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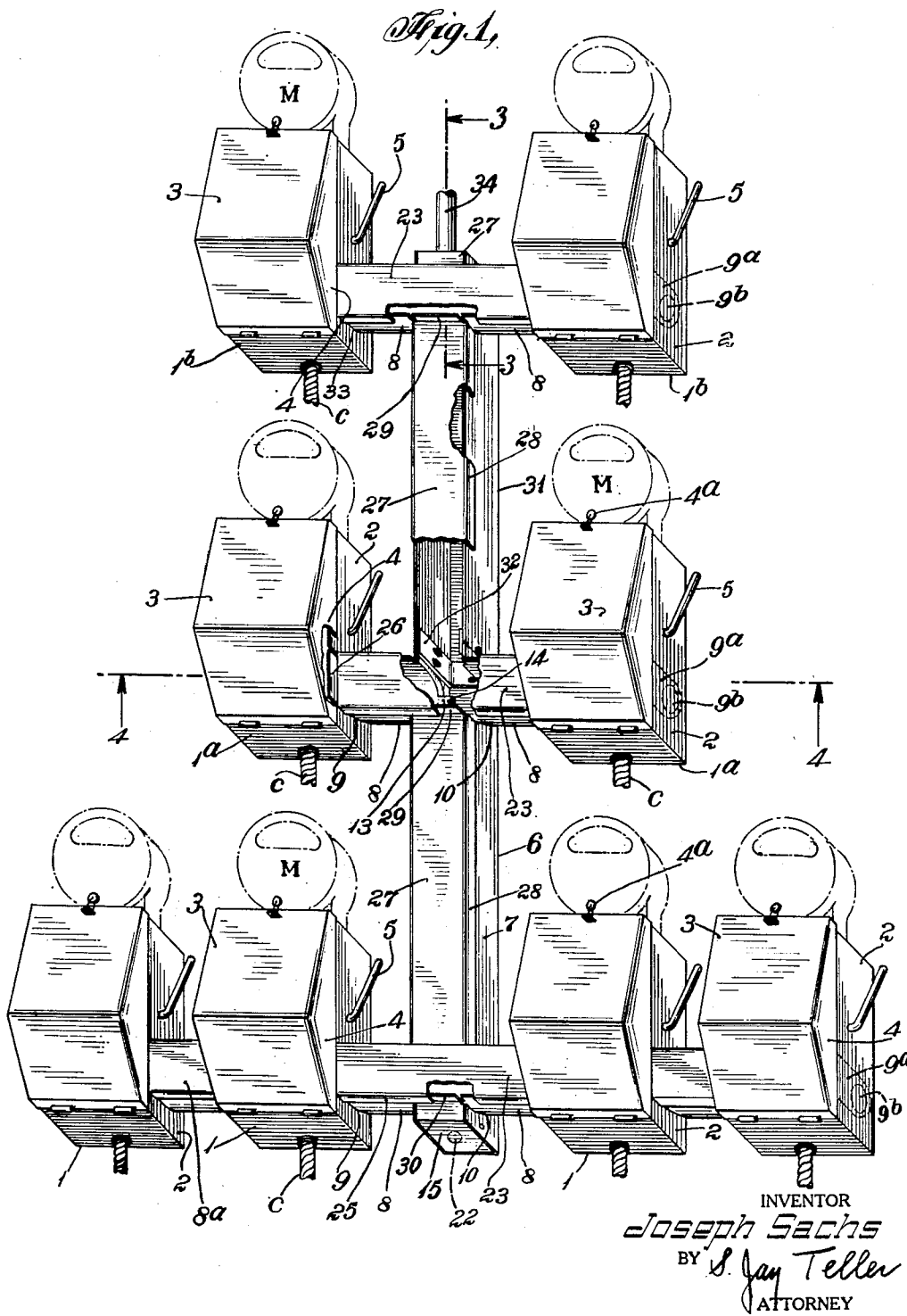
J. SACHS

