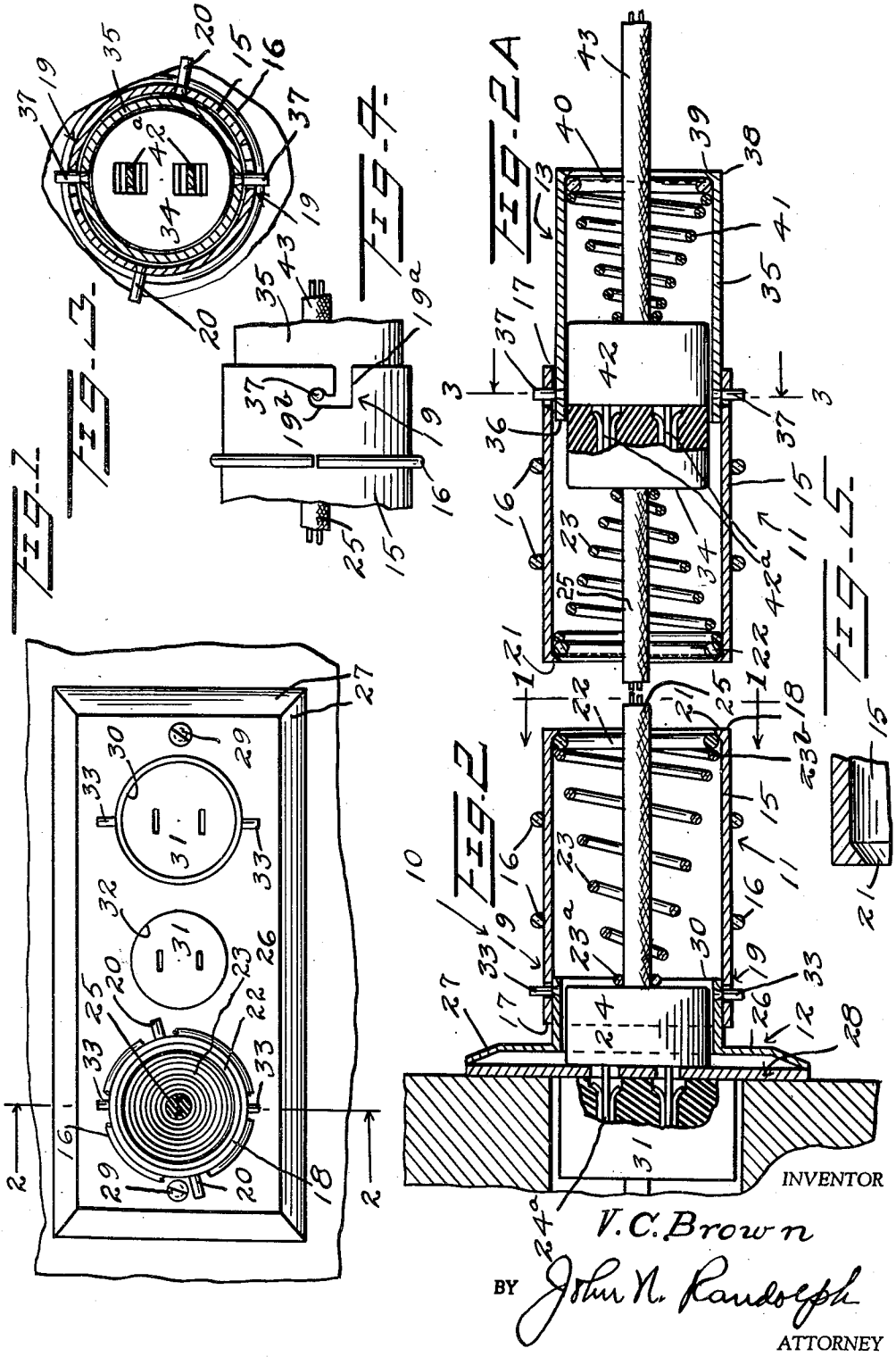
May 6, 1958 V. C. BROWN 2,833,997

LOCKING ATTACHMENT FOR ELECTRIC EXTENSION CORDS

Filed April 25, 1955 2 Sheets-Sheet 1



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Fig. 6.

