

C. H. BISSELL.
VOLTMETER SWITCH.
APPLICATION FILED FEB. 28, 1908.

1,051,542.

Patented Jan. 28, 1913.

2 SHEETS—SHEET 1

Fig. 1-

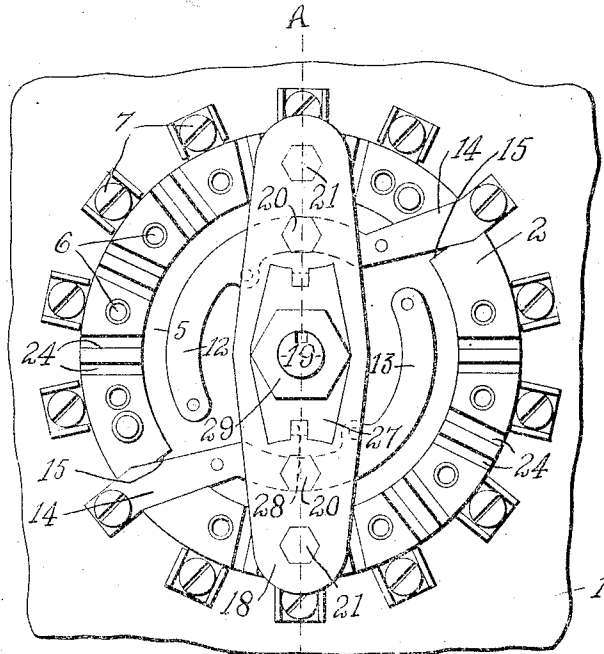
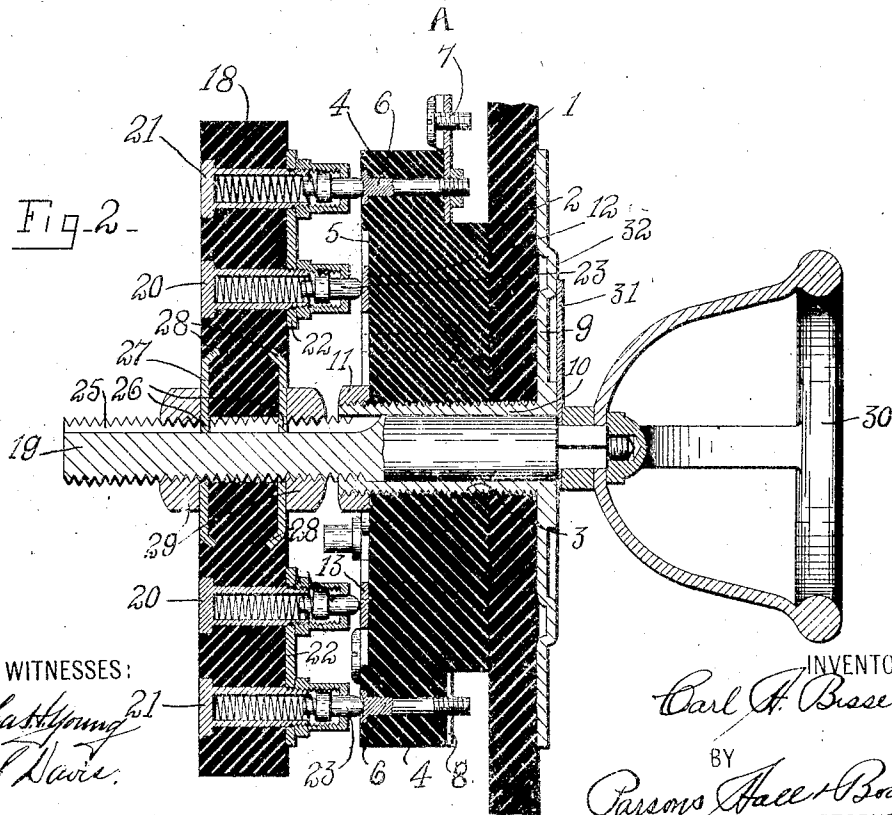


Fig. 2-



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2 SHEETS—SHEET 2.

Fig. 3.

