

United States Patent

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[54] STEREO SOUND REPRODUCTION SYSTEM

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 691,352, Dec. 18, 1967, abandoned.

[52] U.S. Cl. 312/7, 312/8, 181/31

[51] Int. Cl. A47b 81/06

[58] Field of Search 312/7, 8, 29, 223; 181/31.1 B;
274/2

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[57] ABSTRACT

This specification describes a stereo sound reproduction system in which the speakers are mounted separately from the main cabinet, the cabinet being provided with recesses for storage of the speakers when not in use, and being further provided with linkage means connected between the cabinet and the speakers which is extendable and retractable by means of which the speakers may be moved away from the cabinet, while remaining supported on the linkage, and further describes such a system in which the while remaining supported on the linkage, and further describes such a system linkage is power operated and may be provided with movement limiting means whereby a predetermined amount of speaker movement may be preselected, and the speakers moved out to such a position by merely pressing a switch.

10 Claims, 8 Drawing Figures

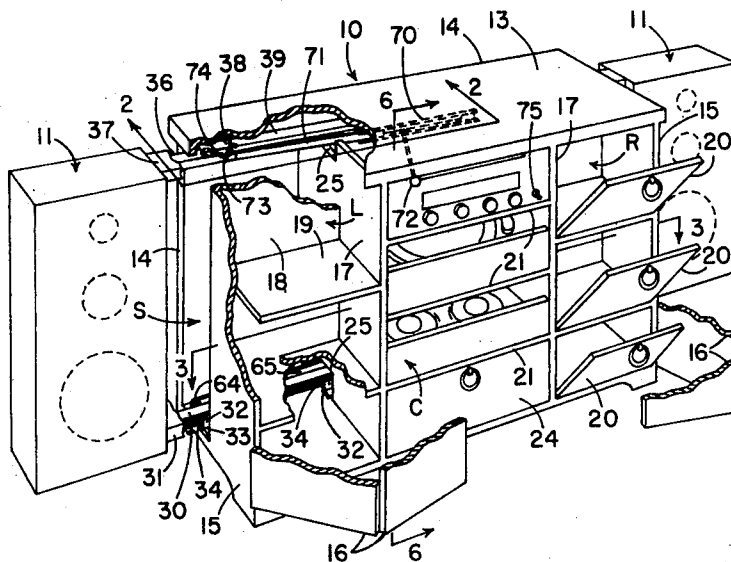


FIG. 1

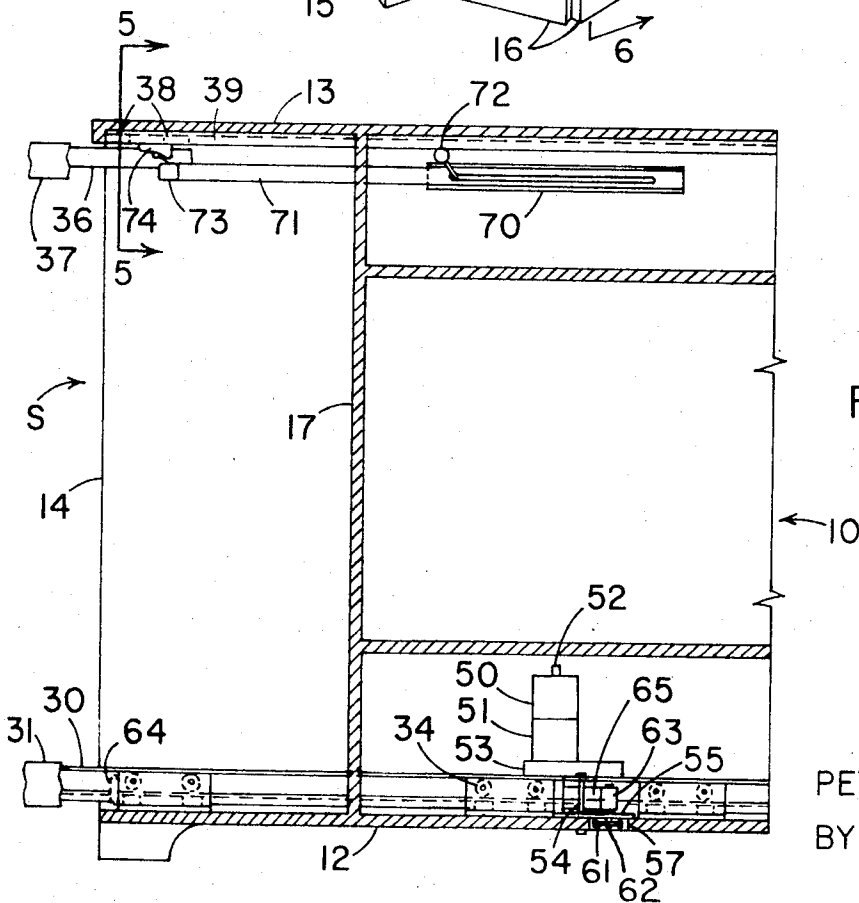
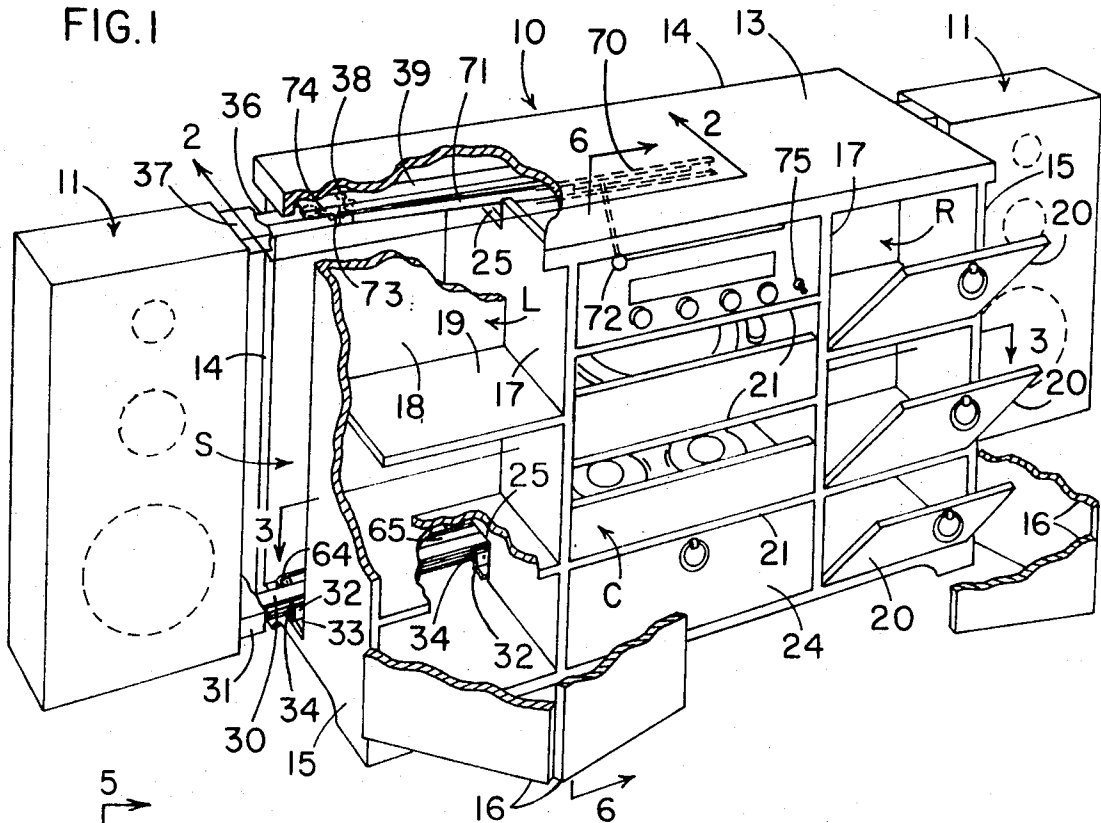