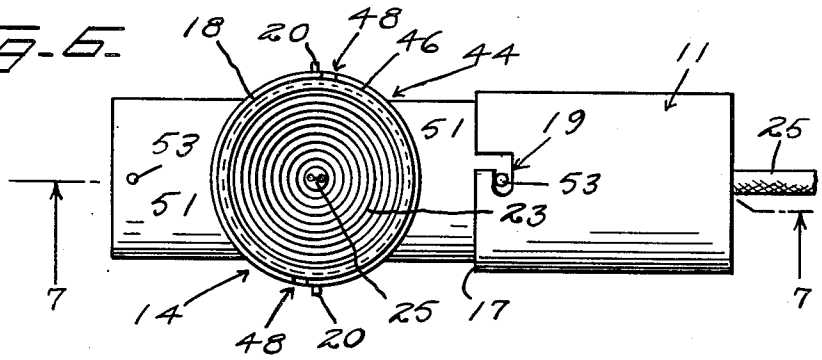


Fig. 7.

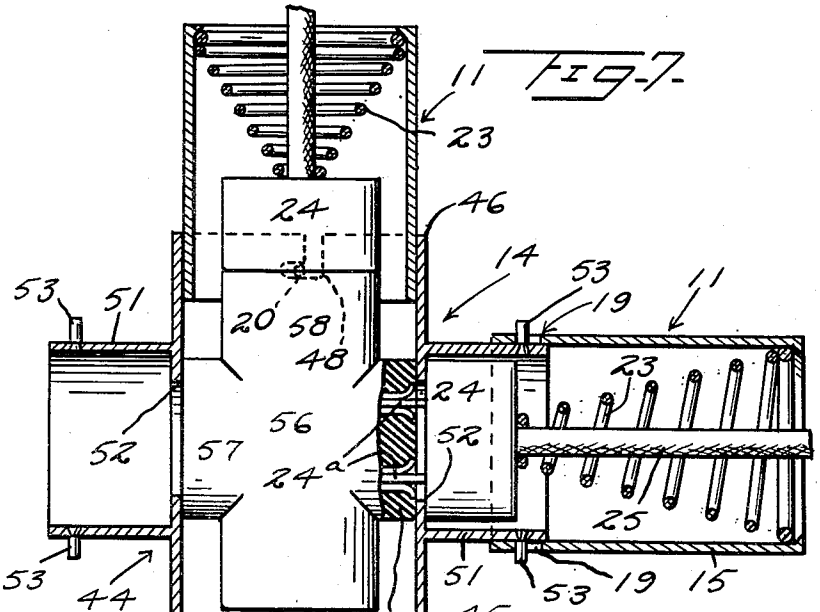
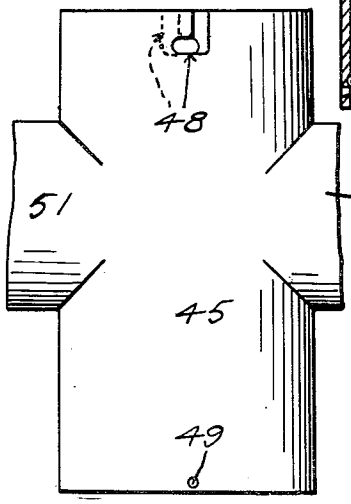


Fig. 8.



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LOCKING ATTACHMENT FOR ELECTRIC EXTENSION CORDS

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2 Claims. (Cl. 339—90)

This invention relates to a novel locking attachment of extremely simple construction which may be readily applied to the ends of conventional electric extension cords and to an electric socket of a conventional electric outlet to prevent disconnection of an extension cord resulting from a pull thereon.

Considerable inconvenience and annoyance occurs in connection with the use of electric extension cords with hand tools such as electric saws, drills, vacuum cleaners and irons, due to the electric cord becoming accidently disconnected as a result of a pull thereon.

