May 9, 1939. C. A. CLARKE ET AL 2,157,527

TELEPHONE JACK BOX FOR CHAIR ARMS

Filed April 15, 1937

Fig. 1,

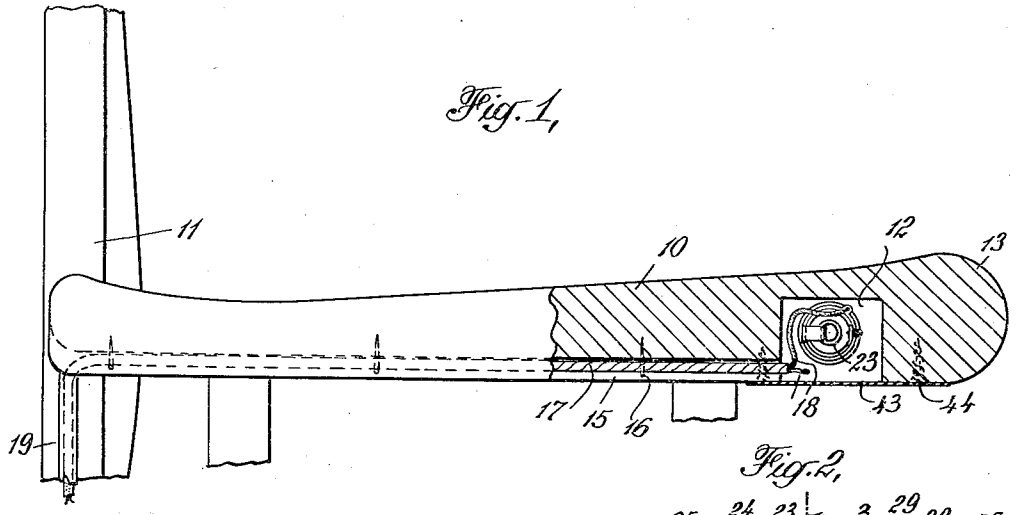


Fig. 2,

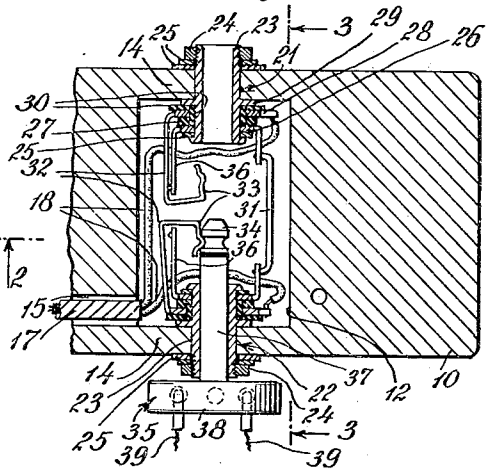


Fig. 3,

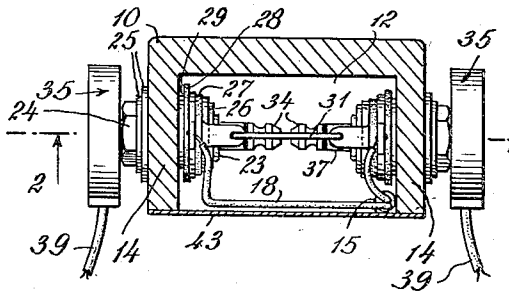


Fig. 5.

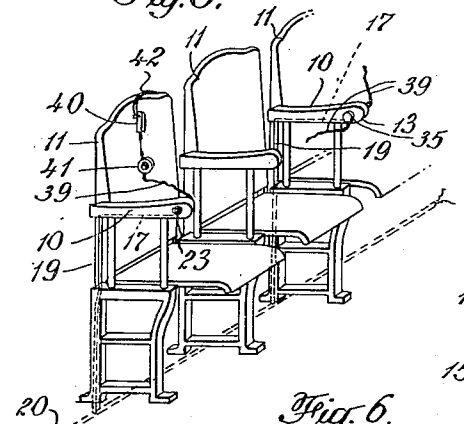


Fig. 4,

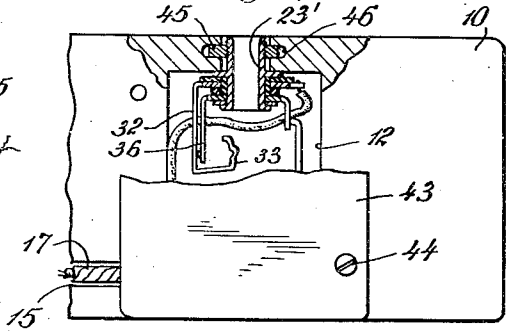
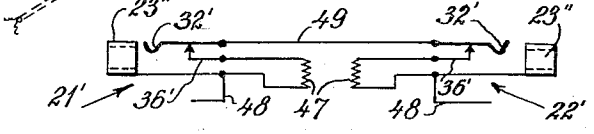


Fig. 6.