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TROUGHING SYSTEM FOR ELECTRIC APPLIANCE RECEIVING CABINETS

Filed Sept. 7, 1926

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

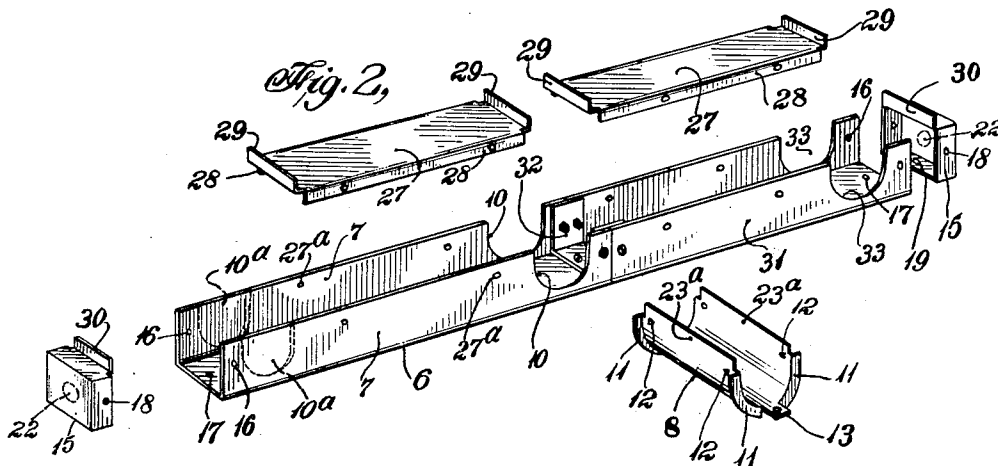
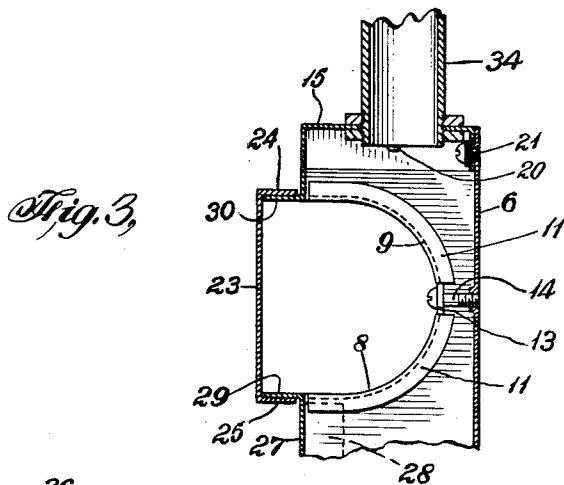
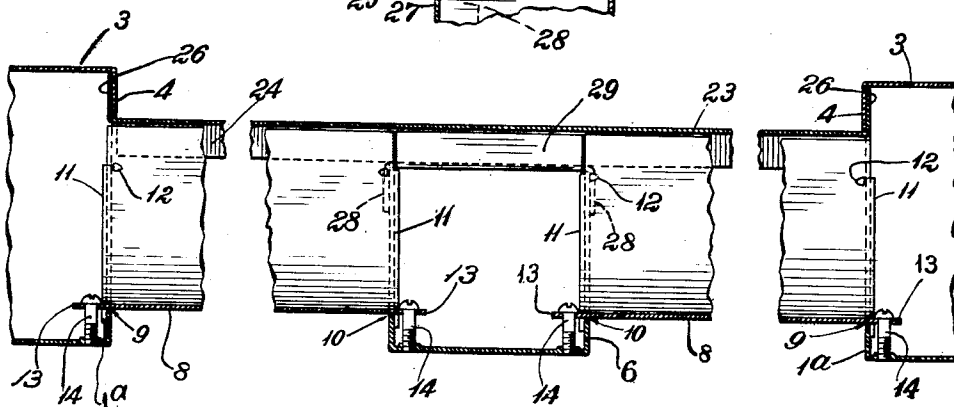


Fig. 4.

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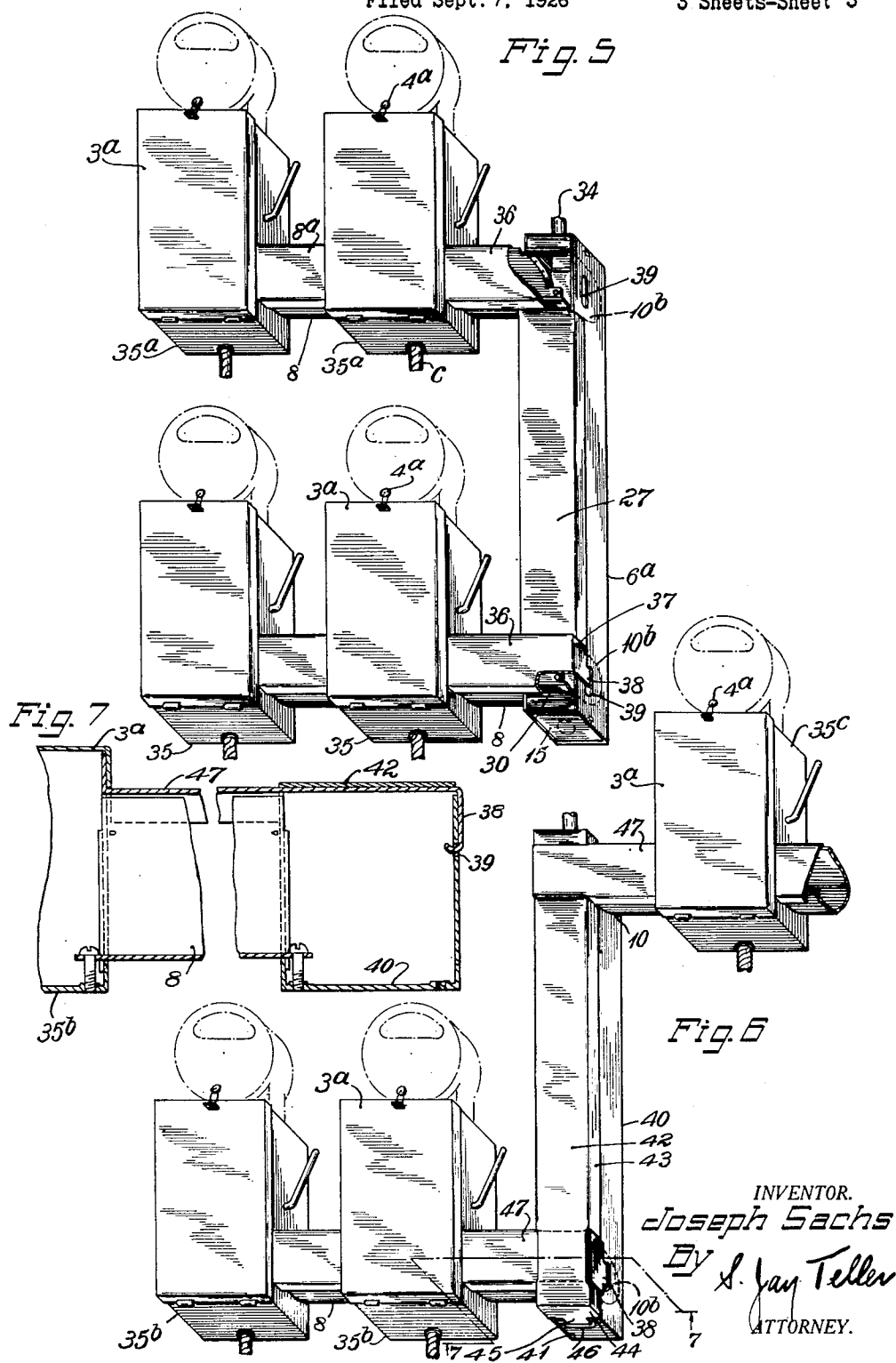
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TROUGHING SYSTEM FOR ELECTRIC APPLIANCE RECEIVING CABINETS

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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE.

