# V. GIROUD.

## REGISTER FOR COUNTING REVOLUTIONS.

No. 48,927. Patented July 25, 1865.

Fig: 1.

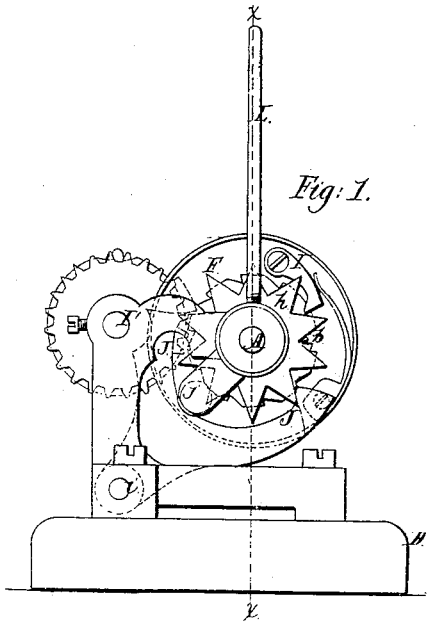
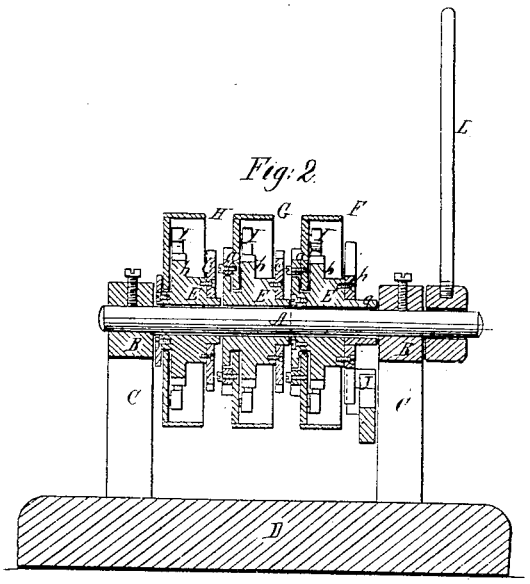



Fig: 2.



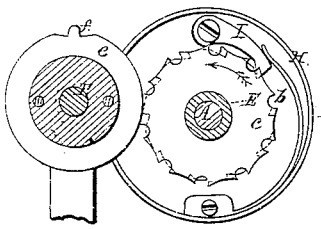




Fig: 3.

Fig: 4.

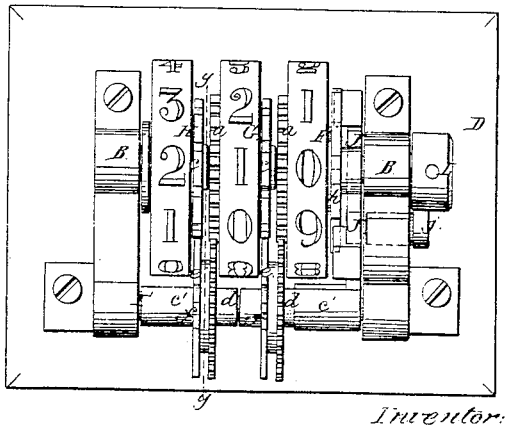



Fig: 5.

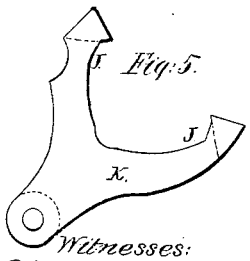
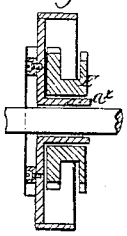



Fig: 6

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN REGISTERS FOR COUNTING REVOLUTIONS.

Specification forming part of Letters Patent No. **48,927**, dated July 25, 1865.

*To all whom it may concern:*

Be it known that I, VICTOR GIROUD, of the city, county, and State of New York, have invented a new and Improved Register; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end view of my invention; Fig. 2, a longitudinal section of the same, taken in the line *x x*, Fig. 1; Fig. 3, a transverse vertical section of the same, taken in the line *y y*, Fig. 4; Fig. 4, a plan or face view of the same; Fig. 5, a detached side view of the pallets or pawls which constitute a portion of the driving mechanism; Fig. 6, a section showing a modification in the construction of the device.