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UNITED STATES PATENT OFFICE

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TELEPHONE JACK BOX FOR CHAIR ARMS

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Application April 15, 1937, Serial No. 136,964

5 Claims. (Cl. 179—1)

This invention relates to electrical connection devices for telephonic instruments, and has particular reference to a device associated with a seat in the theater or other audotorium, whereby the occupant of the seat may at will connect an audiphone or other hearing aid device into a listening circuit.

In Patent No. 2,094,681, issued Oct. 5, 1937, to Sterling G. Sears, there is disclosed a group audiphone system for theaters or other auditoriums, in which a microphone or other sound reproduction device, such as a talking motion picture machine, is connected to an amplifier having a flexible distribution system, whereby all or a group of the seats or chairs in the theater or auditorium may be provided with individual audiphones or other hearing aid devices which are connected into the amplifier circuit by inserting a plug in the jack of a connection box supported on the back of the seat in front of that occupied by the listener. That system is particularly adapted to temporary or portable installation although it may be adapted to a permanent installation.

The present invention is directed to an improvement in the apparatus disclosed in the aforementioned patent, in that, instead of temporary or portable pack boxes, the jacks and their connecting devices are permanently concealed in the arm of the seat in such a way that there is no interference or apparent change in the usual theater equipment, whereby a person in any wired or equipped seat in the theater or auditorium need only insert the plug of a hearing aid device in the corresponding jack on the arm of his chair or seat in order to hear the proceedings in the theater or auditorium.

More particularly the device of this invention comprises a pair of jacks enclosed in a recess in the underside of the seat arm and accessible from opposite sides of the arm and connected in series, so that persons occupying adjoining seats may plug the receiver or hearing aid device into the corresponding jack on the same chair or seat arm, thus requiring that only alternate chair or seat arms of a row of seats be equipped with jacks. Flat-headed plugs are provided so that no substantial projection extends from the side of the seat arm, and the jacks are located at the front end or hand rest of the seat arm so as to be out of the way and provide no inconvenience for the occupant of the seat when in use. When not in use the jacks are practically invisible and do not in any way interfere with the normal use of the seat.

For a more complete understanding of the invention, reference may be had to the accompanying drawing, in which:

Figure 1 is a side elevation of the arm of a theater seat or chair embodying the connection device of the present invention, a portion of the arm being broken away to illustrate the connection means;

Fig. 2 is a horizontal section through the end of the chair arm and connection device, as seen along the line 2—2 of Fig. 3;

Fig. 3 is a vertical section therethrough, as seen along the line 3—3 of Fig. 2;

Fig. 4 is a partial section and bottom view of a modified form of the device;

Fig. 5 illustrates in perspective several seats equipped with the new connection device; and

Fig. 6 is a wiring diagram of a modified form of the connecting device of this invention.

Referring to the drawing, numeral 10 designates the arm of a theater seat or chair 11 of conventional design, this arm being made of wood, metal or composition material in accordance with standard practice. A recess, preferably accessible from the under side of the arm 10, is provided therein near the front end or hand rest 13 thereof. This recess 12 is such as to provide thin side flanges 14, as seen in Figs. 2 and 3. If the seat arm 10 is made of sheet metal the flanges 14 may be the thickness of the sheet metal of which the seat arm is formed.

Communicating with the recess 12 is a groove or channel 15 in the under surface of the seat arm 10, in which is laid and held in place by staples 16 or the like a cable 17 containing the two wires 18. This cable 17 extends downwardly from the rear end of the arm 10 and is armored or enclosed in a flexible or rigid conduit 19, which is secured to the rear corner of the seat 11, as indicated in Figs. 1 and 5. This conduit 19 extends to the floor and the cable 17 therein connects with a feeder cable 20 located in a duct flush with or beneath the floor. The feeder cable 20 is connected to a remote sound reproducing mechanism, either a microphone, or a talking motion picture machine, or the like, so that the sound, suitably amplified, is transmitted over the cables 20 and 19 to the wires 18 of seat arm 10.

Located within the recess 12 is a pair of oppositely directed jacks 21 and 22. The sleeve 23 of each jack projects outwardly from the recess 12 through a drilled hole in flange 14 and is held in place by a nut 24 over suitable washers 25. The inner end of the jack sleeve 23 is peened or flanged over a washer 25, electrically connected to disc 26, which is insulated by non-conducting washer 27 from a second conducting disc 28, in turn insulated from sleeve 23 and from sleeve flange 29 by insulating washers 30. In this way the discs and washers are securely damped between flange 29 and the flanged end of the sleeve 23.

The wires 18 are severally connected to conducting discs 28 of the two jacks. The two opposite conducting discs 28 are electrically con-

nected together by wires 31, whereby the sleeves 23 of jacks 21 and 22 are electrically connected together.

