

S. L. WIEGAND.
Registering Instrument.

No. 21,101.

Patented Aug. 3, 1858.

Fig. 2

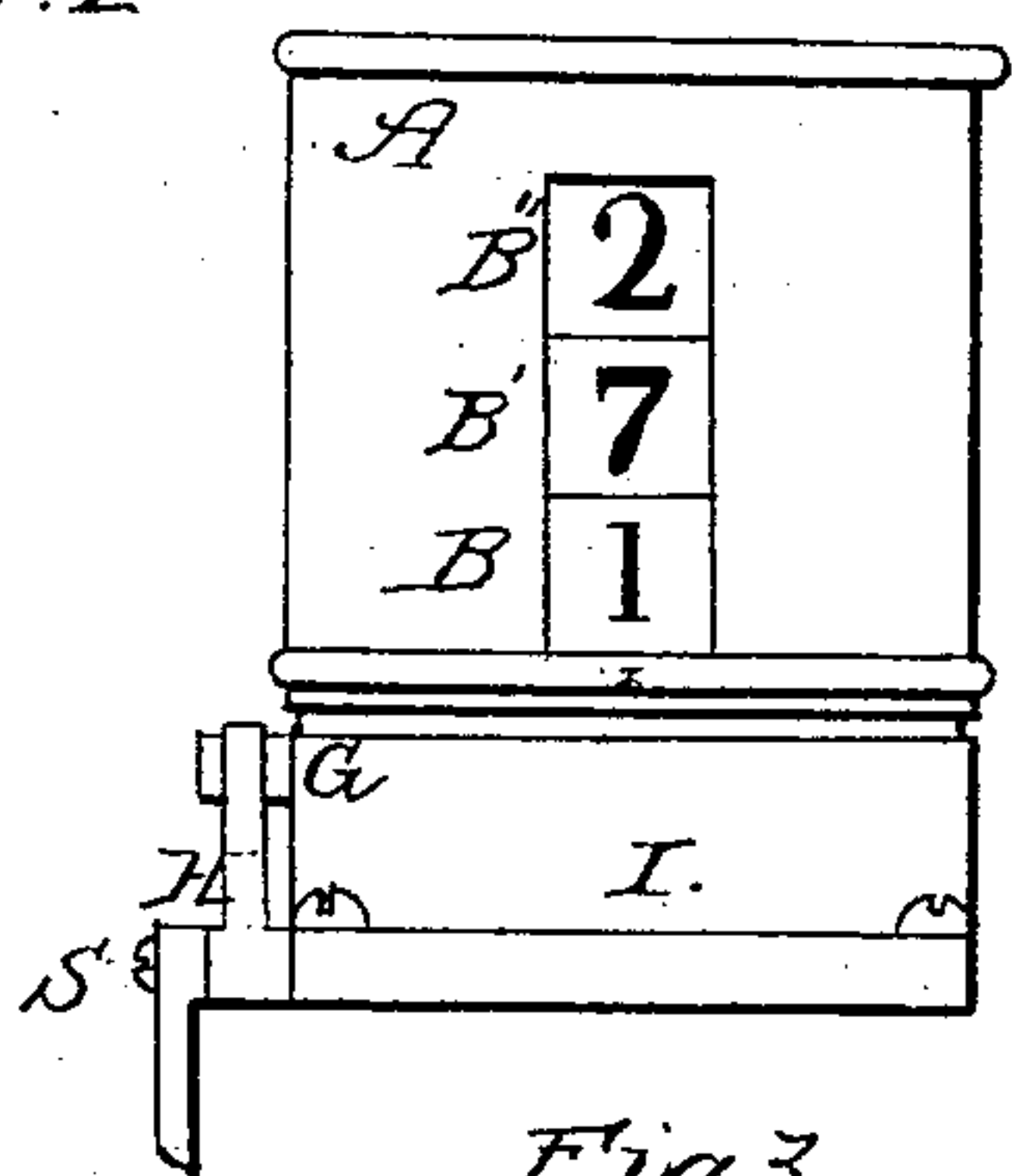


Fig. 3

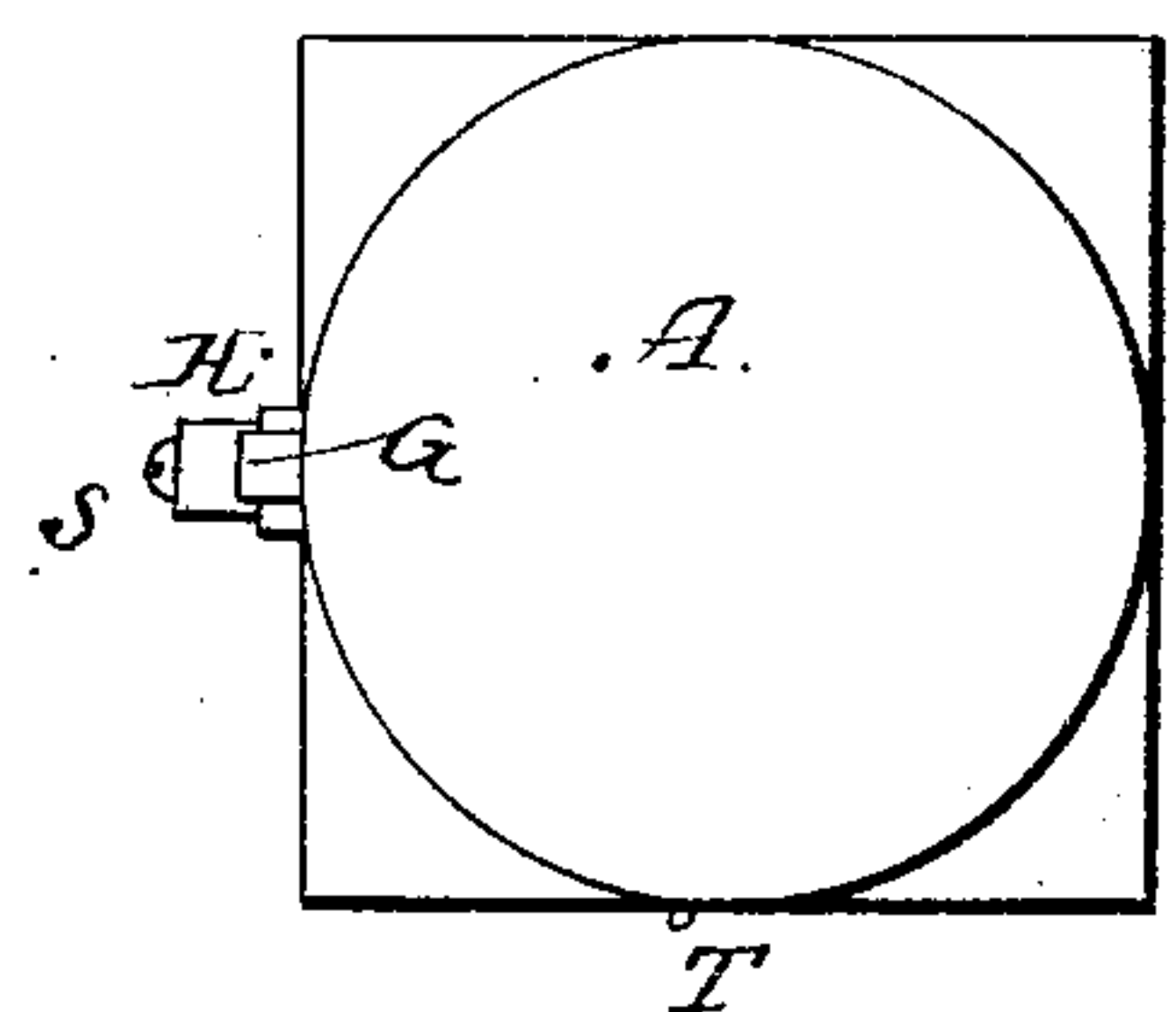


Fig. 5

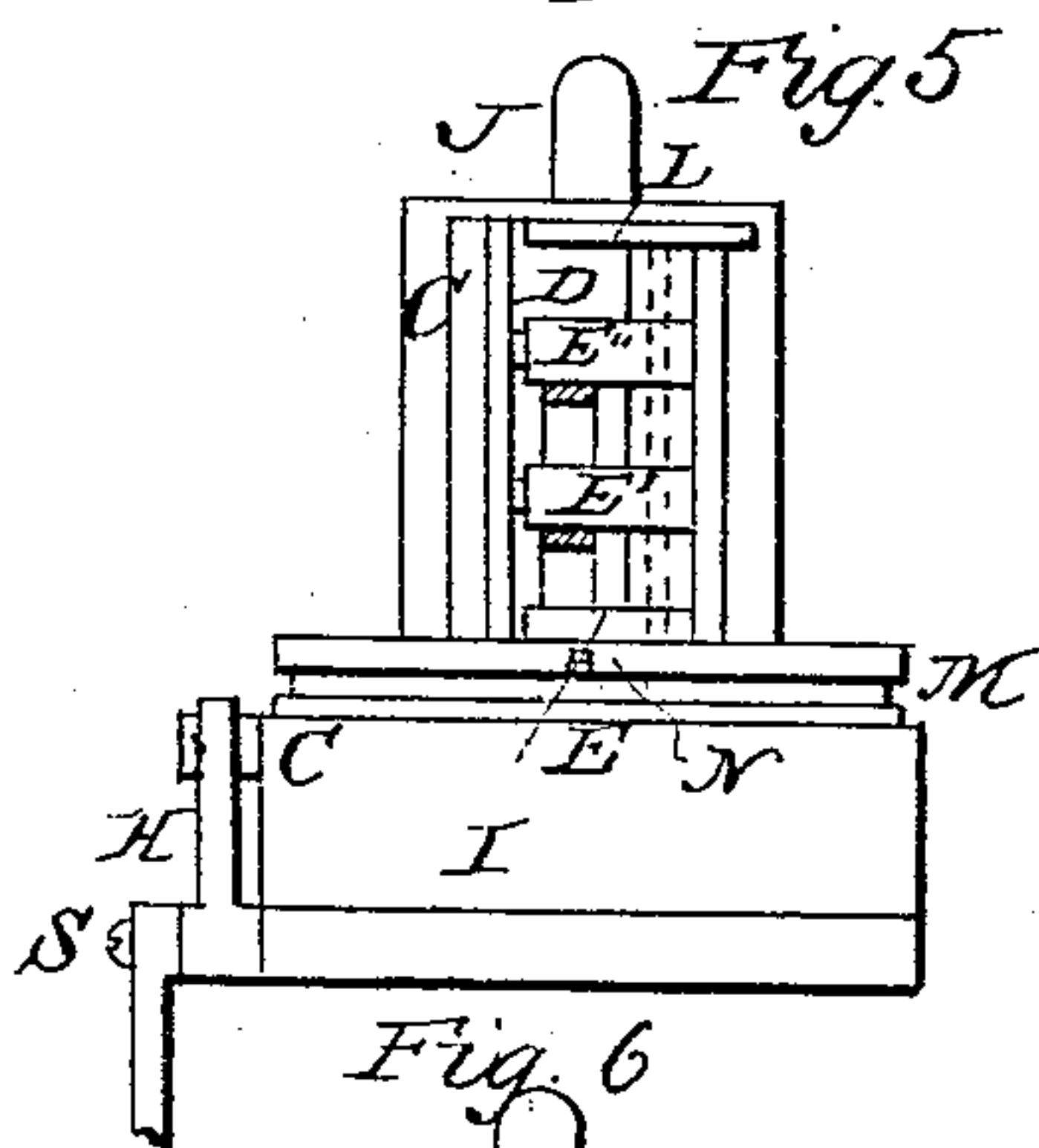


Fig. 6

