March 3, 1931. W. A. BOCKIUS ET AL 1,794,359

CONVENIENCE OUTLET

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Fig. 1

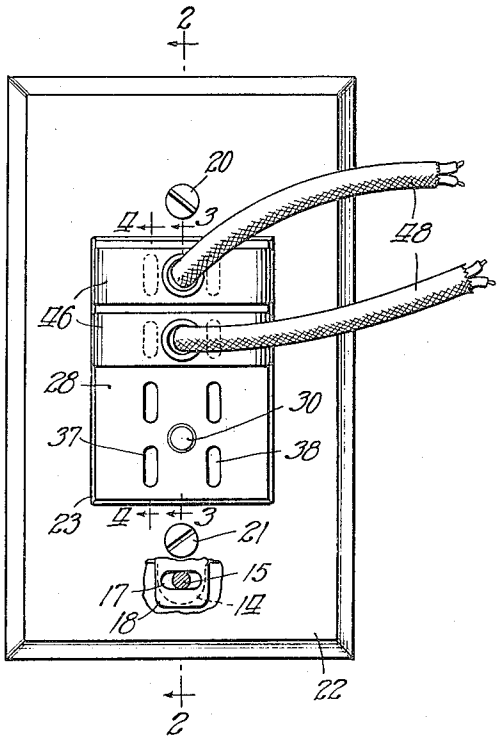
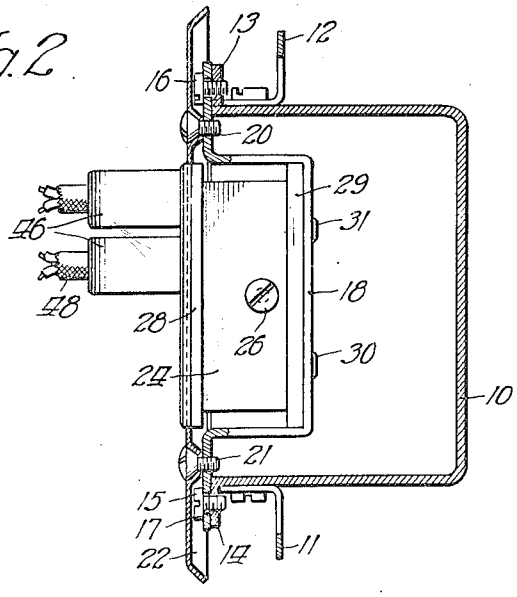