FIG. 2

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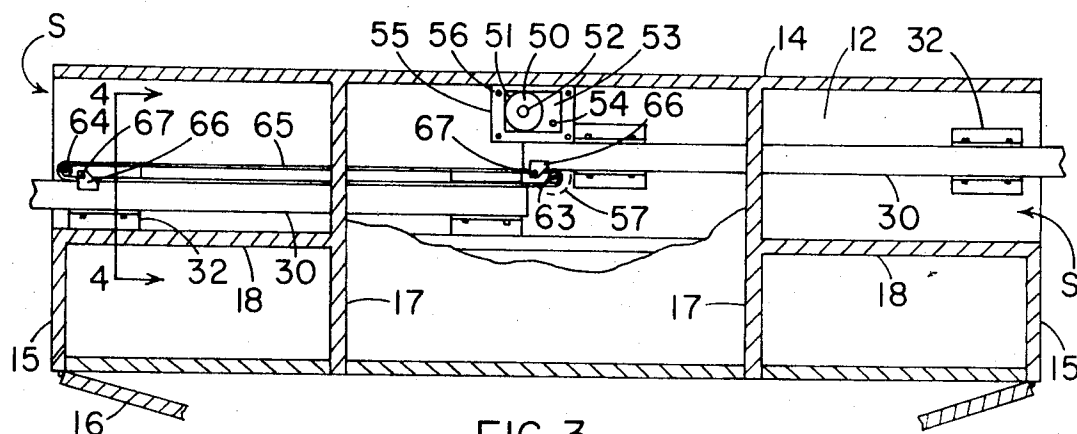


