

A. C. McWILLIAMS.
 TERMINAL BOX.
 APPLICATION FILED DEC. 21, 1912.

1,148,699.

Patented Aug. 3, 1915.
 3 SHEETS—SHEET 1.

Fig. 1.

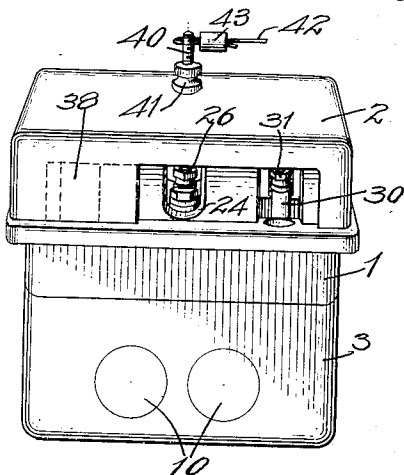


Fig. 2.

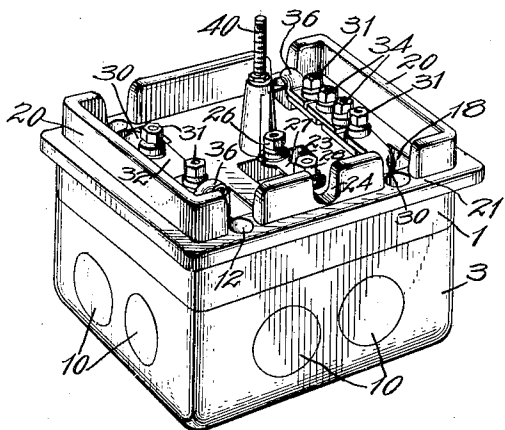
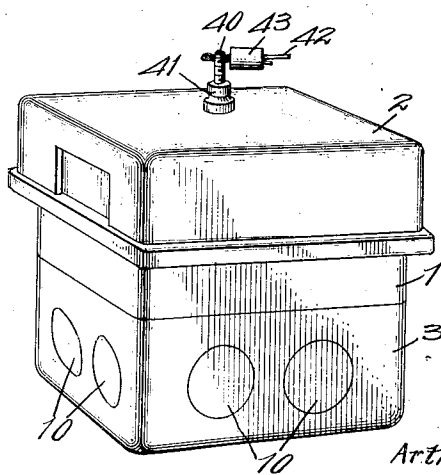


Fig. 3.



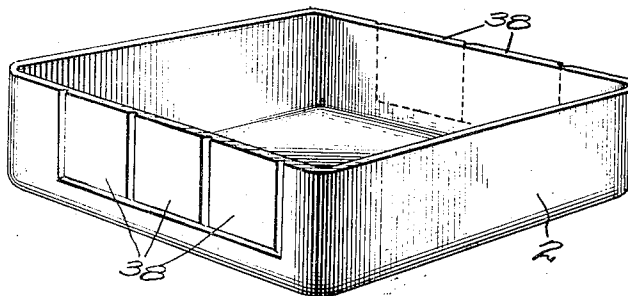
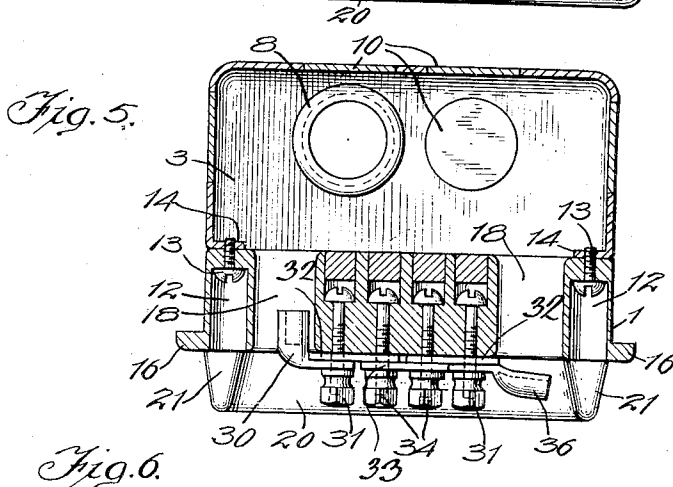
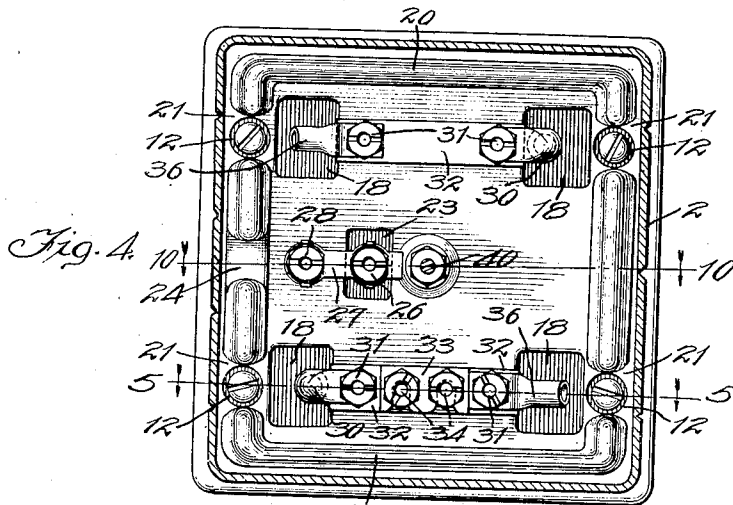
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 W. T. Kilroy.