Fig. 2



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Fig. 3

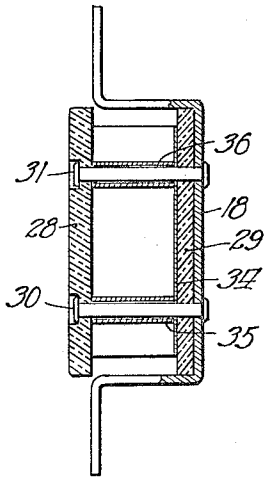


Fig. 4

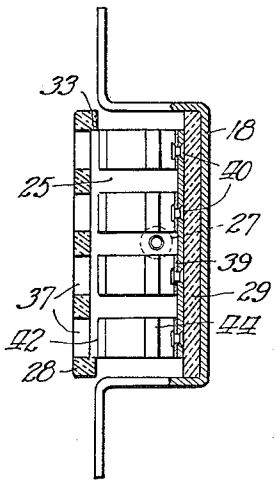


Fig. 5

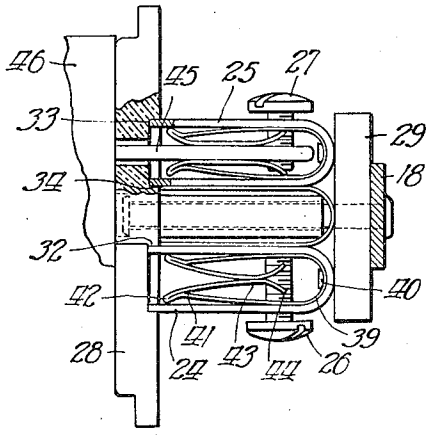


Fig. 6

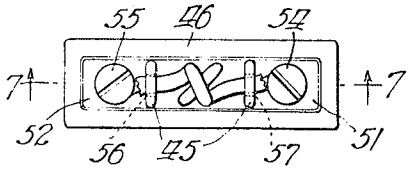
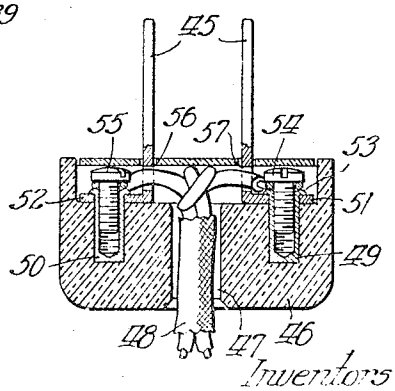


Fig. 7



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UNITED STATES PATENT OFFICE

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CONVENIENCE OUTLET

Application filed June 15, 1929. Serial No. 371,286.

Our invention relates to convenience outlets and more particularly to means whereby a plurality of electrical circuits leading to current consumption devices may be connected to a common source of supply.

It is the principal purpose of this invention to provide a device of this character in which the amount of space necessary for connecting any given number of outlet circuits is materially reduced.

It is also the purpose of this invention to provide in a device of this character means whereby a pair of spaced supporting and conducting elements which is adapted to be connected to one side of the line may be associated together and provided with socket contacts to form a unit capable of receiving a plurality of plugs arranged in parallelism lengthwise of said members.

Other and more specific objects and advantages of the invention will appear as the description proceeds in connection with the accompanying drawings. It is to be understood, however, that the drawings and description are illustrative only and are not to be taken as limiting the invention in so far as modifications and minor variations are concerned except in so far as the invention is limited by the claims.

In the drawings—

Fig. 1 is a front view showing the convenience outlet, a cover thereon, and a pair of plugs in position, part of the cover being broken away;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is a section on the line 4—4 of Fig. 1;

Fig. 5 is an elevational view of the interior of the device with parts of the structure thereof shown in sections;

Fig. 6 is an end view of one of the plugs taken from the contacting end thereof; and

Fig. 7 is a section on the line 7—7 of Fig. 6.

Referring now in detail to the drawings, we show at 10 the usual outlet box which at present is mounted in the wall of a building during the construction thereof and secured in position by means of the brackets such as indicated at 11 and 12 after which it may be suitably incased with plaster if desired up substantially to the laterally extending flanges shown at 13 and 14.

These flanges are screw threaded to receive screws 15 and 16 which fit in elongated slots such as shown at 17 in the mounting member 18 which carries the socket portion of the connector, this mounting member being preferably in the form of a U-shaped metallic bar having the legs of the U bent outwardly and provided with the apertures such as 17 for securing the same to the flanges 13 and 14. The purpose of the elongated opening 17 is, of course, to permit proper horizontal or vertical alignment of the socket member since it is quite often the case that the outlet box 10 is not mounted with the proper degree of care to insure its being properly aligned vertically or horizontally. The member 18 is provided as shown at 20 and 21 with screw threaded apertures by means of which the cover plate 22 may be directly attached thereto. The cover plate is cut away as shown at 23 to provide an aperture for the socket element of the connector which will now be described in detail.

This element consists essentially of a pair of spaced apart members 24 and 25 which are substantially channel shaped or U-shaped in cross section and which are of any desired length to provide the requisite number of outlet connections as will hereinafter appear. These members are each provided with terminals as indicated at 26 and 27 for connecting the lead in wires coming into the outlet box 10 thereto, and the members 24 and 25 form the conducting means whereby circuit is completed from the plug and socket arrangement to the terminals 26 and 27, which will now be described.