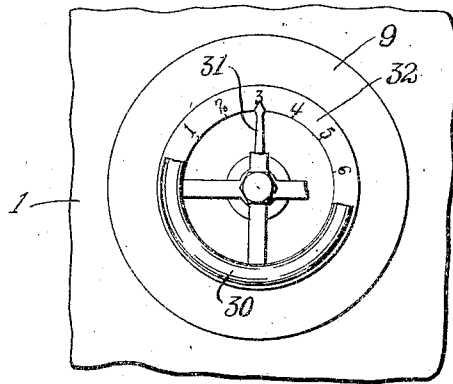
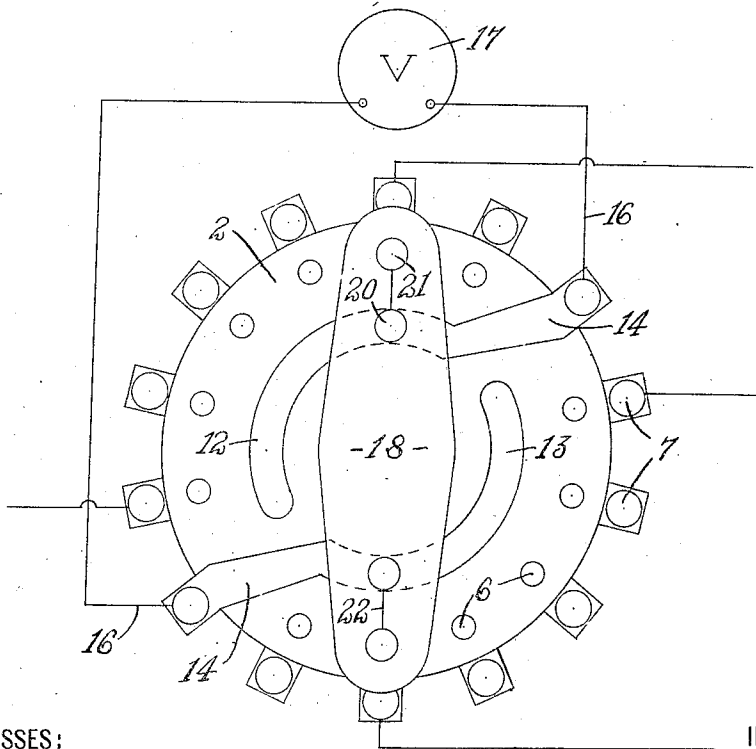


Fig. 4.



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UNITED STATES PATENT OFFICE.

CARL H. BISSELL, OF SYRACUSE, NEW YORK, ASSIGNOR TO CROUSE-HINDS COMPANY,
OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

VOLTMETER-SWITCH.

1,051,542.

Specification of Letters Patent. Patented Jan. 23, 1913.

Application filed February 23, 1902. Serial No. 419,953.

To all whom it may concern:

Be it known that I, CARL H. BISSELL, of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Voltmeter-Switch, of which the following is a specification.

My invention has for its object the production of a voltmeter-switch, which is particularly simple in construction and highly efficient in use; and to this end, it consists in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawing, in which like characters designate corresponding parts in all the views.

Figure 1 is a rear elevation of my switch, and an adjacent portion of a support therefor, as a switch-board or panel. Figs. 2 and 3 are, respectively, a sectional view, on line A—A, Fig. 1, and a reduced front elevation, partly broken away, of the parts seen in Fig. 1. Fig. 4 is a diagrammatic view showing the switch connected to a voltmeter.

1 is a support for the switch, as a switch-board or panel.

2 is the base of the switch, which, as here shown, is mounted upon the rear face of the panel 1, is formed disk-shaped and is provided with an axial opening 3 and with a peripheral flange 4 spaced apart from the support 1. The central portion of the outer or rear face of the base is preferably recessed or depressed at 5 below the plane of the rear face of the flange 4.

6 are contact-terminals arranged on the base in circular series and extending transversely through front and rear faces of the flange 4, the rear ends of said terminals being flush with the rear face of the flange 4.

7 are binding devices for connecting the contact-terminals 6 to the respective lines to be tested or measured, these devices being arranged on the face of the flange 4 opposed to the support 1, and extending substantially radially relatively to the base 2, and being connected to the front portions of the terminals 6. As seen in Fig. 2, the binding devices 7 are arranged in radial grooves 8 formed in the flange 4.

9 is a plate arranged on the front of the support 1 and fixed to an externally-threaded sleeve 10 extending through the axial opening 3 of the base 2 and projecting beyond the rear face of said base. A nut 11 turning

on the projecting end of the sleeve, cooperates with the plate 9 to clamp the base 2 to the support 1.

12, 13 are a pair of terminals fixed on the rear face of the base. Said terminals are arc-shaped and of the same size or radius, are arranged in the recess 5 on opposite sides of the center of the base 2 and concentric with said base, and are formed with arms 14, which extend through diametrically opposite channels 15 in the rear face of the flange 4, the extremities of said arms projecting beyond the outer edge or periphery of said flange and being provided with binding screws connected by wires 16 to the terminals of the meter 17, here shown as a voltmeter.