FIG. 3

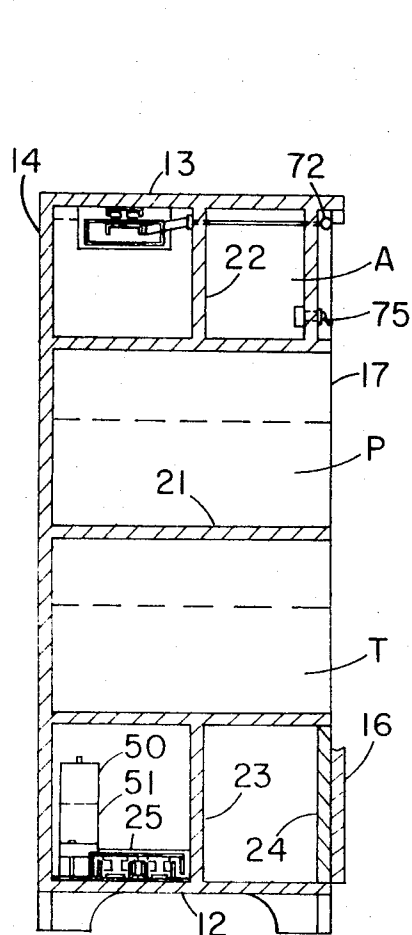


FIG. 6

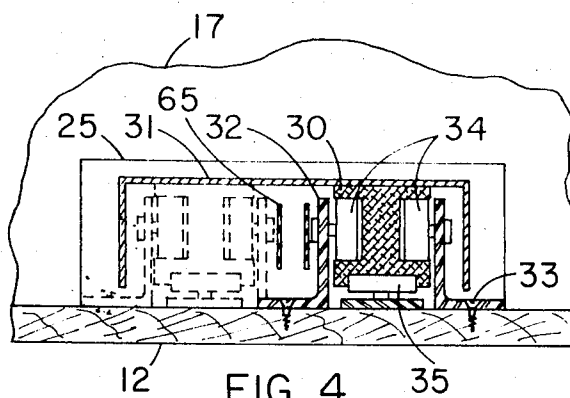


FIG. 4

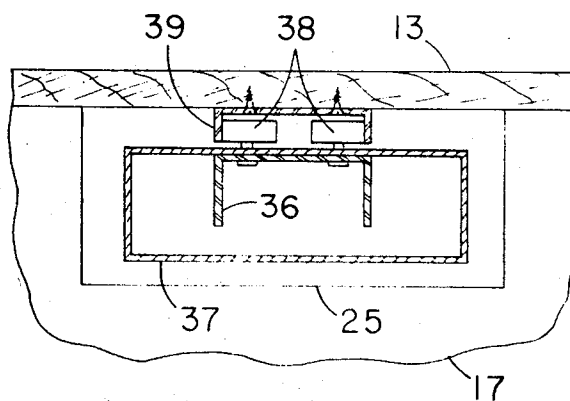


FIG. 5

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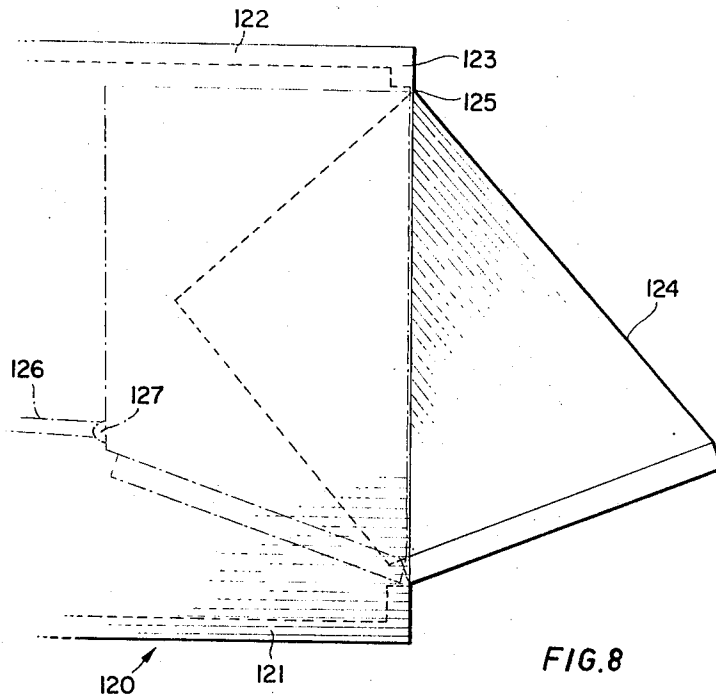


FIG. 8

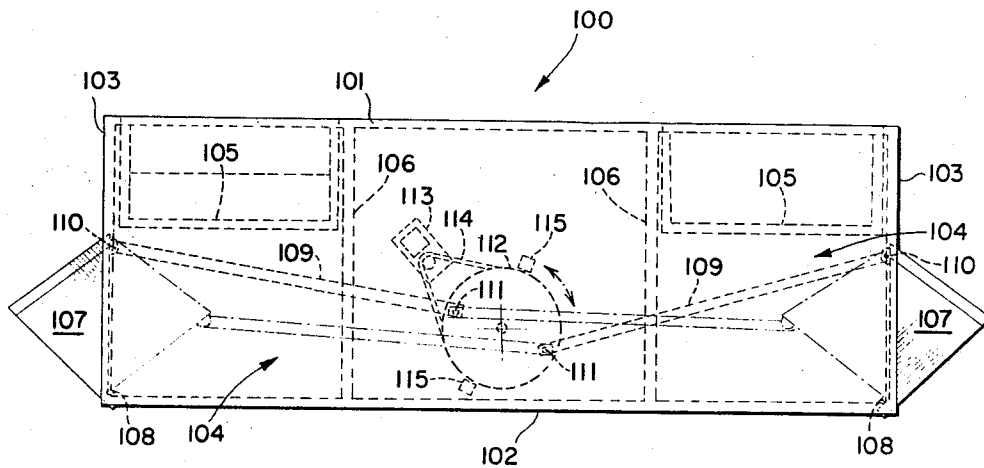


FIG. 7

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STEREO SOUND REPRODUCTION SYSTEM

This invention relates to a cabinet for use with a stereo sound reproduction system and to such a system in which the speakers are movably mounted and are extensible outwardly to improve the stereo effect, and is a continuation-in-part of application Ser. No. 691,352, entitled Stereo Sound Reproduction System, filed Dec. 18, 1967 now abandoned.