Accordingly, it is a primary object of the present invention to provide a locking attachment capable of being readily utilized with conventional electric extension cords and which may be quickly and easily applied thereto or removed therefrom and when utilized will effectively function to prevent such accidental disconnection of the extension cord and the inconveniences resulting therefrom.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is an elevational view, partly in cross section, taken substantially along a plane as indicated by the line 1—1 of Figure 2, showing a part of the attachment, associated with a conventional electrical outlet, including portions shown broken away to illustrate details;

Figure 2 is a longitudinal sectional view illustrating parts of the attachment for connection to a receptacle plate, taken substantially along a plane as indicated by the line 2—2 of Figure 1, and on an enlarged scale;

Figure 2A is a view similar to Figure 2 showing parts of the attachment for connecting a plug and socket in a line cord;

Figure 3 is a cross sectional view taken substantially along a plane as indicated by the line 3—3 of Figure 2A;

Figure 4 is a fragmentary top plan view of a portion of the attachment shown in Figure 2A;

Figure 5 is a fragmentary longitudinal sectional view illustrating a part of the attachment;

Figure 6 is an end elevational view, partly in cross section, illustrating certain of the parts of the attachment assembled, as said parts appear looking down on Figure 7;

Figure 7 is an enlarged vertical sectional view, taken substantially along a plane as indicated by the line 7—7 of Figure 6, and

Figure 8 is a fragmentary side elevational view of the housing of one part of the attachment as illustrated in Figures 6 and 7.

Referring more specifically to the drawings, the locking attachment in its entirety and comprising the invention is designated generally 10 and includes locking or connecting units, designated generally 11, 12, 13 and 14.

The unit 11 which is of primary utility and which may be utilized with the units 12, 13 and 14, includes a sleevelike housing 15 of relatively large diameter which

is preferably encircled by reinforcing rings 16 which are spaced from the ends 17 and 18 thereof. The housing 15 may be formed of metal or plastic, or other suitable material and is provided with oppositely disposed bayonet slots 19 which open outwardly of its forward end 17. The housing 15, adjacent the end 17, is also provided with a pair of diametrically aligned outwardly projecting connector pins 20, which are circumferentially spaced from the bayonet slots 19. The rear end 18 is preferably provided with an annular internal flange or lip 21 providing a seat for a ring member 22 which is disposed in the housing 15. The locking unit 11 also includes a conical shaped spinal expansion spring 23 which is removably contained in the housing 15 thereof.

Referring to the unit 11, as illustrated in Figure 2, it will be readily apparent that the spring 23 can be removed through the housing end 17 and that the plug 24 of a conventional electric extension cord 25 can be inserted through the housing 15, entering through the end 18 and through the ring 22 contained therein. The plug 24 can be displaced a sufficient distance in advance of the forward end 17, so that the spring 23 can then be applied to the extension cord 25, by passing a part of the cord spirally between the spring convolutions, and so that the smallest end convolution 23*a* of the spring will be disposed adjacent to and can be positioned in abutting engagement against the back of the plug 24. The extension cord 25 can then be drawn from front to rear through the housing 15 to cause the spring 23 to resume its position in said housing and with its largest end convolution 23*b* abutting against the ring 22, as seen in Figure 2. It will thus be apparent that the unit 11 can be quickly attached to or detached from a conventional extension cord, and without the use of tools.

The unit 12 comprises a plate 26, as best illustrated in Figure 1, having beveled or flared edge portions 27. The plate 26 is adapted to be disposed over a conventional electrical outlet 28, such as a domestic wall outlet and is detachably secured thereto by screw fastenings or the like 29, which extend through the plate, adjacent the ends thereof, and are anchored in a wall or to the outlet 28.

The plate 26 near to its ends is provided with outwardly projecting annular flanges 30 defining flanged openings through the plate 26 and which align with two end sockets 31 of the outlet 28. The plate 26 is preferably provided with an intermediate opening 32 which aligns with an intermediate socket 31 of the outlet 28 and in which any conventional electric plug may fit for connection to the intermediate socket 31. Each of the annular flanges or bosses 30 is provided with a pair of diametrically aligned outwardly projecting connector pins 33, which are spaced from the plate 26, as seen in Figure 2.