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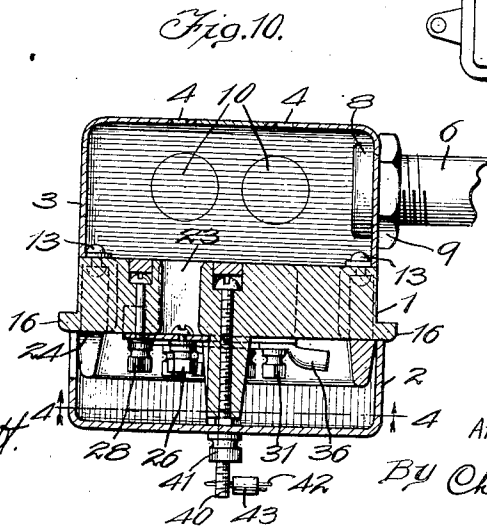
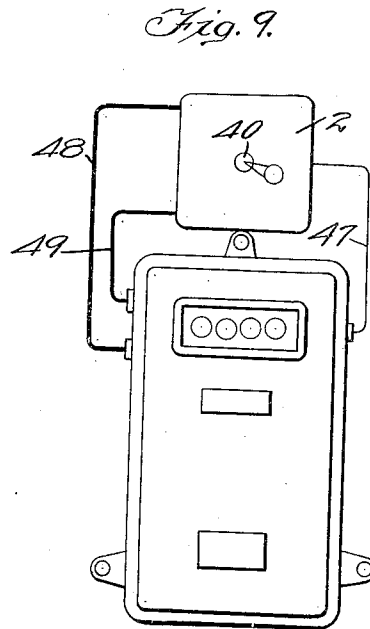
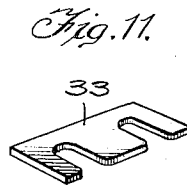
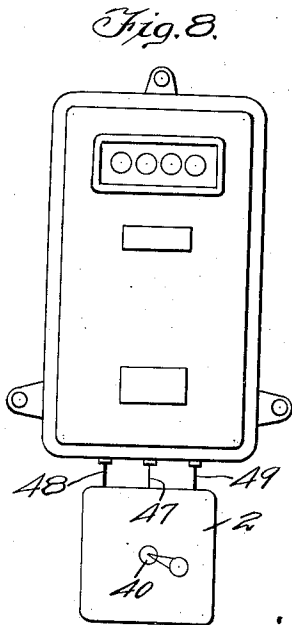
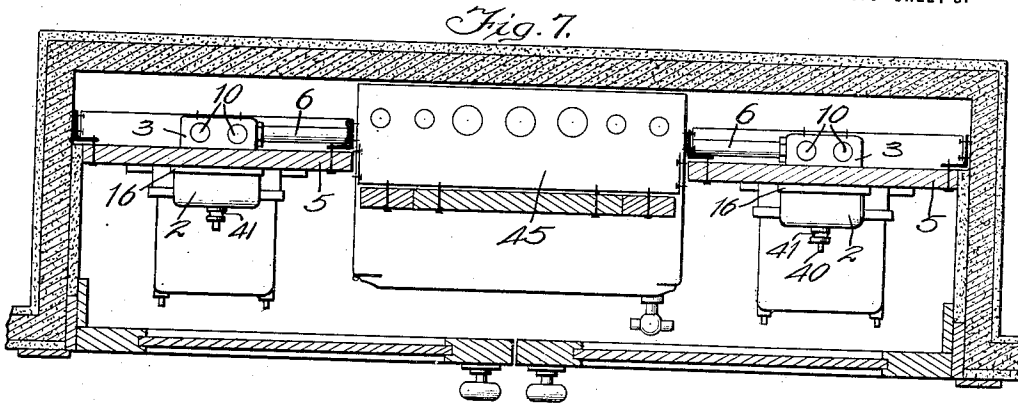
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 3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ARTHUR C. McWILLIAMS, OF SOUTH BEND, INDIANA, ASSIGNOR TO GEORGE CUTTER COMPANY, OF SOUTH BEND, INDIANA, A CORPORATION OF INDIANA.