JOSEPH SACHS, OF HARTFORD, CONNECTICUT.

TROUGHING SYSTEM FOR ELECTRIC-APPLIANCE RECEIVING CABINETS.

Application filed September 7, 1926. Serial No. 134,132.

The invention relates to a system of wire receiving troughs primarily adapted to be used for connecting together a number of cabinets such as are used for receiving the current controlling appliances commonly associated with electric meters. For installations including a plurality of service devices, as for instance in stores, office buildings, apartment houses and the like, it is common practice to provide a horizontal series or bank of such electric appliance receiving cabinets, the successive cabinets of the series being connected by means of open-front wire receiving troughs which extend into openings formed in the cabinet side walls. The connecting wire extending between the cabinets are located in the troughs and the troughs are closed by means of movable front covers, ordinarily held in place by means of the covers of the cabinets.

For the larger buildings it is not sufficient to provide a single horizontal series of such cabinets, but it is necessary to provide two or even three or more superposed series. The general object of the present invention is to provide a troughing system which includes not only horizontal troughs for connecting the cabinets of each series, but also a vertical trough for connecting two or more horizontal series and for receiving the necessary wires extending vertically from one horizontal series to another or continuing therefrom. While I have stated that the invention is primarily applicable for connecting two or more cabinets in two or more horizontal series, it will be understood that the invention in its broader aspects is not necessarily so limited, but may be applicable to a system including a vertical trough component and a single horizontal trough component connected to a single trough.

A more specific object of the invention is to make provision whereby the cover means, not only for the horizontal trough or troughs but also, for the vertical trough may be held in place by one or more of the several cabinet covers. A still more specific object of the invention is to provide an improved interlocking construction whereby the covers for the horizontal trough or troughs are held in place by the cabinet cover or covers and whereby the cover for the vertical trough is held in place by the cover or covers for the horizontal trough or troughs.

Another specific object of the invention is to provide a construction which permits the

horizontal troughs which are used in conjunction with the vertical trough to be identical in construction with the horizontal troughs which are used for directly connecting two adjacent cabinets in a horizontal series.

Still another specific object of the invention is to provide two or more separate vertical troughs which may be connected together when desired, the construction being such that only one vertical trough is required for two horizontal series and that one or more additional vertical troughs can be added for one or more additional horizontal series. In accordance with the invention the additional trough is preferably different in form or style from the first trough.

Still other specific objects of the invention will be apparent from the drawings and from the following specification and claims.

In the accompanying drawings I have shown the embodiment of the invention which I now deem preferable, but it will be understood that the drawings are intended for illustrative purposes only and are not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Fig. 1 is an oblique view showing three horizontal series of cabinets together with a connecting troughing system embodying the invention.

Fig. 2 is an isometric view showing in detail some of the parts of the troughing system.

Fig. 3 is an enlarged fragmentary vertical sectional view taken along the line 3—3 of Fig. 1.

Fig. 4 is an enlarged fragmentary horizontal sectional view taken along the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 1 but showing a different arrangement of troughs and cabinets, the trough and cover constructions also being somewhat different.

Fig. 6 is a view also similar to Fig. 1 but showing a still different arrangement of troughs and cabinets, the trough and cover construction being also somewhat different.

Fig. 7 is an enlarged fragmentary vertical sectional view taken along the line 7—7 of Fig. 6.

Referring to the drawings, particularly Figs. 1 to 4 thereof, 1, 1 and 1^a, 1^a represent electric appliance receiving cabinets ar-

ranged in two superposed horizontal series, that is, with one series vertically above the other. I have shown four cabinets in the series 1, 1 and two cabinets in the series 1^a, 1^a. It will be understood, however, that I do not limit myself to any particular numbers of cabinets in the respective series. I do not limit myself as concerns the details of cabinet construction, but, as illustrated, each cabinet includes side walls 2 and a cover 3 pivoted to one of the end walls and provided with lateral flanges 4 which fit over the corresponding side walls. Each cover may be sealed in closed position by means of a seal 4^a. Usually a meter M is associated with each cabinet, the terminal chamber of the meter extending through a suitable opening (not shown) in the top wall of the cabinet, but it will be understood that the invention is not limited for use with cabinets associated with meters. Located within each cabinet is a suitable current controlling appliance such as a fused switch, the said switch having its terminals properly connected with the service and load wires and also with the terminals of the meter when a meter is provided. Ordinarily the service wires extend into the respective cabinets through the troughs to be presently described in detail, and the load wires may extend from the respective cabinets through suitable conduits such as C, C; but it will be understood that either load or service wires may extend through any of the troughs as the installation conditions require. The fused switch or other current controlling appliance contained in each cabinet is not shown in the drawings as it does not of itself constitute any part of the present invention. It may be of any usual or preferred construction such for instance as that disclosed in my Patent No. 1,479,012, dated January 1, 1924. The device may be provided with an exterior handle 5 for operating the switch inside of the cabinet.