It will be readily obvious that the plug 24 can be extended slightly from the housing end 17 and can be inserted through one of the flanges or bosses 30 for inserting the prongs 24*a* thereof into the socket 31 which aligns with said boss 30. The housing 15 can then be displaced relative to the plug 24 toward the plate 26. The interior diameter of the housing 15 is larger than the exterior diameter of the boss 30 so that the end 17 thereof can be partially telescoped over the boss 30 and with the bayonet slot portions 19*a*, which extend longitudinally of the housing 15 receiving the connector pins 33. When the pins 33 reach the inner ends of the slot portions 19*a*, the housing 15 can be turned relative to the boss 30 in a conventional manner for locking the pins 33 in the circumferentially extending bayonet slot portions 19*b*. The spring 23 will then be held under tension between the plug 24 and ring 22 to effectively prevent the plug from being disconnected from the socket 31 while the unit 11 is thus locked

to the unit 12. The other end of the extension cord 25 is illustrated in Figure 2A as being provided with a conventional single socket 34. However, it will be readily apparent that said last mentioned end of the extension cord 25 could be directly connected to a power tool, vacuum cleaner, iron or the like, in which case only the units 11 and 12 would be required for locking the extension cord 25 so that the electrical connection provided thereby could not be inadvertently broken.

However, Figure 2A shows a second identical unit 11 in which the extension cord socket 34 is disposed and which is assembled relative to the extension cord socket 34, in the same manner as the unit 11, previously described, is assembled with the extension cord plug 24. The unit 13, as illustrated in Figure 2A, includes a sleeve-like housing 35 the external diameter of which is slightly smaller than the internal diameter of the housing 15. The housing 35 has a forward end 36, adjacent to which the housing is provided with diametrically aligned outwardly projecting connector pins 37. However, the housing 35 is not provided with bayonet slots. The other rear end 38 of the housing 35 has an internal lip 39 for seating a stop ring 40, corresponding to the lip 21 and ring 22, respectively, except as to the size of said parts. The connector unit 13 also includes a conical spring 41, corresponding to the spring 23, except as to its diameter, and which is mounted in the same manner and functions for the same purpose. A plug 42 of an extension cord 43 is mounted in the unit 13, in the same manner that the plug 24 is mounted in the left hand unit 11. It may be assumed that the opposite end of the extension cord 43 is connected to an electrical tool, vacuum cleaner, iron or the like. For connecting the extension cords 25 and 43, the socket 34 and the plug 42 are permitted to be extended by their springs 23 and 41, respectively, from the forward ends of the housings 15 and 35 thereof, so that the prongs 42*a* of the plug 42 can be engaged in the socket 34 for completing an electrical connection from the wall outlet socket 31 to the extension cord 43. The unit 11 individual to the socket 34 and the unit 13 can then be displaced toward one another for causing the housing end 36 to enter the housing end 17 and for causing the connector pins 37 to enter the bayonet slot portions 19*a*, after which a turning movement of one of the housings relative to the other in the correct direction will effect a locking of the connector pins 37 in the slot portions 19*b*, as seen in Figure 4 for thus locking the units 11 and 13 together and so that the plug 42 will be retained in engagement with the socket 34 by the two compressed springs 23 and 41 which bear against the plug 24 and socket 42, respectively, to thus prevent accidental disengagement of this electrical connection. Thus, it will be apparent that the end 17 of the unit 11 is adapted for attachment in the same manner to either a boss 30 or the forward end 36 of a unit 13.

The connector or locking unit 14 is illustrated in Figures 6, 7 and 8 and includes a housing, designated generally 44, having a straight sleeve portion 45 of larger internal diameter than the external diameter of the housing 15 and which includes a forward end 46 and a rear end 47. The forward end 46 is provided with bayonet slots 48, corresponding to the bayonet slots 19. The housing portion 45 near its rear end 47 is provided with pins or studs 49 which project inwardly therefrom and which are circumferentially spaced relative to one another. The housing portion 45 is preferably provided with an internal groove 50 disposed inwardly of and adjacent the projections 49. The housing portion 45, spaced from the ends thereof, is provided with aligned annular flange portions 51 which project outwardly therefrom and which surround openings 52 of the part 45, which are disposed in alignment with one another and which are substantially smaller in diameter than the internal diameter of the flanges or bosses 51. The external diameter of the bosses 51 correspond to the external diameters of the bosses 30 and housing 35 and, like said parts, are each provided with a pair of outwardly projecting aligned connector pins 53. The unit 14 also includes a conical spring 54, similar to but somewhat larger than the spring 23.