TERMINAL BOX.

1,148,699.

Specification of Letters Patent.

Patented Aug. 3, 1915.

Application filed December 21, 1912. Serial No. 737,928.

To all whom it may concern:

Be it known that I, ARTHUR C. McWILLIAMS, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented a certain new and useful Improvement in Terminal Boxes, of which the following is a specification.

It will be understood by those skilled in the art that in buildings containing a number of tenants, for example office buildings and large apartment buildings, it frequently becomes necessary to connect and disconnect the meters, and to make rearrangements in the metering connections. In such places loose wires add greatly to the fire hazard and are also a source of interruption to the service and danger and inconvenience to the operating electrician.

The object of my invention is to provide a terminal box especially adapted for use in connection with a metering system so constructed that loose wires will be totally avoided.

By the use of my box the ends of the leading in and leading out wires are securely held in definite positions and are kept separate from each other.

It is my purpose also to provide a construction such that when a meter is removed, the loose wires or meter loops may be readily removed with the meter thus relieving the metering system of any wires having loose ends.

It is common practice in installing metering systems to employ metering panel boards, inclose the board in a cabinet, and group the meters symmetrically around the closet. Commercial meters of the present day, however, are built in a variety of forms and the leading in and leading out and pressure wires connect to the different meters at a variety of points.

One of the objects of my invention is to provide a terminal box which may be practically universal in its application to the various meters and to the various ways of grouping the meters about the meter cabinet.

Another object is to provide means whereby the box may be locked and the contents thereof rendered inaccessible when the box is not in use. This I accomplish without the use of extra parts, the cover being

present at all times whether the box is in use or is locked.

Other objects of my invention relate to advantageous details of construction which will be hereinafter more particularly described.

I accomplish my objects by the construction illustrated in the accompanying drawings in which—

Figure 1 is a perspective view of my terminal box showing it in condition for use with the cover in position. Fig. 2 is a perspective view showing the cover removed. Fig. 3 is a perspective view showing the box in condition for non-use. Fig. 4 is a front sectional view of the box, the plane of section being indicated by the line 4—4 Fig. 10. Fig. 5 is a sectional view of the box without the cover, the section being taken on a line 5—5 Fig. 4. Fig. 6 is a perspective view of the cover with the knock-outs in place. Fig. 7 is a horizontal sectional view indicating a complete installation and showing a grouping of the meters, panel board, cabinet and my terminal box all in position within in a metering closet. Figs. 8 and 9 show two different types of meters and the way in which the meter wires or loops lead out from them. Fig. 10 is a sectional view of my terminal box complete, the section being taken on the line 10—10, Fig. 4. Fig. 11 is a perspective view of a test link adapted for use in the box.