It is well known that in order to produce a satisfactory stereo effect from a stereo sound reproduction system, that a certain predetermined spacing of the speakers is required in order that the listeners, sitting at a given distance from the speakers, may be located at the "focal" distance from the speakers. Obviously, the spacing of the speakers will be to a large extent dependent upon the distance at which the listeners sit with regard to the speakers. In many stereo systems, it is in fact necessary for the listeners to move their chairs about the room in order to locate the point of greatest stereo effect. In cases where the stereo speakers are all incorporated within a single cabinet, it may be necessary to sit uncomfortably close to the stereo cabinet. Alternatively, in cases where the speakers are incorporated in separate cabinets, it becomes difficult to provide an overall pleasing arrangement of the furniture in the room in which three separate pieces of sound reproducing equipment must be arranged in position which appear both aesthetically pleasing to the eye, and are also effective in use. The problem becomes more aggravated when it is attempted to design more compact stereo cabinets in which the separation of the speakers is even less.

One attempt to overcome this problem has been the provision of speakers which are incorporated in separate speaker cabinets, the speaker cabinets being hinged to the main central cabinet, housing the sound reproducing circuits and control, the speaker cabinets being normally folded inwardly in front of the main cabinet for storage, and being foldable outwardly for use. This solution has provided quite popular in the past, particularly in the case of compact stereo units such as for example so called portable units, but has not been satisfactory for larger units due to the greater depth of speaker cabinet required for higher quality sound reproduction.

It is therefore apparent that in order to provide a satisfactory stereo cabinet, it is necessary to incorporate, in a stereo cabinet of a relatively compact and pleasing design, a means for arranging for a greater separation of the speakers than can be accommodated by the cabinet itself, and at the same time arranging for means for concealing the speakers within the stereo cabinet when not in use.

When it is attempted to provide a movable spacing for the speakers in relation to the central cabinet however, especially in the higher priced stereo unit having a higher power output, new problems arise. Thus, it is well known that the speakers must be arranged in speaker cabinets of certain predetermined engineered dimensions, the speaker cabinets being required to provide an enclosed volume of a certain predetermined depth behind the speakers, and height, in order to permit the speakers to operate free of distortion. Thus speaker cabinets are usually made of relatively thick heavy wooden material such that it will permit the con-

struction of speaker cabinets of substantial size while remaining relatively rigid. Obviously, any attempt to make such speaker cabinets movable will require that the movement mechanism will operate satisfactorily notwithstanding the great weight of the speakers and speaker cabinets. In addition, when the speakers are operating at full power, considerable vibration occurs, and any slackness in the speaker cabinet mounting means will permit the speaker cabinet to shake in response to such vibration thereby impairing the quality of the sound reproduction, and also shortening the life of the relatively expensive speakers.

In addition, it is considered desirable, although not absolutely essential, to provide means in the stereo unit of remote control for the speaker spacing, and means for presetting the degree of spacing on controls on the stereo unit so that once a particularly suitable spacing is determined by trial and error, the same spacing can readily be achieved at any time in the future without further experimentation.

A further feature which is considered desirable in a high class stereo unit is the fact that the exterior appearance of the stereo unit, when not in use, should be that of a particularly pleasing piece of furniture giving an air of quality and distinction to its surroundings, and in which the speakers are completely concealed. At the same time, it is also desirable that the cabinet should provide means for storing records and reels of tape in a manner providing for easy access and sorting, preferably being located at the front of the cabinet.

It is therefore an objective of the invention to provide a stereo cabinet having speakers which are arranged in housings or speaker cabinets which are themselves located normally in a stored position within the stereo cabinet, and which may be extended from such cabinet for use, and in which such extension may be power operated, while providing a stereo cabinet having an overall pleasing aesthetic appearance, and also providing individual speaker cabinets of adequate size and particularly of adequate depth behind the speakers themselves, so as to provide for efficient development of sound waves from such speakers.

More particularly, it is an objective of the invention to provide a stereo cabinet having the foregoing advantages which is provided with a pleasing aesthetic frontal appearance, and is further provided at each end with recesses for speaker cabinets, the speaker cabinets being normally accommodated within such recesses in retracted positions when not in use, and being extensible from such recesses outwardly of the stereo cabinet for use.