An end of an extension cord 55 of a conventional construction is shown provided with a conventional three-way socket 56 two socket portions 57 of which are disposed in transverse alignment and the other socket portion 58 of which is disposed longitudinally of the body of the three-way socket 56. It will be readily apparent that the end of the extension cord 55 illustrated in Figure 7 could constitute the right hand end of the extension cord 25 of Figure 2A, with the three-way socket 56 substituted for the single socket 34. Said three-way socket 56 is inserted through the rear end 47 of the housing part 45, between the projections 49, and is passed outwardly through the forward end 46, after which the spring 54 is applied to the cord 55 with its smallest end positioned against the end of the socket 56 from which the cord 55 projects. The spring and socket are then drawn back into the housing portion 45 through its forward end 46 and the largest outer convolution of the spring 54 is adapted to seat in the groove 50 and against the projections 49.

A unit 11, identical with the unit 11 of Figure 2 and containing a plug 24, is adapted to have its forward end 17 telescoped into the forward housing end 46 and locked thereto, by its connector pins 20 engaging in the bayonet slots 48, in the manner as previously described in reference to the other bayonet connections. The unit 11 shown at the top of Figure 7 is thus locked to the housing end 46, after the plug 24 thereof has been engaged with the socket portion 58, and so that the connected socket portion 58 and plug 24 will be held between the spring 54 and the upper spring 23 of Figure 7, both of which will be under tension to retain the socket portion 57 properly positioned lengthwise of the housing part 45 for alignment with the openings 52.

Another unit 11, corresponding to the unit shown at the top of Figure 7 and having a plug 24 can then be attached to one of the socket portions 57, by inserting the plug 24 thereof inwardly through the boss 51, individual to said socket portion 57, and so that the plug prongs 24*a* will pass inwardly through the connecting openings 52 to engage in the socket 57. The housing 15 of said last mentioned until 11 can then be engaged and locked to the boss 51, in the same manner that the unit 11 is engaged and locked with the boss 30, as seen in Figure 2. It will also be obvious that a third corresponding unit 11 can be connected to the other boss 51, for thus locking three extension cord plugs in the three socket portions of the multiple socket 56.

Various modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. A locking attachment for forming a locked connection between a conventional electric plug and socket in a line cord, comprising a first sleeve adapted to loosely contain the plug, a second sleeve adapted to loosely contain the socket, said sleeves having adjacent ends sized for telescopic interfitting engagement, means interlocking said adjacent sleeve ends together, expansion spiral springs of conical shape disposed in said sleeves and through which electric cords are adapted to extend from remote ends of the plug and socket outwardly through remote ends of said sleeves, said springs having restricted adjacent ends bearing against the plug and socket and enlarged remote ends, said sleeves having internal restrictions at the remote ends thereof forming seats for the enlarged ends of said springs for maintaining the springs under tension between the spring seats and the

coupled plug and socket when said sleeves are connected in interfitting relation to one another and for urging the plug and socket to projected and exposed positions outwardly of said adjacent ends of the sleeves when said sleeve ends are disconnected.

2. A locking attachment as in claim 1, said second sleeve having at least one laterally extending tubular branch opening internally thereof, said socket having a lateral socket portion held in alignment with said branch by said springs when the sleeves are interlocked together, a third sleeve containing a second plug receivable into said branch for electrical connection to said laterally opening socket portion, means interlocking said third sleeve in telescopic engagement with said tubular branch, and a spiral spring seated in an outer end of said third sleeve and bearing against the second plug for urging said

second plug into the tubular branch and for retaining second plug in engagement with the laterally opening socket portion.

References Cited in the file of this patent

UNITED STATES PATENTS

1,304,075	Lofgren	May 20, 1919
2,005,475	Schmidt	June 18, 1935
2,015,953	McDowell	Oct. 1, 1935
2,066,770	Doane	Jan. 5, 1937
2,129,914	Davis	Sept. 13, 1938
2,398,626	Del Camp	Apr. 16, 1946
2,409,732	Brown et al.	Oct. 22, 1946
2,447,783	Williams	Aug. 24, 1948
2,690,542	Pearce	Sept. 28, 1954