In accordance with the invention I provide an interconnected open-front wire receiving troughing means which extends in different directions and which preferably includes a vertical trough component and at least one horizontal trough component connected with the vertical component and with at least one cabinet. Preferably and ordinarily there are at least two horizontal trough components each connected with at least one cabinet, which cabinet may be one of a horizontal series. As shown in Fig. 1 each horizontal trough component is located between and connected with two cabinets but this is not essential as concerns the broader aspects of the invention. As concerns the details of construction of the several trough components there may be wide variation, but I prefer to construct the horizontal components and the vertical component separate

from each other. I also provide a movable front cover means for all of the said components.

As shown and as preferred I provide an open front vertical trough 6 located adjacent a cabinet of each series, and it may be between two cabinets of each series as shown in Fig. 1. The trough 6 has side walls 7, 7 and it is preferably adapted to engage the same wall or panel which supports the cabinets and to be secured to such wall or panel, although this is not essential. When the vertical trough is located between two cabinets of each series as shown, each horizontal component preferably comprises two separate horizontal trough 8, 8 respectively connecting the vertical trough with the corresponding cabinets. At least one side wall of each cabinet is provided with an open-side trough receiving opening 9, preferably U-shaped, extending rearward from the front thereof and the side walls 7, 7 of the vertical trough 6 are provided with similar openings 10, 10. The openings 10, 10 in the side walls of the vertical trough 6 are preferably arranged in pairs with the openings in each pair directly opposite each other. Instead of initially constructing the cabinets and the vertical trough with completely formed openings in the side walls, I preferably provide suitable knock-outs 9^a, 9^a and 10^a, 10^a in the said side walls which are adapted to be conveniently removed when and as needed to provide the required open-side trough receiving openings. The knock-outs 9^a, 9^a are shown in Fig. 1 and the knock-outs 10^a, 10^a are shown in the left hand portion of Fig. 2. Preferably each knock-out 9^a has included within it a smaller knock-out 9^b which can be removed, if desired, to provide for the connection of a conduit at one end of a series of cabinets. This knock-out construction does not of itself form any part of the present invention, it being set forth in patent for electric conduit systems, No. 1,608,621, issued November 30, 1926.

As already stated, when each horizontal component is connected with two adjacent cabinets it preferably comprises two separate troughs 8, 8. These two troughs may be, and preferably are, the same as, and interchangeable with, those which are ordinarily used for directly connecting two adjacent cabinets, as for instance, the two cabinets at the left end of the series 1, 1. When a trough 8 is used for directly connecting two cabinets it is provided with a cover 8^a held in place by the cabinet cover 3, 3 in accordance with usual practice. As shown in detail in Fig. 2, each horizontal trough 8 is U-shaped in construction so as to be adapted to enter and fit the U-shaped openings in the side walls of the corresponding cabinet and the vertical trough. It is provided at each end with flanges 11, 11

which project laterally and are adapted to engage the inner surfaces of the corresponding side walls. Preferably there are also provided outward projections 12, 12 which
 5 are adapted to engage the outer surfaces of the side walls. It will be seen that the said flanges 11, 11 and the said projections 12, 12 cooperate to provide a positive spacing means between the vertical trough and the
 10 adjacent cabinets. For securing each horizontal trough in place in proper relation to the corresponding cabinet and the vertical trough I provide a suitable fastening means which is preferably that disclosed and
 15 claimed in my copending application for enclosing system for electric service appliances, Serial Number 107,163, filed May 6, 1926. Each trough is provided at each end with an ear 13 which projects longitudinally be-
 20 yond the end of the trough proper and which is provided with a screw hole therein. The back walls of the corresponding cabinets and the vertical trough are provided with threaded screw holes adapted to receive
 25 screws 14, 14 extending through the screw holes in the ears 13, 13. By means of the screws 14, 14 each horizontal trough may be drawn backward into its proper position and firmly held in such position.

30 For closing one or both ends of the vertical trough, I provide either one or two separate end walls 15. The trough is provided at each end with means for the attachment of such an end wall, and as shown this means
 35 consists of holes 16, 16 in the side walls 7, 7 of the trough and a threaded hole 17 in the back wall. The end wall 15 is provided with side and bottom flanges having holes 18, 18 and 19 therein adapted to register respec-
 40 tively with the said holes 16, 16 and 17. The end wall may be held in place by means of bolts 20, 20 extending through the holes 16, 16 and 18, 18 and by means of a screw 21 extending through the holes 17 and 19.
 45 Preferably the end wall 15 is provided with an opening or a knock-out at 22 which permits the attachment to a suitable wire conduit or other accessory.

The cover means for the several troughs is preferably so constructed to be held in place by one or more of the covers 3, 3 of the cabinets. Preferably I provide separate covers for the horizontal and vertical troughs. For each pair of horizontal troughs 8, 8 I
 50 provide a single cover 23 which is of such a length as to extend from one cabinet to the other, thus closing both of the horizontal troughs and a part of the vertical trough. Each cover 23 is provided with upper and
 55 lower flanges 24 and 25 fitting respectively over and under the upper and lower walls of the corresponding horizontal troughs 8, 8. Preferably the upper and lower walls of the trough are provided with small projections
 60 23^a which are adapted to enter correspond-

ing depressions in the flanges 24 and 25 of the cover. In this way the cover is resiliently held in place, but can be easily removed when desired. Each cover 23 is also
 70 provided at its ends with outward extending flanges 26, 26 which lie in the same planes as the corresponding side walls of the cabinets and which are adapted to engage the inner surfaces of the corresponding side flanges 4, 4 of the cabinet covers. When the cabinet
 75 covers are closed the inner edges of the flanges 4, 4 also engage the outer surfaces of the cover 23 and thus the cabinet covers serve to hold the corresponding horizontal trough covers against outward movement
 80 and against longitudinal movement.