More particularly, it is an objective of the invention to provide a stereo cabinet having the foregoing advantages in which the speaker cabinets are mounted on rail means, such rail means being adapted to be extended outwardly from such cabinet by means of extension and retraction mechanism contained within the cabinet and controlled from the cabinet itself.

More particularly, it is an objective of the present invention to provide a stereo cabinet having the foregoing advantages in which the speaker cabinets, even when located in their positions of maximum extension, are fully supported against tilting or angling downwardly, and are rigidly supported by such extension mechanism in a manner resistant to vibrations developed even when operated at full power.

It is a further and related objective of the invention to provide a stereo cabinet having speaker cabinet recesses at each end of the speaker thereby providing concealed storage for the speakers when not in use, and having record storage recesses arranged down the front of the cabinet, where the speakers are normally located in a conventional cabinet, and in which the major portion of the space between the two speaker recesses throughout the full depth of the cabinet, is made available for installation of the turn table, amplifier, and tape recorder equipment.

The foregoing and other advantages will become apparent from the following description of a preferred embodiment of the invention which is given here by way of example only with reference to the following drawings in which like reference devices refer the like parts thereof throughout the various views and diagrams and in which;

FIG. 1 is a perspective illustration of a speaker cabinet according to the invention partially cut away to reveal the construction thereof showing the speakers in their extended position;

FIG. 2 is a schematic perspective illustration of the mechanism for extending and retracting the speakers, and showing the outline of the speaker cabinets in phantom;

FIG. 3 is a plan view of the space of the speaker cabinet shown in FIGS. 1 and 2 showing the layout of the extension and retraction mechanism;

FIG. 4 is a section along the line 4—4 of FIG. 3;

FIG. 5 is a section along the line 5—5 of FIG. 2 showing the details of the upper portion of the extension and retraction mechanism;

FIG. 6 is a sectional end elevation along the line 6—6 of FIG. 1;

FIG. 7 is a schematic top plan view of a further embodiment of the invention according to a modification of the invention with the speaker cabinet shown in phantom, and,

FIG. 8 is a schematic top plan view of a further embodiment with part of the speaker cabinet itself shown in phantom, and showing a further modification of the embodiment of FIG. 7.

Turning now to FIG. 1 it will be seen that this preferred embodiment of the invention comprises a central stationary stereo cabinet indicated generally as 10 provided with two speaker cabinets indicated as 11 movably mounted by means to be described below, for extension and retraction relative to the cabinet 10.

The cabinet 10 will be seen to be of generally rectangular box like construction having a base 12, a top 13, a back 14 and end wall 15. Bi-fold doors indicated generally as 16 are provided for closing the front of the cabinet and providing a pleasing appearance. The interior of the cabinet 10 will be seen to be divided by partitions 17 extending from front to rear of the cabinet 10, into right and left hand compartments indicated as references R and L and a central compartment indicated as reference C. Right and left hand compartments are of the same design being merely complementary to one another, and accordingly the left hand compartment L is illustrated for the sake of clarity. The compartment L will be seen to be divided by a vertical partition 18 into a rearward speaker storage compartment indicated by the reference S and forward record storage compartment provided with shelves 19 and

horizontally hinged doors 20 provided with a suitable check mechanism (not shown) of conventional design for holding the doors 20 in a partially open position thereby permitting records stored on shelves 19 to be readily examined in order to select a particular record for playing, the open door 20 providing an outwardly angled support for such records during sorting.

The central control compartment C is provided with shelves indicated as 21, extending horizontally from front to back of cabinet 10. The space between the upper shelf 21 and the top 13 of the cabinet is further divided by a vertical partition 22, the front half of upper shelf 21 being available for support of control mechanism such as receiver A. The remaining two shelves 21 define zones extending the full depth of the cabinet 10 for supporting stereo reproduction means such as phonograph P and tape recorder T. The space between the lower most shelf 21 and the base 12 of the cabinet is divided by a partition 23 extending vertically therealong and is provided with a further horizontally hinged door 24 for storage purposes.