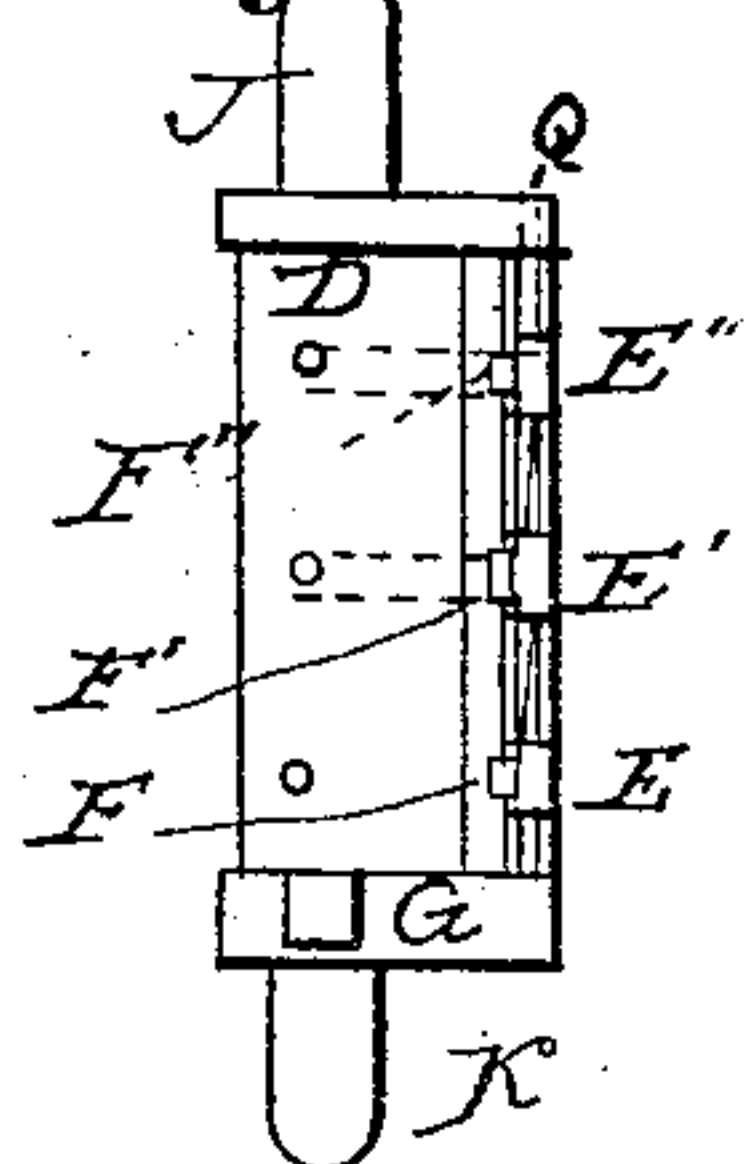


Fig. 2

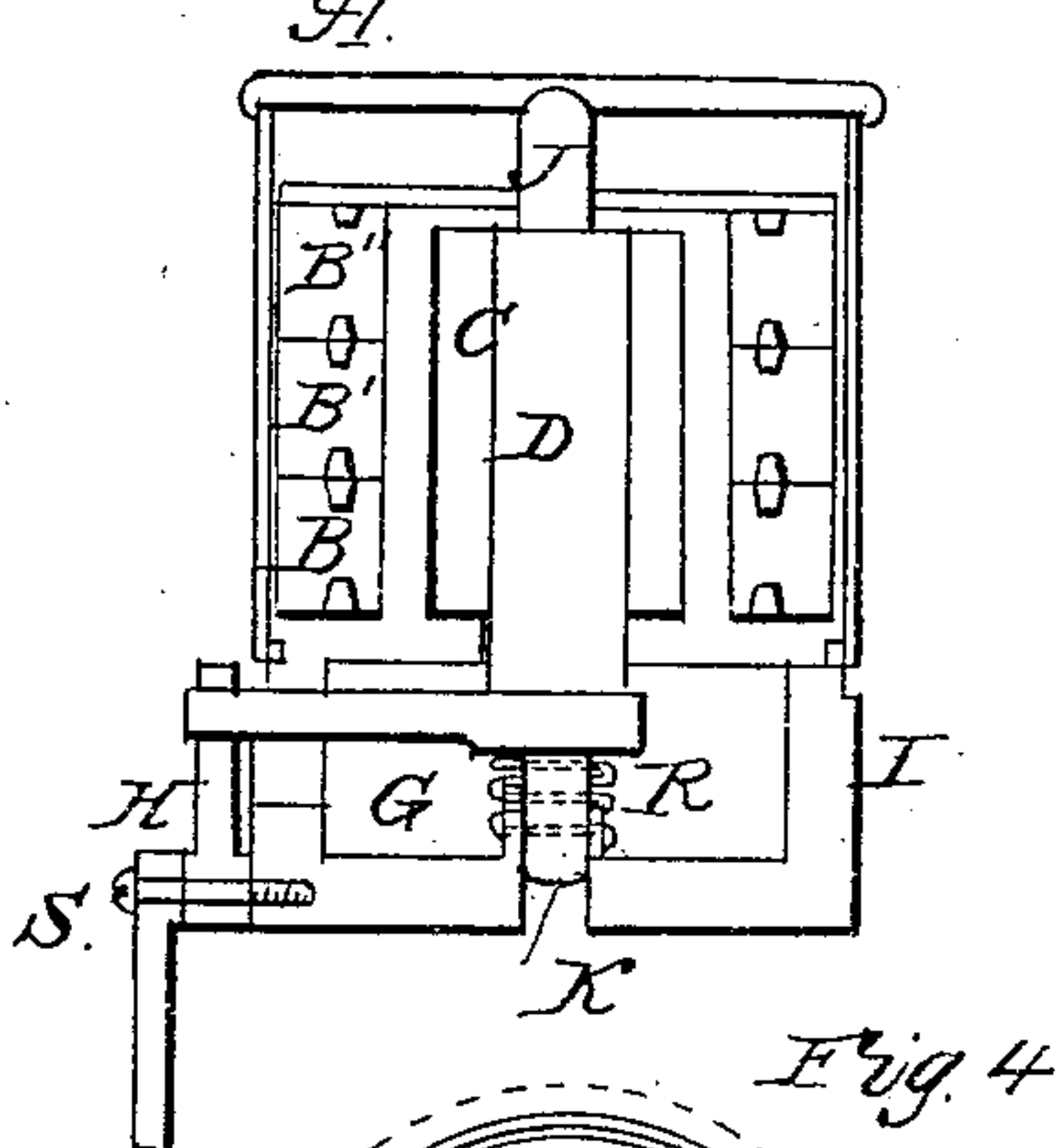


Fig. 4

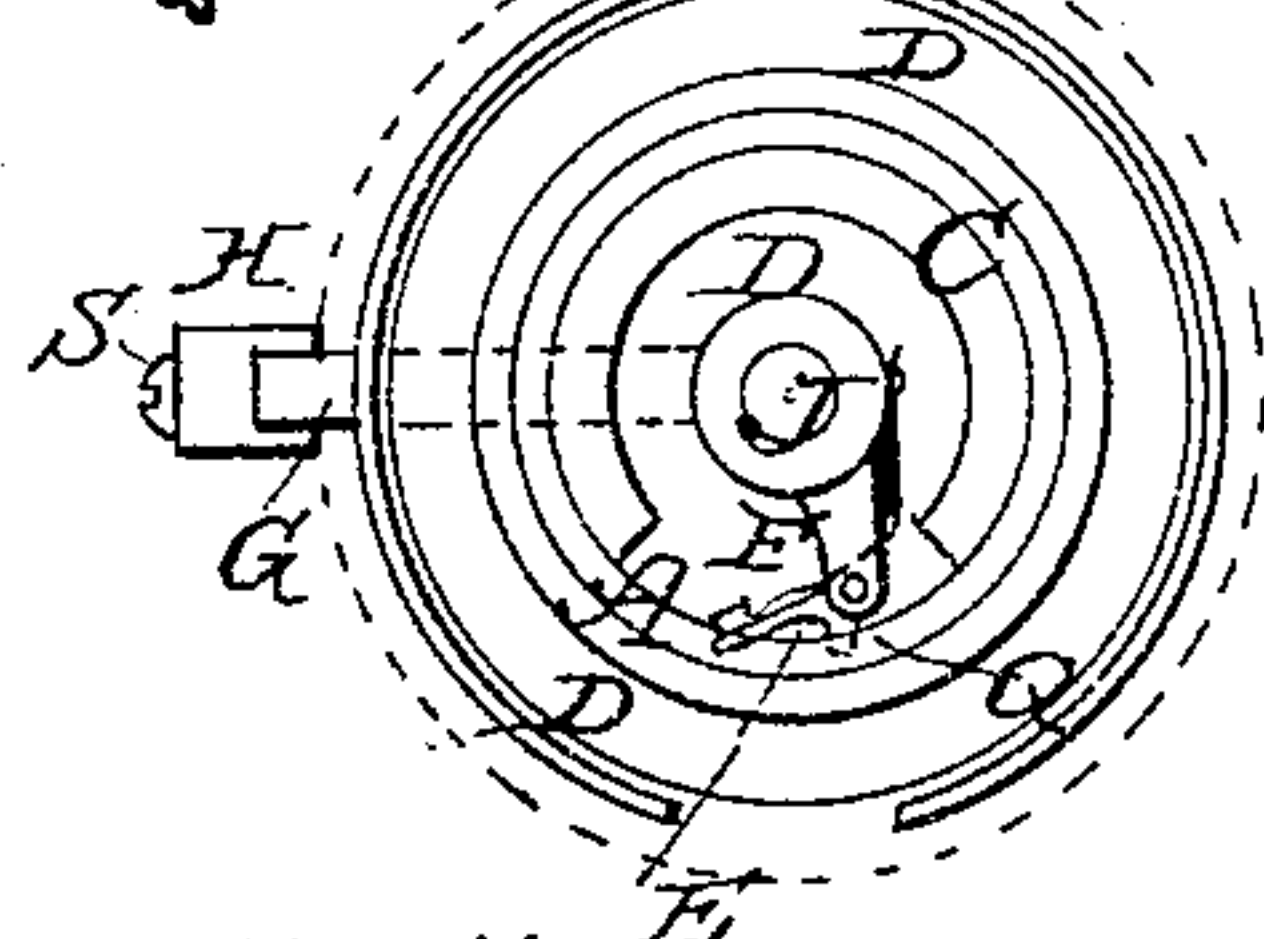


Fig. 7

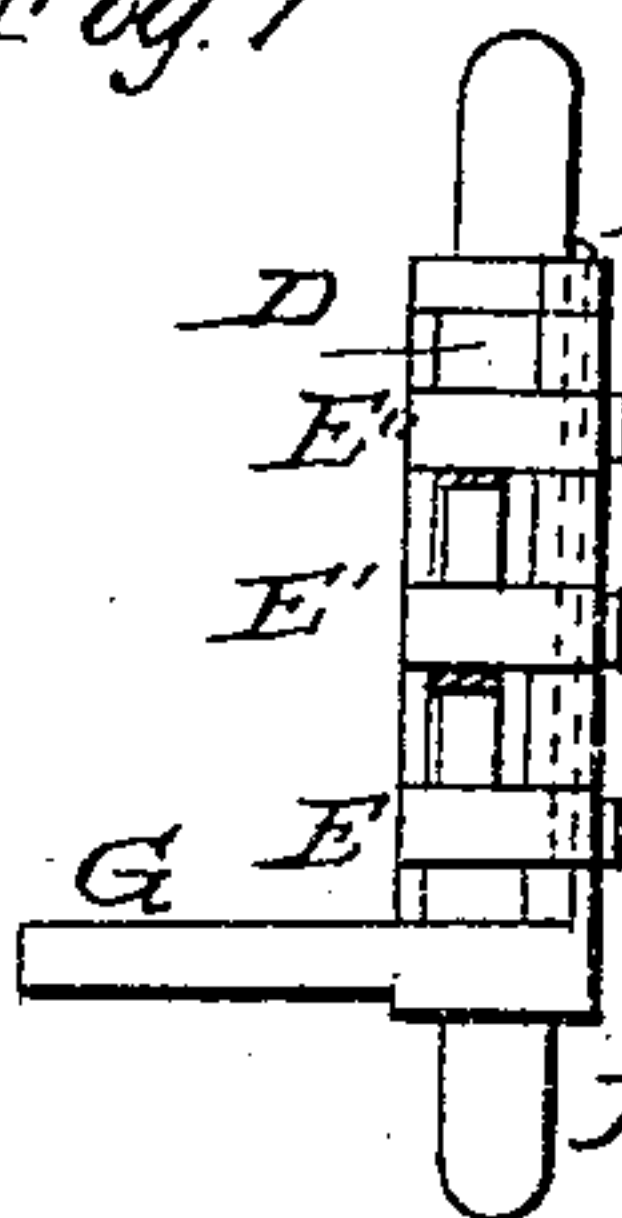


Fig. 8

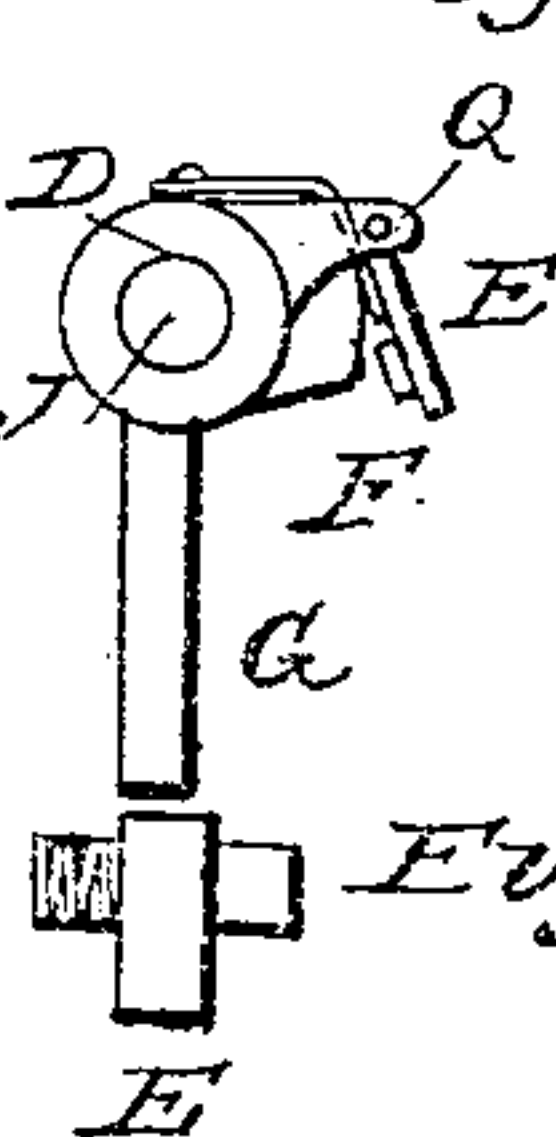


Fig. 9

Fig. 10