For the vertical trough 6 I provide a cover 27 having flanges 28, 28 at its sides which fit over the side walls of the trough. The side walls of the vertical trough are
 85 preferably provided with small projections 27^a similar in function to the projections 23^a already described. The length of the cover is approximately equal to the distance between the adjacent edges of the openings 10, 10 of the two pairs and the cover is provided
 90 at its ends with outward extending flanges 29, 29 adapted to engage the inner surfaces of the upper and lower flanges of the respective horizontal covers 23, 23. The said upper
 95 and lower flanges also engage the outer surfaces of the cover 27 and thus the said horizontal covers serve to hold the vertical cover against outward movement and also against longitudinal movement.

100 Preferably each end wall 15 is provided with an outward extending flange 30 which is adapted to engage the inner surfaces of the corresponding upper or lower flanges of a horizontal cover as clearly shown near the
 105 bottom of Fig. 1. This construction serves not only to assist in holding the end wall in place, but also to avoid any possible opening between the end wall and the horizontal cover.

110 From the foregoing description it will be understood that the cabinet covers 3^a serve to hold in place the cover means for all the troughs. Therefore, the seals 4^a serve not only to prevent access to the cabinets but
 115 also to prevent access to the troughs.

As thus far described, the system is adapted primarily for only two horizontal series of cabinets. When it is desired to make provision for one or more additional series of
 120 cabinets one or more additional vertical troughs 31 are provided. I have shown a single additional trough 31 this being directly connected at one end of the vertical trough 6. I have shown the trough 31 connected
 125 at the upper end of the trough 6, but it will be understood that it may be connected at the lower end, if desired. For forming a connection between the two troughs 31 and 6, I have provided a connect-
 130

ing member 32 which is provided with holes adapted to register with the aforesaid holes 16, 16 and 17 in the end of the trough 6, and adapted to receive bolts 20, 20 and a screw 21. Thus I am enabled to use the same connecting means on the trough 6 either for the attachment of an end wall 16 or for the attachment of a separate vertical trough 31.

The trough 31 is provided with a single pair of openings 33, 33 therein identical in construction with the openings 10, 10 in the trough 6. Extending into these openings are additional horizontal troughs 8, 8 connected with additional cabinets 1^b, 1^b. The upper end of the trough 31 may be closed by means of an end wall 15, or if desired, still another trough similar to the trough 31 may be connected.

The pair of openings 33, 33 in the trough 31 is so located that the spacing between it and the next adjacent pair of openings 10, 10 in the trough 6 is the same as the spacing between the two pairs of openings 10, 10 in the said trough 6. This enables me to use a cover 27 for the upper trough 31 which is identical in construction with the cover 27 used for the lower trough 6. This cover is similarly held in place by the corresponding horizontal covers 23, 23.

It will be understood that the several wires connecting the appliances in the successive cabinets in each series and also the several wires connecting the two or more series are located in the troughs which have been described. These may be service wires or load wires or any other wires required by the conditions of the installation. If desired, the lead-in wires for the system may extend through a suitable conduit such as 34 connected with one of the end walls 15 at the knock-out opening 22 therein, but this location for the lead-in wires is not essential. The several covers which have been described are readily removable to permit the wires to be put in place in the troughs or to permit access to the said wires at any time.

In Fig. 5 I have shown an alternate arrangement which illustrates the fact that the invention is not limited to a vertical trough located between two cabinets in each of two or more series of cabinets. Under some conditions of installation it may be preferable to locate the vertical trough at the ends of the two or more series. As shown in Fig. 5 there are two superposed series of cabinets 35, 35 and 35^a, 35^a. These cabinets may be the same as or similar to the cabinets 1, 1 and 1^a, 1^a which have already been described, but they are shown as having covers 3^a of somewhat different construction, thus illustrating the fact that the invention is in no way limited to the details of the cabinet construction. The several cabinets in each series are connected together by

means of horizontal troughs 8 which may be identical in construction with those already described.

At the ends of the series there is located a vertical trough 6^a which may be substantially the same in construction as the trough 6 already described. At the ends of the trough end walls such as 15 are provided. The description of the details of the trough and end walls need not be repeated. The trough 6^a may have knock-outs 10^b, 10^b at both sides for forming trough receiving openings, even though both of the openings at each side may not be needed. Horizontal trough components such as horizontal troughs 8, 8 connect the end cabinets of the respective series with the vertical trough 6^a at the trough receiving openings therein. A conduit 34 may be provided for the lead-in wires.

With an arrangement such as shown in Fig. 5, I provide horizontal trough covers somewhat different from the covers 23, 23 hereinbefore described. For each of the horizontal troughs there is provided a cover 36 which is arranged to also extend over the vertical trough and which at the end away from the cabinet and adjacent the trough is provided with means whereby it may be interlocked with the trough. The interlocking means may be varied but I have shown the cover 36 as being provided with a rearward extending flange 37 having an inward bent lug 38 thereon which is adapted to enter a hole 39 in the corresponding side wall of the trough. The side walls of the trough are preferably formed with knock-outs adapted to be removed as required to form the holes 39. The other end of each cover 36 is provided with an outward extending flange (not shown) similar in construction and function to the flange 26 on the cover 23. Thus each horizontal cover is held in place by the lug 38 thereon and by the cover 3^a of the corresponding cabinet. The vertical trough is provided with a vertical cover 27 which is identical in construction with the cover 27 heretofore described and which is similarly held in place by the two covers 36, 36.