Similar letters of reference indicate like parts.

This invention relates to a new and improved register for denoting the number of revolutions made in a given time by any shafting of machinery.

The invention is more especially designed to be applied to marine engines in order to show the number of revolutions of the paddle-wheels or propeller; but it may be advantageously applied to all machines where a knowledge of the speed of certain driven parts is desirable.

The object of the invention is to obtain a register which will be compact and operated by a positive mechanism, so that it will perform its work with accuracy and have its index-wheels so arranged that they will be capable of being set to the zero-mark at the commencement of each operation of a machine.

A represents a horizontal shaft, which is fitted in suitable bearings, B, in standards C attached to a suitable base, D; and E E E represent three heads or collars, which are placed loosely on the shaft A, the latter being fixed or arranged so that it will not turn. The heads or collars E have each a ratchet, *b*, on them near their centers, and two of them have a toothed or notched wheel, *c*, on them at one end. All of these are shown clearly in Fig. 2. On these heads or collars there are placed wheels F G H, the peripheries of which are lettered at equal distances apart from 1 to 9, including a cipher. These wheels are placed loosely on the collars; but they are connected with them by means of pawls I, which engage with the ratchets *b*, as shown clearly in Fig. 3, said pawls and ratchets causing the wheels F G H to turn with the heads or collars E when the latter are moved in the direction indicated by the arrow in Fig. 3. The wheels cannot be turned in the opposite direction to that shown by the arrows, but they may be turned by hand in the direction indicated by the arrow independently of any movement of the ratchets *b*. Two of these wheels, F and G, have concentric toothed rims *a* attached to them.

I′ is a fixed horizontal shaft, which is parallel with the shaft A, and has two sleeves, *c′ c′*, placed loosely upon it, each of which has a toothed wheel, *d*, upon it, and a circular disk, *e*, provided with a single tooth, *f*. The wheels *d* of the sleeves *c′* gear into the toothed rims *a* of the wheels F G, while the teeth of the disks *e* engage with the notches of the wheels *c*. Each of the wheels *c* is provided with ten notches, and hence it will be seen that if the wheel F is turned one revolution the wheel G will be turned one-tenth of a revolution, and at every revolution of the wheel G the wheel H will be turned one-tenth of a revolution. The wheel F therefore indicates units, the wheel G tenths, and the wheel H hundredths.

The head or collar E, on which the wheel F is placed, is provided with an extension, *g*, on which a pointed-toothed wheel, *h*, is secured, and J J are pawls or pallets which engage with wheel H. The pawls or pallets both project from a single arm, K, which is fitted loosely on a pin, *i*, and a projection or arm, *j*, at the lower end of a lever, L, works in the fork of the pawls or pallets J J.

From the above description it will be seen that by oscillating the lever K the projection or arm *j* will actuate the pawls or pallets J J, and the latter will act alternately on the wheel *h* and turn it one tooth at each vibration of lever L, the pawls or pallets J J operating similar to the escapement of a clock and insuring the proper movement of the wheels F G H, as the connection is a positive one.

The lever L is connected with the shaft, the revolutions of which are to be noted, by means of an eccentric, or it may be connected with any of the moving parts of the engine or machine which will vibrate the lever L once dur-

ing every revolution of the shaft above mentioned. The number of revolutions of the shaft are denoted on the wheels F G H, and a slotted plate or box may be placed over the tops of said wheels in order to expose only the numbers which indicate the revolutions.

I would remark that the arrangement of the heads or collars E may be varied somewhat from the plan shown in Fig. 2 by having the wheels F G H provided with hubs $a^{\times}$ fitted loosely on the shaft A, and the heads or collars E fitted loosely on said hubs, as shown in Fig. 6. This arrangement would facilitate the construction of the device.

In starting the machine or engine to which my invention is applied the wheels F G H are all turned or set by hand, so as to leave the zero-marks or ciphers exposed. This is a great advantage, and it is obtained by turning the wheels by hand in the direction indicated by the arrow.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The arrangement and combination of the ratchets *b*, pawls I, toothed wheels *a d*, notched wheels *c*, and the single-toothed disks *e*, applied respectively to the heads or collars E, wheels F G, and shaft I′, to operate in the manner substantially as and for the purpose specified.

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Witnesses:
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