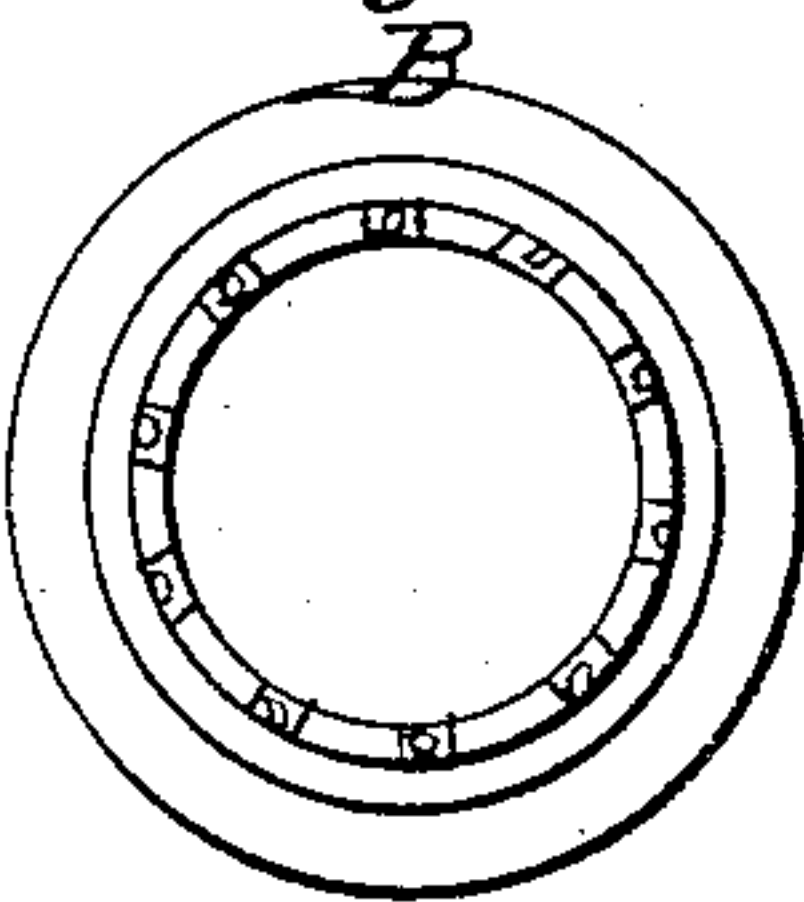
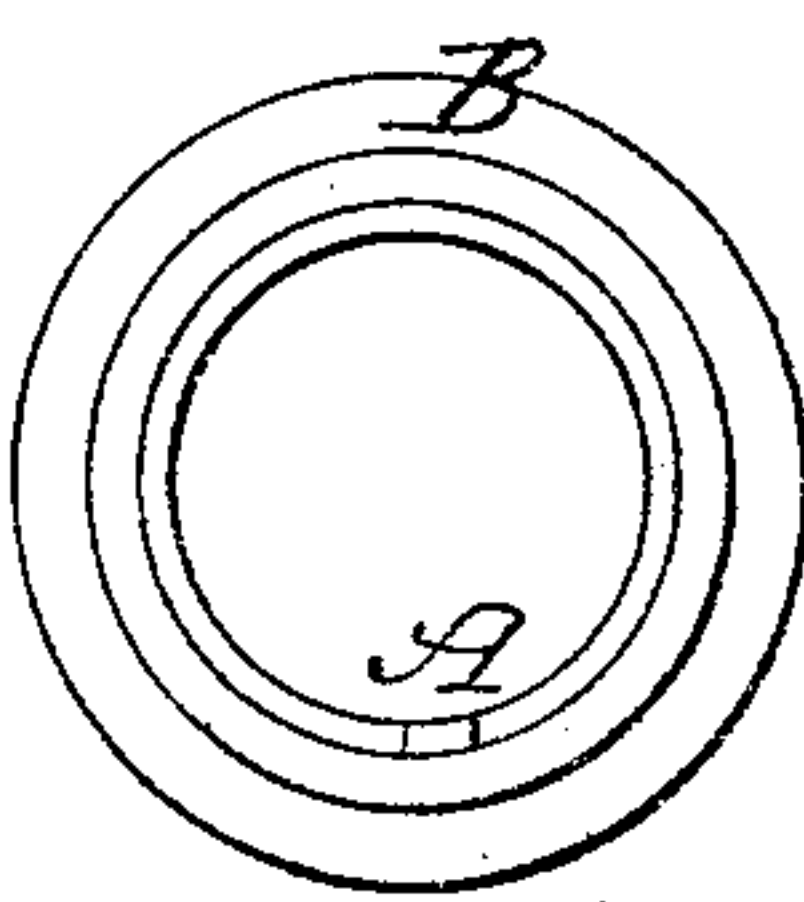


Fig. 11



INVENTOR

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UNITED STATES PATENT OFFICE.

S. L. WIEGAND, OF PHILADELPHIA, PENNSYLVANIA.

METHOD OF REGISTERING THE MOTION OF MACHINERY.

Specification of Letters Patent No. 21,101, dated August 3, 1858.

To all whom it may concern:

Be it known that I, S. LLOYD WIEGAND, of Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, have invented a new and Improved Registering Instrument, Useful for Exhibiting and Recording the Motions of Machinery and for other Purposes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in the combination of a series of zones or wheels containing numeral characters, with a series of pawls or ratchets, moved by a lever and susceptible of rotation thereby, used in conjunction with a case, which has sufficient friction upon the zones or wheels to retain them in the positions in which they are placed by the ratchets, and also to impart a rotative motion to the zones or wheels when it is desired to reverse the direction of their motion.

To enable an expert to construct and use the same, the following is a full and sufficient description, reference being had to the annexed drawings.