These channel like members 24 and 25 are secured between the face plate 28 and a back plate 29 of insulation by means of a pair of rivets indicated at 30 and 31 which are preferably countersunk within the material of the plate 28 and which pass through the plate 29 and through the mounting bar 18 so as to clamp the plates 28 and 29, members 24 and 25, and bar 18 firmly together. Plate 28 is provided with longitudinally extending grooves as shown at 32 and 33 in which the

open sides of the channel shaped members 24 and 25 extend so as to properly align these members throughout their length and hold them approximately parallel to each other.

As a means of insuring the insulation of these elements 24 and 25 from each other, there is provided a U-shaped insulating element 34 of substantially the same shape as the members 24 and 25 through which element the rivets 30 and 31 pass; and these rivets are further insulated by the sleeves 35 and 36. The insulating pieces 28 and 29 are preferably somewhat longer than the members 24 and 25 and of just such a length as to fit in the U-shaped portion of the member 18 so that they will properly space the ends of the contacting members 24 and 25 from this member 18.

The piece 28 is provided, as shown most clearly in Figs. 1 and 4, with spaced rows of apertures as shown at 37 and 38 which apertures preferably are arranged substantially on the center line of the channel like members 24 and 25 to permit the insertion of the plug members of the connecting device as will be hereinafter explained.

Within the channel shaped members 24 and 25 we provide spring contact socket members 39 which as shown are riveted at 40 or otherwise secured in the bottom of the channel and directly to the members 24 and 25 so as to make a good electrical contact. The opposite ends of these spring contact members then extend upwardly and inwardly toward each other to about the point 41, and then they extend outwardly to 42 into contact with the side walls of the channel members and are then curved downwardly and inwardly toward each other to come into contact about at 43 with the free ends thereof being spread apart as indicated at 44.

The result of this structure is that a good long surface contact may be obtained when a plug such as that indicated at 45 is inserted in these socket members, and owing to the shape at 42 and 44 of this spring contact sockets, the spring pressure upon the plug inserted therein is received from both ends of the contact surface so as to insure firm contact. This, it will be seen, gives a very effective socket arrangement for the connecting device which is limited in extent only to the desired numbers of pairs of sockets which may be used.

In order to utilize these sockets to the fullest advantage in a close spacing, we provide a plug 46 which as shown is substantially rectangular in outline having in the central portion thereof a bore 47 through which the conducting leads 48 from a current consumption device extend. In the contacting face of the plug, there are provided metallic inserts as shown at 49 and 50 which are in the form of rivets extending upwardly through the laterally bent portions 51 and 52 of the plugs and spun over as shown at 53 to form means for holding the plug contact on the insulating base 46.

These inserts 49 and 50 are also screw threaded to receive the wiring terminal screws 54 and 55 by means of which the leads which extend through the plug contacts at 56 and 57 are secured to these contacts. These elongated plugs may then be inserted parallel to each other and transversely of the plate 28 as shown clearly in Figs. 1 and 2 and in this manner a considerable number of connections may be built up in a very small space.

It is, of course, to be understood that the spacing of the socket elements are such as to correspond to the standard spacing of the plug terminals now in use so that, where plugs of the type shown by applicant are not available, the standard round headed plug may be used with this outlet socket although, or course, such plugs cannot be placed so close together, and a unit such as shown in Fig. 1 would only accommodate probably two of such plugs.

From the above description it is thought that the construction and advantages of this device will be clear to those skilled in this art, and, having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A device of the character described comprising a pair of channel-like conducting and supporting elements, means securing said elements together in spaced relation, a wiring terminal for each element, and a plurality of spring contact sockets carried in the channel of each element, each contact socket of one element being aligned with a contact socket of the other whereby to receive the terminals of a plug.

2. Means for connecting a plurality of consumption circuits to a single source of current supply comprising a socket composed of a pair of conducting channel members, having means for connection direct to said source of supply, a plurality of sockets in each of said members, said sockets being arranged in pairs with one socket of each pair in each member, insulating support means upon which said members are secured, and plug members connected to said consumption circuits and having spaced prongs insertible in said sockets.