18 is a switch-arm mounted on and revoluble with a spindle 19 extending through the sleeve 10 and projecting rearwardly therefrom. The major part of the switch-arm is formed of insulation and carries a pair of contacts 20, 21 near each end, the pairs of contacts being insulated, the contacts of each pair being connected by a conductor 22, and one of each pair, as 20, contacting with one of the terminals 12, 13, and the other, as 21, coacting successively with the terminals 6. Each of the contacts 20, 21 comprises a shell extending through the switch-arm 18 and forming a case for a spring-pressed plunger 23 which yieldingly and slidably engages the coacting terminals of the base 2. In order to prevent the contacts 21 from tracing a thin metallic path between the terminals 6, the base 2 is formed with grooves 24 arranged between the terminals 6 and extending crosswise of the path of the terminals 21, these grooves being of less width than the plungers 23 of said terminals 21.

The portion of the spindle 19 upon which the switch-arm 18 is mounted, is threaded and is grooved lengthwise at 25, and the switch-arm 18 is formed with a central opening for receiving said spindle, and with tongues 26 extending into the grooves 25 to lock the spindle and the switch-arm together. As shown, the tongues 26 are formed on metallic plates 27 arranged on opposite sides of the major part of the switch-arm 18 and embedded therein, the plates 27 having openings aligned with the central opening of said major part and also having at their extremities inwardly ex-

tending lugs 28 which hold the plates 27 in position.

The switch arm 18 is maintained in position on the spindle 19 by nuts 29 arranged on opposite sides thereof and bearing on the plates 27. A handle 30 and a pointer 31 are provided on the outer end of the spindle 19, said pointer being movable over a dial 32, provided on the plate 9, to inform the operator which line is being tested or measured.

In use, the branches of each of the several lines to be tested or measured are permanently connected, respectively, to the binding devices 7 of diametrically opposite contact-terminals 6; and in testing or measuring a particular line, the current passes from one branch of said line, through the contact-terminal 6 connected thereto, one pair of contacts 21, 20, the arc-shaped terminal 12, and one of the wires 16 to the voltmeter, and from the voltmeter through the other wire 16, the arc-shaped terminal 13, the other pair of contacts 20, 21 and the diametrically opposite contact terminal 6 to the opposite branch of said line.

What I claim, is:—

1. In combination with a support; a meter-switch comprising a disk-shaped base of insulation mounted on the support and formed with a peripheral flange spaced apart from the support, a series of contact-terminals arranged on the base and extending transversely through front and rear faces of the flange, binding devices for connecting the contact-terminals to the respective lines, the binding devices being arranged on the face of the flange opposed to the support and extending substantially radially relatively to the base, terminals supported on the rear face of the base and designed to be connected, respectively, to the terminals of the meter, a switch-arm movable about an axis over the rear face of the base, contacts arranged on said arm in pairs near the ends of the arm, the pairs of contacts being insulated, and a connection between the contacts of each pair, one contact of each pair coacting with one of the second-mentioned terminals, and the other coacting successively with the first-mentioned terminals as the switch-arm is moved about its axis, substantially as and for the purpose specified.

2. In a meter-switch, a base of insulation,

contact-terminals arranged on the base in circular series and designed to be connected to the respective lines, a pair of arc-shaped terminals of substantially the same radius arranged opposite to each other on the rear face of the base and having their ends spaced apart, said terminals being designed to be connected, respectively, to the terminals of the meter, a switch-arm movable about an axis over the rear face of the base, contacts arranged on said arm in pairs, the pairs of contacts being insulated, and a connection between the contacts of each pair, one contact of each pair coacting with one of the arc-shaped terminals, and the other coacting successively with the first-mentioned terminals, substantially as and for the purpose set forth.

3. In a meter-switch, a base of insulation, contact-terminals arranged on the base in circular series and designed to be connected to the respective lines, a pair of terminals supported on the base and designed to be connected, respectively, to the terminals of the meter, a spindle revoluble in the base and projecting rearwardly therefrom, said spindle being formed with a longitudinal groove, a switch-arm mounted on the spindle and revoluble therewith, said arm comprising a major part formed of insulation and having an opening for the spindle, and a plate arranged on one side of the major part and having an opening for the spindle aligned with the opening of said major part, the plate having a tongue projecting into the groove of the spindle for rigidly connecting the spindle and the switch-arm, contacts arranged on the switch-arm in pairs, the pairs of contacts being insulated, and a connection between the contacts of each pair, one contact of each pair coacting with one of the second-mentioned terminals, and the other coacting successively with the first-mentioned terminals, substantially as and for the purpose set forth.

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 25th day of January, 1908.

CARL H. BISSELL.

Witnesses:

S. DAVIS,

E. K. SEEMILLER.