In Figs. 6 and 7 I have shown still another arrangement wherein one series of cabinets 35^b, 35^b is at one side of the vertical trough and the other series of cabinets 35^c is at the other side of the vertical trough. The cover construction may be identical with that shown in Fig. 5, but in order to further illustrate the scope of the invention, I have shown a still different cover construction.

As shown in Figs. 6 and 7 the vertical trough 40 is somewhat deeper than the before described troughs 6 and 6^a, and it is provided with end walls 41 which are, or may be, similar to the end walls 15 but which do not have the flanges 30. A vertical

cover 42 is provided having side flanges 43 which are interrupted at positions registering with the trough openings 10 or with the corresponding knock-outs 10^a. The cover 42 is provided with end flanges 44 at least one of which is formed with a suitable interlocking means adapted to cooperate with the corresponding end wall 41. As shown at least one end flange 44 is provided with a lug 45 adapted to enter a hole 46 in the end wall, the hole preferably being formed by removing a suitable knock-out.

The horizontal trough covers are shown at 47, 47, these being similar to the covers 36, 36 except that the upper and lower flanges are interrupted to receive the vertical trough as clearly shown in Fig. 6. The two covers 47, 47 may both be placed over or in front of the vertical cover 42 so as to hold the said vertical cover in place when the said horizontal covers are held by the cabinet covers 3^a and by the lugs 38. However, in Fig. 6 I have shown the cover 47, at the end adjacent the lug 45, as being underneath or behind the vertical cover. Thus the vertical cover 42 holds the lower horizontal cover 47 and the said vertical cover is held by the upper horizontal cover 47 which is in turn held by the corresponding cabinet 3^a. In this way all of the trough covers are held by a single cabinet cover.

The cover construction as shown in Fig. 6 illustrates how the trough covers may be interlocked so that access to the wiring in the troughs is obtained by opening only one cabinet and whereby the closed cover of one cabinet maintains the interlocked relation of a vertical trough cover to a horizontal trough cover.

In Fig. 6 I have shown the vertical trough at the ends of the series of cabinets, but it will be understood that the use of the cover interlocking as shown in this figure is not so limited. If it is desired to position the vertical trough 40 between two cabinets in each series, each cover 47 can be lengthened and provided with an outward projecting flange at each end adapted to fit under the corresponding cabinet cover.

Certain features of the construction herein disclosed are also disclosed in my copending application for electric meter service appliance, Serial Number 746,911, filed October 30, 1924. In so far as there is subject matter in common this present application is to be regarded as a continuation of the said prior application.

What I claim is:

1. The combination of an electric appliance receiving cabinet, troughing means comprising an open-front horizontal component connected with the cabinet and also comprising an open-front vertical component connected with the said horizontal component, the said vertical and horizontal

trough components being structurally separate from each other and one of them having an opening in one side wall into which the other extends with a relatively close fit, and movable front cover means for both of the said trough components.

2. The combination of two superposed horizontal series of electric appliance receiving cabinets, troughing means comprising two open-front horizontal components respectively connected with at least one cabinet in each of the two series and also comprising an open-front vertical component connecting the said two horizontal components, the said vertical trough component being structurally separate from the horizontal trough components and having openings in two side walls into which the said horizontal components extend respectively with relatively close fits, and movable front cover means for all of the said trough components.

3. The combination of two superposed horizontal series of electric appliance receiving cabinets, two open-front horizontal trough components respectively connected with at least one cabinet in each of the two series, an open-front vertical trough structurally separate from the said horizontal trough components and serving to connect them, the said vertical trough component having two pairs of similar opposite openings in its side walls into which the said horizontal components extend respectively with relatively close fits, and movable front cover means for the said horizontal trough components and the said vertical trough.

4. The combination of two superposed horizontal series of electric appliance receiving cabinets, two open-front horizontal trough components respectively connected with at least one cabinet in each of the two series, an open-front vertical trough structurally separate from the said horizontal trough components and having openings in two side walls into which the said horizontal components extend respectively with relatively close fits, a removable end wall for closing at least one end of the vertical trough, and movable front cover means for the said horizontal trough components and the said vertical trough.

5. The combination of two superposed horizontal series of electric appliance receiving cabinets, an open-front vertical trough located between two adjacent cabinets in each of the said series, and having two pairs of similar opposite openings in its side walls, four open-front horizontal troughs respectively connecting the vertical trough with the said four adjacent cabinets, and respectively extending into and relatively closely fitting the said openings, and movable front cover means for all of the said troughs.

6. The combination of two superposed hor-

horizontal series of electric appliance receiving cabinets each having a trough receiving opening in one side wall, an open-front vertical trough located adjacent at least one cabinet in each of the said series and having trough receiving openings in at least one side wall similar to those in the cabinet side walls, open-front horizontal connecting troughs respectively extending into the openings in the respective cabinets and in the vertical trough, and movable front cover means for all of the said troughs.

7. The combination of two superposed horizontal series of electric appliance receiving cabinets each having an open-side trough receiving opening in one side wall and extending from the front thereof, an open-front vertical trough located adjacent at least one cabinet in each of the said series and having open-side trough receiving openings in at least one side wall and extending rearward from the front thereof, open-front horizontal connecting troughs respectively extending into the openings in the respective cabinets and in the vertical trough, means for attaching the said horizontal connecting troughs to the respective cabinets and to the vertical trough, and movable front cover means for all of the said troughs.

