds, &c., in the usual and well known manner.

The operation and manner of using my invention thus described are as follows: My improvement by means of the base B, is adapted for attachment to the axle or other proper portion of a vehicle; to a boot or shoe of a pedestrian, or to the wall of a street car, or other place in which it is desired to use the same. The vertical or operating lever C is adapted for a limited upward or longitudinal movement on the shaft I by means of the slot b, which upward movement of the said lever C also elevates the pivotally mounted radial arm J by means of the pin m in the slot n, as seen by dotted outline in Fig. 4. It is obvious that the said operation of the lever C may be effected in a variety of ways, dependent upon its location and use. If used as a pedometer it can be operated by the striking of the free end thereof upon the ground at each movement of the foot; if used upon a vehicle, by arranging an eccentric upon the wheel hub in a well known manner. As the bent spring or finger i of the said arm J is adapted to engage the radial spurs d on the primary disk D, the elevation of said arm by the upward movement of the lever C will move the rotatably mounted disk D to the right just the distance existing between two adjacent spurs d, which will bring the next higher digit in order beneath the radial slot T, thereby registering one movement of the

said lever C. The rotation in this manner of the disk D has no tendency to rotate any of the remaining disks, because they are each securely locked by the locking spring P as seen in Fig. 3, and the said disks are preferably separated by suitable washers. But when the disk D is thus rotated until the unlocking spring K thereon reaches the guide o, it will be pressed downward thereby, and carried forward against the head P' of the locking spring P which head P' is so constructed, as seen in Fig. 3, as to permit the spring K to elevate the same, and itself engage the spur e. Another movement of the lever C will then rotate the disk D a like distance which will likewise rotate the secondary disk E an equal distance on account of the engagement of the spring K with the said spur e. The said spring or pawl K thus performs the double function of releasing or unlocking the retaining pawls P and of rotating the next disk of higher order of units to carry the tens. But the rotation of the disk E passes the spring K beyond the guide o and thereby frees it from its engagement with the said spur e until the primary disk D makes a complete rotation, when the said disk E will again be rotated as above described. It is thus evident that the primary disk D will register ten digits in units place in the said slot T while the secondary disk E registers one digit in tens place therein. In like manner the disk E will register ten digits in tens place, while the disk F registers one digit in hundreds place, and so on throughout the series of registering disks.

It is obvious that any number of disks can be thus arranged to operate in the above described manner. In the present instance I have shown but five of such disks, which are thus capable of registering any number up to 99,999.

Having thus described my invention and the manner in which the same is to be operated and applied, what I claim as my invention, and desire to secure by Letters Patent, is—

1. A mechanical movement for registers, comprising a series of rotatable registering disks concentrically mounted on a supporting shaft in a slotted containing case, the said disks having an equal number of peripheral spurs adapted for engagement with spring pawls as described, and provided with the springs K securely mounted in suitable slots therein, and adapted to unlock said disks and engage said spurs as described, the annular plates R rigidly secured to said case and provided with the guides o and locking spring P, the transverse shaft I rigidly mounted in said case, and proper operating and retaining mechanism, all substantially as described.

2. In a mechanical movement for registers, the combination of a series of rotatable registering disks concentrically mounted on a supporting shaft, having an equal number of peripheral spurs for the purpose specified, and provided with the springs K mounted in

suitable slots as described, and a series of annular plates rigidly secured to the plate A provided with the guides *o* and having the locking springs P adapted to secure said
5 plates against rotation, with the containing case having a slot T, a base B', a perforation for the lever C and a holding spring *a*, an operating lever C and a radial arm J having an engaging spring *i* on the free end thereof

adapted to rotate the said disks, all substantially as described.

Signed by me, at Bluffton, in the State of Indiana, this 22d day of November, 1893.

HUGH D. STUDABAKER.

Witnesses:

NELSON K. TODD,
DON C. R. KOCHER.