Similar numerals refer to similar parts throughout the several views.

The box consists of three principal parts, the terminal block 1, the front cover 2, and a back cover 3. Said block consists of porcelain or other insulating material, while the covers will ordinarily be made of pressed metal. The back cover is preferably provided with screw holes 4 for securing the device to a wall or panel such as the one marked 5 in Fig. 7 of the drawings. Under ordinary circumstances the leading in wires which come from the source of electrical energy through the panel board are incased in a conduit 6, see Figs. 7 and 10. The back cover 3 is apertured to receive the extremity of the conduit and the best means for securing the latter are the bushing 8 and nut 9. In the preferred form of my device, provision is made for permitting the conduit to enter at any desired point by forming cir-

cular knock-outs 10 in the cover, as best shown in Figs. 5 and 10.

The terminal block 1, above mentioned, in the present form has four corner sockets 12 which receive screws 13 screwing into flanges 14 of the back cover for fastening the parts together, as best shown in Fig. 5. The block is substantially rectangular in outline and in the present instance has a peripheral ledge 16 for supporting the top cover. There are four apertures 18 passing through the block for the accommodation of the leading in wires. These apertures are located approximately at the four corners of the block just inside the peripheral flange 20 which parallels the edges of the block. In the best form said flange is integral with the block. It is provided with four gates 21 which lie opposite to the apertures 18. There is a fifth aperture 23 passing through the block preferably somewhat near the center thereof, and opposite to this in the flange 20 is a gate 24. This aperture 23 is for accommodating the pressure wire which comes in through the conduit and attaches to a binding post 26, best shown in Figs. 2 and 4. Said binding post is electrically connected to a strip 27 provided with a binding post 28 located opposite to the gate 24.

The leading in wires, coming in through the conduit 6 and passing up through the apertures 18 attach to leading in lugs 30, two in number. These lugs in the preferred form have a body portion which lies chiefly within the aperture and a tail portion which attaches by binding posts 31 to strips 32 of conductive material mounted upon the face of block 1. These strips 32 parallel the edges of the block and extend approximately from one aperture 18 to another. One of these strips, however, is interrupted in the middle, as best shown in Fig. 5 and the lower portion of Fig. 4, the purpose being to provide for a test link 33 which is held in connection with the strip ends by binding posts 34. The purpose of this construction is to permit the meter and its connections to be tested when necessary. At the opposite end of each connecting strip 32 is a leading out lug 36 attached to strip 32 by a binding post 31. Each leading out lug has a tail which the binding post engages and a body portion which leads toward the adjacent gate 21. These lugs 30 and 36 are adapted to receive the ends of the wires by which the current is carried. The lugs are interchangeable in the sense that a leading in lug may be replaced by a leading out lug and vice versa.

The top cover is flanged to fit over the flanges 20 of the block and is scored on the opposite sides or otherwise worked up to form knock-outs 38. The electrician may readily remove any one of these knock-outs

by a hammer or other tool and thus obtain an aperture in the cover flange adjacent to such one of the gates as he wishes to use.

The top cover is centrally apertured for the passage of a threaded post 40 mounted upon the cover it will be firmly held in position upon the block. The cover may be sealed by passing a wire 42 through an aperture near the upper end of said post and securing said wire by a seal 43.