8. The combination of two superposed horizontal series of electric appliance receiving cabinets each having an open-side trough receiving opening in one side wall and extending from the front thereof, an open-front vertical trough located between two adjacent cabinets in each of the said series and having two pairs of oppositely disposed open-side trough receiving openings in its side walls and extending rearward from the fronts thereof, four open-front horizontal connecting troughs respectively extending into the openings in the side walls of the corresponding cabinets and in the side walls of the vertical troughs, means for attaching the said horizontal connecting troughs to the respective cabinets and to the vertical trough, two movable front covers for the said horizontal troughs each covering two of the said troughs and held in place by the corresponding cabinet covers when the latter are in closed positions, and a movable front cover for the vertical trough held in place by the said covers for the horizontal troughs.

9. The combination of two superposed horizontal series of electric appliance receiving cabinets each having a trough receiving opening in one side wall, an open-front vertical trough located adjacent at least one cabinet in each of the said series and having in at least one side wall trough receiving openings similar to those in the cabinet side walls, open-front horizontal connecting troughs identical in construction and respectively extending into the openings in the respective cabinets and into the corresponding

openings in the vertical trough, movable front cover means for all of the said troughs, and at least one additional horizontal connecting trough identical in construction with those aforesaid and forming a similar direct connection between another cabinet and one of the aforesaid cabinets.

10. The combination of two superposed horizontal series of electric appliance receiving cabinets each having a trough receiving opening in one side wall, one of the series including at least three cabinets, an open-front vertical trough located between two adjacent cabinets in each of the said series and having in its side walls two pairs of oppositely disposed trough receiving openings similar to those in the cabinet side walls, four open-front horizontal connecting troughs identical in construction and respectively extending into the openings in the side walls of the four corresponding cabinets and in the side walls of the vertical troughs, movable front cover means for all of the said troughs, and at least one additional horizontal connecting trough identical in construction with those aforesaid and similarly connecting another cabinet with one of the aforesaid cabinets.

11. The combination of two superposed horizontal series of electric appliance receiving cabinets each having an openable front cover, troughing means comprising two open-front horizontal components respectively connected with at least one cabinet in each of the two series and also comprising an open-front vertical component connecting the said two horizontal components, and movable front cover means for all of the said trough components constructed and arranged to be held in place by the said cabinet covers when the latter are in closed positions.

12. The combination of two superposed horizontal series of electric appliance receiving cabinets each having an openable front cover, troughing means comprising two open-front horizontal components each connected between two adjacent cabinets in the corresponding series and also comprising an open-front vertical component connecting the said two horizontal components, and movable front cover means for all of the said trough components constructed and arranged to be held in place by the said cabinet covers when the latter are in closed positions.

13. The combination of two superposed horizontal series of electric appliance receiving cabinets each having an openable front cover, troughing means comprising two open-front horizontal components connected with adjacent cabinets in the two series and also comprising an open-front vertical component connecting the said two horizontal components, movable front covers for the said horizontal trough components constructed and arranged to be held in place

by the said cabinet covers when the latter are in closed positions, and a movable front cover for the vertical trough component constructed and arranged to be held in place by the
5 the said covers for the horizontal components.

14. The combination of two superposed horizontal series of electric appliance receiving cabinets each having an openable front
10 cover, troughing means comprising two open-front horizontal components each connected between two adjacent cabinets in the corresponding series and also comprising an open-front vertical component connecting
15 the said two horizontal components, movable front covers for the said horizontal trough components constructed and arranged to be held in place by the said cabinet covers when the latter are in closed positions, and
20 a movable front cover for the vertical trough component constructed and arranged to be held in place by the said covers for the horizontal components.

15. The combination of two superposed
25 horizontal series of electric appliance receiving cabinets each having an openable front cover, an open-front vertical trough located between two adjacent cabinets in each of the said series, four open-front horizontal
30 troughs respectively connecting the vertical trough with the said four adjacent cabinets, two movable front covers for the said horizontal troughs each covering two of the said troughs and constructed and arranged to be
35 held in place by the corresponding cabinet covers when the latter are in closed positions, and a movable front cover for the vertical trough constructed and arranged to be held in place by the said covers for the horizontal
40 troughs.

16. The combination of two superposed horizontal series of electric appliance receiving cabinets each having an openable front
45 cover with inward extending side flanges fitting over the cabinet side walls, troughing means comprising two open-front horizontal components each connected between two adjacent cabinets in the corresponding series and also comprising an open-front vertical
50 component connecting the said two horizontal components, movable front covers for the said horizontal components each having at its ends outward extending flanges adapted to engage the inner surfaces of the corresponding
55 side flanges of the cabinet covers, the said horizontal covers being thus held by the said cabinet covers against outward movement and against longitudinal movement, and a movable vertical front cover for
60 the vertical trough component extending behind and thus held in place by the said horizontal covers.

17. The combination of two superposed horizontal series of electric appliance receiving
65 cabinets each having an openable

front cover with inward extending side flanges fitting over the cabinet side walls, troughing means comprising two open-front
horizontal components each connected between two adjacent cabinets in the corresponding series and also comprising an
70 open-front vertical component connecting the said two horizontal components, movable front covers for the said horizontal components each having inward extending upper and lower flanges fitting over the upper
75 and lower walls of the corresponding horizontal trough components and each having at its ends outward extending flanges adapted to engage the inner surfaces of the corresponding side flanges of the cabinet covers, the said horizontal covers being thus held
80 by the said cabinet covers against outward movement and against longitudinal movement, and a movable vertical front cover for the vertical trough component having at its ends outward extending flanges adapted to engage the inner surfaces of the corresponding upper and lower flanges of the
85 horizontal covers, the said vertical cover being thus held in place by the said horizontal covers against outward movement and against longitudinal movement.