Figure 1 represents an elevation, Fig. 2 a vertical section, Fig. 3 a top view, Fig. 4 a horizontal section, Fig. 5 an elevation with the case and zones removed, Figs. 6 and 7 are front and side elevations of the ratchet lever, Fig. 8 is a top view of the same, Fig. 9 is a ratchet, and Figs. 10 and 11 are bottom and top views of the zones.

The same letters refer to the same parts in the several figures.

C is a hollow column of cylindric form supported by a suitable base I and fitting inside of the cylindric zones B B' B'' in such a manner that B B' B'' may be rotated upon C. In the lower inside margins of B B' B'' are ten perpendicular equidistant notches O O O O O O O O O O Fig. 10 opposite to one of these notched on the upper inside margin is a notch P Fig. 11. Inside of the hollow column C is a lever supported by its gudgeons J and K so as to be susceptible of partially rotary motion and a slight motion vertically. Upon D are attached pawls or ratchets E E' E'' by means of the pin Q which ratchets E E' E'' are pressed into the notches of the zones B B' B'' the column C having an aperture in the front as shown in Figs. 4 and 5 for this purpose.

The position of the ratchets E E' E'' are such in relation to the zones B B' B'' that each ratchet bears one half of its face upon the upper inside margin of zone below and the other half of its face upon the lower inside margin of the zone above, and since there is but one notch in the upper side of each zone the ratchet cannot operate the next zone above until it falls into the notch in the lower ring. The ratchet working in the lower edge of the bottom zone having nothing to restrain it, can operate the lowest zone one-tenth of a revolution at each double vibration of the lever D.

G is an arm projecting from the lever D by which D receives its vibratory motion from the lever H whose fulcrum is at S, Figs. 1, 2, 3 and 5, and is operated by the machine whose motions it is designed to register. A cylindric case A incloses the zones displaying the figures through an opening in front as represented in Fig. 1 and bears upon the top of the gudgeon J of the lever D, which lever is kept pressed upward by the spiral spring R; a groove M passes around the base of the column C with a perpendicular notch N in the front side of it into which fits a pin I which holds the case so as to prevent it from rotating except when the case A is depressed so that the pin I can pass around in the groove M. A spring L fastened to the column C trails on the upper part of the internal surface of the zone B'' and prevents B'' from being rotated in a reverse direction from that in which it is moved by the ratchet E'' after the end of L has fallen into the notch P Fig. 11 of the zone B''. Upon the internal surface of the case A is a series of springs, two of which are represented at U U in Fig. 4, which by their friction retain the zones B B' B'' in position and, when the case is rotated in a reverse direction, rotate the zones B B' B'' until they are stopped by the ratchets E' E'' and the spring L.

The operation of the instrument is as follows: When the lever D is vibrated by means of the lever H the ratchet E moves the zone B one tenth of a revolution at each double vibration which displays successively the several numeral characters 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0 upon the face of the zone B through the opening in the case A, upon the tenth vibration of D when the O upon B is displayed the ratchet E' fall-

ing into the notch P (Fig. 11) of the zone B catches into one of the notches O (Fig. 10) of the zone B' displays another figure one higher in value than the one before exhibited, this operation continuing until D has made one hundred double vibrations and the zone B has made ten revolutions the zone B' will have made one revolution and zone B'' will have made one-tenth of a revolution, each zone thus registering the tens of revolutions of the zone below. It will be readily perceived that by increasing the number of zones and corresponding parts that an instrument can be constructed upon this plan of any desired registering capacity.

The operation of reversing or returning the register to zero without the labor of running it to the extreme limit of its capacity is performed as follows: By depressing the case A the pin T falls from the notch N into the groove M and the ratchets E E' E'' descend from the notches O O O in the lower edges of B B' B'' and E' and E'' fall into the notches P, P, of B and B' when the case A is rotated in a reverse direction E' and E'' preventing the zones B and B' from rotating reversely any farther than is

requisite to exhibit nines when the pin T comes opposite to the notch N the spring L at the same time performs the same function in the zone B'' as the ratchets E' and E'' do in the zones B and B' during the process of reversing, and upon the lever D performing a double vibration the ratchets E E' E'' move the zones B, B' and B'' one tenth of a revolution, displaying the ciphers upon them.

What I specify as the essential feature of my invention is reversing when the reversing is effected by friction applied to the zones and also the spring L performing the same function in the zone B'' as the ratchet E'' in the zone.

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

1. Reversing the motion of the zones or indicating dials by friction applied to them in the manner set forth.

2. The arrangement of the spring L to act as a detent in reversing in the manner described.

S. LLOYD WIEGAND.

Witnesses:

WM. P. HIBBERD,
SAML. L. HIBBS.