The box is used in the following manner: When the metering system is being installed the constructing electrician first notes the type of meter which has been furnished him and the manner in which the meter loops lead from the meter. He also notes the position which the terminal box is supposed to occupy with relation to its meter. This enables him to decide whether the pressure wire is to lead out toward the right or toward the left or toward the bottom or top, and mounts the device accordingly. Let it be assumed that the meter closet appears as shown in Fig. 7. In harmony with this arrangement the meters and terminal boxes will be mounted upon the panel 5 surrounding the cut-out cabinet 45. The meters are first mounted upon said panel and adjacent to each meter a slot is made in the panel of proper size to accommodate the back cover 3 and the major portion of the block 1, the peripheral ridge 16 resting upon the front of the panel. After the conduit 6 has been fastened in place so as to lead as directly as possible from the cut-out cabinet to the terminal box, the leading in wires are passed through it and up to the lugs 30. Let it be assumed that the meters are of a type in which the pressure wire leads out from the left while one of the supply wires leads out from the left and the other leads out from the right. In such case he will place the box in the position shown in Figs. 4, 5 and 10, with the gate 24 at the left. He will also place the leading in lug 30 in the manner shown to connect the leading in wires with the right end of one of the strips 32 and the left end of the other strip. He will then place the leading out lugs 36 at the opposite end of said strips. In consequence, the meter loops or wires will all lead directly from the respective lugs straight out through the adjacent gates in the flange 20 and thence by shortest possible route to the openings in the meter.

In some types of meter the meter loops all lead out of the bottom of the meter, as shown in Fig. 8. In other types, such as the one shown in Fig. 9, the pressure loop leads out from the right while the other two lead out from the left. All of these conditions may be met with my box by merely turning the block 1 so that the pressure loop gate 24 shall lead direct toward

the opening provided for it in the meter. In the arrangement shown in Fig. 9, gate 24 is located at the right. But the block as well as the front and back covers are square in cross section so that either part may be rotated 90 degrees relatively to any other part. As a result the meter loops are always of minimum length, and furthermore it is so easy to disconnect the meter loops from the box that the loops may always be removed with the meter instead of remaining in place and forming a source of annoyance and danger.

After the meter loops have been connected up, the cover 2 is adjusted in place, the electrician first removing such of the knock-outs 38 as may be necessary for the accommodation of the loops. These knock-outs are located only on the two opposite edges of the cover and consequently the two remaining edges of the cover always remain imperforate. As a result of this latter fact, when the meter loops are absent, the binding posts and other contents of my box may be completely inclosed by merely turning the cover on the block 90 degrees in either direction. This will bring an imperforate portion of the cover flange adjacent to the perforate or gated portion of the block flange 20, thus preventing ingress at these points, at the same time the imperforate portions of the flange 20 come adjacent to the perforate portions of the cover flange and prevent ingress at these points. This is important, for when the cover is fastened in position by the nut 41, and sealed by a seal such as 43, there is no possible way for an unauthorized person to tap in, and steal current or disturb the wiring without detection. Almost the same amount of security may be obtained with my terminal box when the meter loops are in place, for at such times, if the cover is sealed, the loops will partially or wholly fill the gates and the internal binding posts will be completely out of reach from the outside.

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

1. A terminal block and a cover each having flanges provided with gates which register with each other when the cover is in

one position and come out of register when the cover is in a different position, the flanges being arranged upon the plan of a square whereby the flanges themselves serve to prevent both shifting and rotation of the cover and the cover is capable of occupying four different positions ninety degrees apart.

2. A terminal block and cover, the block having a gated and an ungated flange, and the cover also having a gated and an ungated flange, said flanges interlocking with each other and being arranged upon the plan of a square whereby the cover may be rotated to any one of four positions ninety degrees apart, and the cover will be locked in any one of its positions against relative shifting and relative rotation with respect to the block, a gate in a flange on the block registering with a gate in a flange on the cover when the cover is in one position and an ungated flange on the cover coming adjacent to a gated flange on the block when the cover is in a different position.

3. A terminal block and cover having interfitting flanges arranged on the plan of a square whereby the cover is held against rotation and shifting and is capable of occupying any one of four positions ninety degrees apart, two of the flanges on the block having gates, the gates on one of the gated flanges being arranged non-symmetrically with the gates on the other gated flange, one of the flanges on the cover having a row of knock-outs any one of which is individually removable whereby the operator is afforded a choice as to which of the gates in the flanges upon the block he desires to leave accessible from the outside of the device, and whereby when a single knock-out is removed, it will register with a gate upon one of the flanges of the block, and will not register with any gate upon the other gated flange of the block.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

ARTHUR C. McWILLIAMS.

Witnesses:

D. K. CHADBOURNE,
L. H. McKINZIE.