From FIG. 1 and FIG. 6 it will be noted that the extension and retraction mechanism for the speakers is fastened to the base 12 and the top 13 of the cabinet and extends along the interior of speaker zone S and through partitions 17, openings 25 being provided therethrough for the purpose. The spaces in central compartment C lying behind partition 22 and 23 are thereby made available for such extension and retraction mechanism in a manner to be described below.

The extension and retraction mechanism is described with particular reference to FIGS. 2, 3, 4, and 5. The principal support function for speaker cabinet 11 is provided by the lower bars 30 which are of relatively massive construction and are provided with a section which is a combined T section and channel section thereby providing a maximum of strength and rigidity both in the vertical and horizontal plane. In this way, each of the bars 30 provide a lower horizontally oriented channel and two upper vertically oriented channels for purposes to be described below. It will be noted that each speaker cabinet 11 is provided with a separate bar 30 and for the sake of clarity, only one such cabinet and bar will be described, it being understood that the arrangement for the opposite speaker 11 is essentially complimentary, with only minor differences which will be pointed out later. The outer end of the bar 30 is screwed to the interior of the speaker cabinet 11 by recess headed screws (not shown) passing through the upper T portion of the bar 30, thereby leaving the lower channel portion free for movement. That portion of the bar 30 which would normally be visible between the speaker cabinet 11 and the central cabinet 10 when the speaker cabinet 11 is in its fully extended position, is concealed by means of the channel shaped sleeve 31 fitting therearound, sleeve 31 being dimensioned so as to pass at least partially through opening 25 in cabinet partition 17. In order to support bar 30 for axial sliding movement in and out of cabinet 10, there is provided, according to the invention, roller support means providing support both in the vertical and in the horizontal plane. Such roller support means in this preferred embodiment of the invention are arranged in two spaced apart locations to one side of the center of the cabinet 10, one such support means

lying toward the outer edge thereof and the other such support means being located closer to the center of the cabinet. Each such support means comprises a pair of right angle flange members 32 screwed to the cabinet bottom 12 by means of screws 33 and provided with a pair of self lubricating plastic rollers 34 which are formed with a diameter making a good snug fit with bar 30, the rollers 34 fitting between the upper portion of the T and the transverse portion of the channel of bar 30 as shown. The rollers 34 therefore provide the vertical support required, and a certain degree of the horizontal support as well. The spacing of flanges 32 is preferably such that the sleeve 31 may pass around the outside thereof thereby concealing the outer most pair of flanges 32 from view when the speaker cabinet 11 are in their extended position. In order to increase the degree of horizontal control of bars 30, a further pair of rollers 35 is provided between flanges 32 dimensioned to fit snugly within the lower channel of bar 30. In order to provide for maximum mechanical advantage of the support system, in relation to speaker cabinet 11, each of bars 30 extend almost the full width of cabinet 10, and is fully extended according to this preferred embodiment, when its free end is at approximately the center of the cabinet. Thus, given a central cabinet 10 of an approximate width of 5 feet, it is possible according to this embodiment of the invention, to obtain a maximum speaker extension on each side of the cabinet 10 of 2½ feet, thereby giving a maximum speaker spacing of 10 feet overall, which is regarded as sufficient for most high quality stereo reproduction in even quite large rooms.

It will be understood however, that the maximum spacing described in connection with this preferred embodiment of the invention is not in fact critical, and with relatively minor modifications of the mechanism, much greater extensions can be obtained, and the invention does not exclude the possibility of providing for a telescopic extension mechanism (not shown) of any suitable type, such as is used for example, for the support of heavy drawers, where very much greater speaker extensions are required.