Conducting disc 28 of each jack is provided with a spring contact 32, the reversely turned end 33 of which is dented to receive the groove in the tip 34 of the plug 35. Contact 32 is normally electrically connected to a contact 36 on disc 26, so that the jacks are normally short-circuited when not in use. As is illustrated in Fig. 2, insertion of the plug 35 into the sleeve 23 of either jack causes the tip 34 of the plug to engage the end 33 of contact spring 32 to separate contacts 32 and 36, so that the jack is no longer short-circuited, and the plug is placed in the circuit, its tip 34 engaging contact 33 connected to wire 18, and its sleeve 37 engaging jack sleeve 23, which is electrically cross-connected by wire 31 to opposite short-circuited jack.

The head 38 of the plug 35 is flat so as to fit substantially closely against the lateral surface of the arm 10, whereby there is but little projection beyond it. Also, inasmuch as the plug 35 is located when in use near the front end or hand rest 13 of the arm 10, it does not interfere with the normal use of the seat by the occupant. The wires 39 of the plug 35, which are connected in circuit with the wires 18 when the plug 35 is inserted in jack 21 or 22 are electrically-connected to a telephone receiver, audiphone 40, or the like, for use by the occupant of the seat. The receiving device 40 is preferably fitted with a suitable volume control 41 and a head band or other holder 42.

It will be observed that with the particular arrangement described, the jacks 21 and 22, being on opposite sides of the arm 10 of a seat are accessible to occupants of two adjacent seats, so that it is only necessary for alternate seat arms to be so equipped, as is illustrated in Fig. 5. A removable cover plate 43 held in place by screws 44 normally covers the recess 12. If the jacks are too long to be arranged in alignment axially, they may be displaced laterally.

In the modified form of the invention illustrated in Fig. 4, the outlet end of the jack sleeve 23' lies flush with the outer surface of the seat arm, so that there is no projection at all, the sleeve 23' being held in place by a slotted keeper 45, or the like, seated in a groove 46 in the arm 10. With this arrangement, the only projection beyond the lateral side wall of the seat arm 10 is that caused by the thin head 38 of the plug 35.

In the modified form of connecting device illustrated diagrammatically in Fig. 6, a substitute load, in the form of a resistance 47 substantially equal to the resistance or impedance of the receiver, is normally in the receiving circuit 48, which may be series-parallel-connected. The load 47 is interposed between the sleeve 23'' and spring contact 32' of each jack 21', 22', with a fixed contact 36' normally engaging each of the contacts 32', which are connected together by wire 49. Thus, when the plug is inserted into the jack, the normal engagement between contacts 32' and 36' is broken, so that the load 47 is disconnected and the corresponding receiver substituted for it, with the result that there is no fluctuation in the hearing level of other receivers in use, as the load on the entire system is not changed. Also, insertion of a foreign object in the jacks 21' or 22' will not short circuit or otherwise impair the system.

It will be seen that with this arrangement an entire theater or auditorium may be permanently equipped with telephone or audiphone connections for every seat and that it is only necessary for the occupant of the seat to insert the plug 35 and use the telephone or audiphone 40 to hear the program or other proceeding being conducted in the theater or auditorium. An occupant of a seat who is not desirous of using a portable telephone or audiphone is not disturbed by or even aware of the presence of the connecting device of this invention because it is concealed within the confines of the usual arm of the seat which has been modified in the manner described. Accordingly, a theater or auditorium may be converted even to audiphone equipment simply by replacing the standard seat or chair arm with one embodying the present invention, and wiring accordingly.

Although certain preferred embodiments of the invention have been illustrated and described herein, it is to be understood that the invention is not limited thereby but is susceptible of changes in form and detail within the scope of the appended claims.

We claim:

1. In an arm for a theater seat or the like having a longitudinally extending passageway and a recess adjacent one end thereof, a pair of connector jacks within said recess in the arm and having exposed apertures in the opposite sides of the arm for the reception of telephone plugs, and supply wiring connecting the jacks in series and extending along said passageway in the seat arm.

2. In an arm for a theater seat or the like, the combination of an elongated member having a longitudinally extending passageway and an enlarged recess adjacent one end thereof communicating with said passageway, at least one jack mounted in said recess and accessible for insertion of a plug from the exterior of said member, and wires disposed in said passageway electrically connecting the jack to a sound distributing cable.

3. The arm set forth in claim 2 comprising a pair of oppositely facing, series-connected jacks mounted in said recess and accessible for insertion of plugs from opposite sides of said member.

4. The arm set forth in claim 2 comprising a detachable plate fixed to said member for closing said recess and concealing said jack.

5. In an arm for a theater seat or the like, the combination of side walls on the arm defining a recess adjacent one end of the arm, said arm having a longitudinally extending passageway communicating with said recess, a jack sleeve projecting through an aperture in each of the side walls, means securing the sleeves in place, a pair of sound-distributing wires disposed in said passageway leading to and from the recess, connections between each wire and one sleeve, a normally-closed switch in each of said connections adapted to be short-circuited by a plug inserted in the corresponding jack, and connections between the sleeves of the jacks.

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