3. Means for connecting a plurality of consumption circuits to a single source of current supply comprising a socket composed of a pair of conducting channel members, having means for connection direct to said source of supply, a plurality of sockets in each of said members, said sockets being arranged in pairs with one socket of each pair in each member, insulating support means upon which said members are secured, and plug members connected to said consumption circuits and having spaced prongs insertible in

said sockets, said insulating support means including a plate fitting over the open side of said channel members and having spaced apertures aligning with said sockets.

4. Means for connecting a plurality of consumption circuits to a single source of current supply comprising a socket composed of a pair of conducting channel members, having means for connection direct to said source of supply, a plurality of sockets in each of said members, said sockets being arranged in pairs with one socket of each pair in each member, insulating support means upon which said members are secured, and plug members connected to said consumption circuits and having spaced prongs insertible in said sockets, said insulating support means including a plate fitting over the open side of said channel members and having spaced apertures aligning with said sockets, said plate having grooves receiving said members whereby to align them.

5. Means for connecting a plurality of consumption circuits to a single source of current supply comprising a socket composed of a pair of conducting channel members, having means for connection direct to said source of supply, a plurality of sockets in each of said members, said sockets being arranged in pairs with one socket of each pair in each member, insulating support means upon which said members are secured, and plug members connected to said consumption circuits and having spaced prongs insertible in said sockets, said insulating support means including an insulating strip interposed between and spacing said members from each other.

6. Means for connecting a plurality of consumption circuits to a single source of current supply comprising a socket composed of a pair of conducting channel members, having means for connection direct to said source of supply, a plurality of sockets in each of said members, said sockets being arranged in pairs with one socket of each pair in each member, insulating support means upon which said members are secured, and plug members connected to said consumption circuits and having spaced prongs insertible in said sockets, said plug members having relatively narrow insulating body portions elongated in the direction of spacing of the prongs.

7. Means for connecting a plurality of consumption circuits to a single source of current supply comprising a socket composed of a pair of conducting channel members, having means for connection direct to said source of supply, a plurality of sockets in each of said members, said sockets being arranged in pairs with one socket of each pair in each member, insulating support means upon which said members are secured, and plug members connected to said consumption circuits and having spaced prongs insertible in said sockets, the spaces between said sockets longitudinally of the channel members being at least as small as the space between sockets transversely of said members.

8. A device of the character described comprising a pair of channel-like conducting and supporting elements, means securing said elements together in spaced relation, a wiring terminal for each element, and a plurality of spring contact sockets carried in the channel of each element, each contact socket of one element being aligned with a contact socket of the other whereby to receive the terminals of a plug, the spaces between said sockets longitudinally of the channel members being at least as small as the spaces between sockets transversely of said members.

9. A device of the character described comprising a pair of channel-like conducting and supporting elements, means securing said elements together in spaced relation, a wiring terminal for each element, and a plurality of spring contact sockets carried in the channel of each element, each contact socket of one element being aligned with a contact socket of the other whereby to receive the terminals of a plug, and a mounting bar secured by said securing means for mounting said device in an outlet box.

10. A device of the character described comprising a pair of channel-like conducting and supporting elements, means securing said elements together in spaced relation, a wiring terminal for each element, and a plurality of spring contact sockets carried in the channel of each element, each contact socket of one element being aligned with a contact socket of the other whereby to receive the terminals of a plug, and a mounting bar secured by said securing means for mounting said device in an outlet box, said bar having provisions for attaching a cover plate thereto.

11. A device of the character described comprising a pair of channel-like conducting and supporting elements, means securing said elements together in spaced relation, a wiring terminal for each element, and a plurality of spring contact sockets carried in the channel of each element, each contact socket of one element being aligned with a contact socket of the other whereby to receive the terminals of a plug, said securing means including a plate of insulating material having means cooperating with said channel elements to maintain them in spaced relation.

In witness whereof, we hereunto subscribe our names this 1st day of June, A. D. 1929.

HOWARD B. JONES.
WALTER A. BOCKIUS.