18. The combination of two superposed horizontal series of electric appliance receiving
95 cabinets each having an openable front cover with inward extending side flanges fitting over the cabinet side walls, two open-front horizontal trough components each connected between adjacent cabinets in the corresponding series, an open-front vertical trough structurally separate from the said horizontal trough components and serving to connect them, movable horizontal
100 front covers for the said horizontal components, each having inward extending upper and lower flanges fitting over the upper and lower walls of the corresponding horizontal trough components and each having at its ends outward extending flanges
105 adapted to engage the inner surfaces of the corresponding flanges of the cabinet covers, the said horizontal covers being thus held by the said cabinet covers against outward movement and against longitudinal movement, a
110 movable vertical front-cover for the vertical trough having at its ends outward extending flanges adapted to engage the inner surfaces of the corresponding upper and lower flanges of the horizontal covers, the said vertical
115 cover being thus held in place by the said horizontal covers against outward movement and against longitudinal movement, and at least one removable end wall for the vertical trough having an outward extending
120 flange adapted to engage the inner surface of the upper or lower flange of one of the horizontal covers.

19. An open-front wire receiving trough having side walls with an open-side trough
125

receiving opening therein extending rearward from the front thereof, the said trough being open at at least one end and being provided with means at the said end for connection with the end of another similar trough.

20. An open-front wire receiving trough having side walls with at least two open-side trough receiving openings therein extending rearward from the front thereof and spaced longitudinally from each other.

21. An open-front wire receiving trough having side walls with at least two open-side trough receiving openings therein extending rearward from the front thereof and spaced longitudinally from each other, the said trough being open at at least one end and being provided with means at the said end for connection with the end of another similar trough.

22. The combination of an open-front wire receiving trough having side walls with at least two open-side trough receiving openings therein extending from the front thereof and spaced longitudinally from each other, and at least one removable end wall for closing an end of the said trough.

23. An open-front wire receiving trough having side walls with two pairs of oppositely disposed open-side trough receiving openings therein extending from the front thereof.

24. The combination of an open-front wire receiving trough having side walls with two pairs of oppositely disposed open-side trough receiving openings therein extending from the front thereof, and a front cover for the said trough having a length approximately equal to the distance between the adjacent edges of the openings of the two said pairs.

25. The combination of two superposed horizontal series of electric appliance receiving cabinets each having a trough connecting opening in one side wall, an open-front vertical trough located adjacent at least one cabinet in each of the said series and having trough connecting openings in at least one of its side walls similar to those in the cabinet side walls, two open-front horizontal trough components each connected with the vertical trough at one of the said openings and also connected with an adjacent cabinet in the corresponding series at the opening therein, a second open-front vertical trough adapted to be connected at one end of the first said vertical trough and having at least one trough connecting opening similar to those in the first trough whereby a horizontal trough component for a third series of cabinets may be connected, and movable front cover means for the vertical troughs and the horizontal trough components.

26. The combination of two superposed horizontal series of electric appliance receiving

cabinets each having a trough connecting opening in one side wall, an open-front vertical trough located adjacent at least one cabinet in each of said series and having trough connecting openings in at least one of its side walls similar to those in the cabinet side walls, the said trough having means at each end for the attachment of an end wall or another trough, two open-front horizontal trough components each connected with the vertical trough at one of the said openings and also connected with an adjacent cabinet in the corresponding series at the opening therein, a removable end wall for closing one end of the vertical trough, a second open-front vertical trough having at least one trough connecting opening similar to those in the first trough, the said end wall and the second said vertical trough being adapted to be interchangeably connected at either end of the first said trough to close the said end or to permit connection with a horizontal trough component for a third series of cabinets, and movable front cover means for the vertical troughs and the horizontal trough components.

27. The combination of two superposed horizontal series of electric appliance receiving cabinets each having a trough connecting opening in one side wall, an open-front vertical trough located between two adjacent cabinets in each of the said series and having in its side walls two pairs of oppositely disposed trough connecting openings similar to those in the cabinet side walls, two open-front horizontal trough components connected respectively with the vertical trough at the said pairs of openings and also connected with two adjacent cabinets in each series at the respective openings therein, a second open-front vertical trough adapted to be connected at one end of the first said vertical trough and having in its side walls a pair of oppositely disposed trough connecting openings similar to those in the first trough, whereby horizontal trough components for a third series of cabinets may be connected, the pair of openings in the second said vertical trough being so located that the spacing between them and the next adjacent pair of openings in the first said section is the same as the spacing between the two pairs of openings in the first said section, and movable front cover means for the vertical troughs and the horizontal trough components, the said means comprising two separate vertical covers identical in size and each having a length equal to the distance between the adjacent edges of the openings of two adjacent pairs.

28. The combination of an open-front wire receiving trough having side walls with at least two open-side trough receiving openings therein extending from the front thereof, and a second open-front wire receiving

trough adapted to be connected to one end of the first said trough, the second said trough having at least one opening therein similar to those in the side walls of the first 5 said trough. 15

29. The combination of an open-front wire receiving trough having side walls with two pairs of oppositely disposed open-side trough receiving openings therein extending from the front thereof, a second 10 open-front wire receiving trough adapted to be connected to one end of the first said trough, the second said trough having side walls with one pair of openings therein similar to those in the side walls of the first 15 said trough so located that the spacing between them and the next adjacent pair of openings in the first said section is the same as the spacing between the two pairs of openings in the first said section, and two 20 separate front covers for the troughs identical in size and each having a length equal to the distance between the adjacent edges of the openings of two adjacent pairs.

JOSEPH SACHS.