The upper portion of the extension and retraction mechanism comprises a relatively light gauge channel bar member 36 the outer end of which is screwed to the interior of speaker cabinet 11, and which is provided with a sleeve member 37 fitting therearound, sleeve member 37 preferably being substantially wider than bar 36 for purposes to be described hereinafter. At the inner free end of bar 36 and sleeve 37, four rollers 38 are fastened to the upper surface thereof in a common horizontal plane being clear of obstruction with bar 36 and sleeve 37. A channel shaped guide way 39 is fastened to top 13 of cabinet 10, being of a depth substantially equal to the thickness of rollers 38 and making a good snug fit therearound thereby permitting smooth rolling action therefore while controlling the movement thereof. Sleeve 37 is preferably dimensioned so as to pass through opening 25 in partition 17 of cabinet 10 to permit the speaker cabinet 11 to be fully retracted therewithin.

Any suitable stop means, such as the moulded edge 14 of cabinet 10 may serve to provide a means of checking the outward extension of cabinet 11 at their predetermined maximum desired spacing.

The mechanism described above serves adequately to provide extension and retraction means for the cabinet 11 and provides rigid support for the cabinet 11 even in their fully extended position. Obviously, the cabinets 11 may be drawn outwardly to their extended position and retracted once more by hand, and if this is the intended mode of operation, any suitable concealed handhold (not shown) arranged on the rear of the speaker cabinets 11 should preferably be provided in order to obtain a grasp of the speakers 11 when they are in their fully retracted position. Thus according to one embodiment of the invention, the invention contemplates the provision merely of a stationary central cabinet having speaker cabinet recesses provided at each end thereof and a speaker extension and retraction mechanism extending at least across the width of such recesses within said cabinet, said recesses being equal to the depth of the speaker cabinet, and being provided at each end of the speaker cabinet so as to permit a cabinet to be made in which the entire front of the cabinet is made available for use either for the location of the various reproduction systems, or for storage, and is not broken up by the need to locate the speakers themselves therein. However, the invention is not limited to such embodiment, but also comprehends the provision of any suitable mechanical or electrical or other power operated means for causing simultaneous extension and retraction of the speakers upon the operation of suitable controls, and also comprehends the provision of additional controls for preselecting a certain predetermined spacing which may obviously vary depending upon the number and location of listeners within the room, and then merely pressing the operating switch to cause the speakers to be extended to such predetermined position. Obviously, still further controls may be provided, which may be incorporated for automatic operation coupled with the circuits in the sound reproduction system so that as soon as the sound reproduction system is switched on, the cabinets also are extended, or for example by a remote control mechanism so that the spacing may be varied by a listener without moving from his chair.

Thus there is provided, according to this preferred embodiment of the invention, electrical extension and retraction means comprising two separate electrical motors indicated as 50 and 51, motor 51 being wound for reverse operation with respect to motor 50, and both motors 50 and 51 being mounted upon a common drive shaft 52 which in turn is connected to gear box 53, motors 50 and 51 and gear box 53 being formed into a single integral unit, and attached by four mounting bolts 54 to mounting plate 55 attached to base 12 of cabinet 10 by means of screws 56. Immediately beneath plate 55, base 12 of cabinet 10 is cut away to provide a slotted opening indicated generally as 57, and a gear box output shaft (not shown) extends downwardly from gear box 53 into such slotted opening 57, and drives a sprocket and chain (not shown), which in turn drives sprocket 61 attached to shaft 62 extending through a bearing means in plate 55 and driving at its upper end pulley wheel 63. A further free running pulley wheel 64 is provided at one end of cabinet 10 in the speaker cabinet opening indicated as S, free running or idler pulley 64 being preferably attached to one of flange members 32. A flexible belt 65 extends

around pulleys 63 and 64, belt 65 in fact comprising two similar halves linked together at each end at plates 66 and screws 67 to form a continuous loop.

It will be noted, that in this preferred embodiment of the invention, bars 30 are each of a length substantially equal to the total width of cabinet 10, and are arranged off set side by side with respect to one another in order that they may move freely in and out of their respective sides of cabinet 10 without obstructing one another. Obviously, however this particular expedient is not regarded as limiting with regard to the invention, and bars 30 of complimentary mating section sliding one within the other would be one alternative and bars 30 could similarly be mounted one above the other, without in any way altering the inventive concept. The movement of bars 30 outwardly, simultaneously and the simultaneous retraction thereof, is achieved according to this preferred embodiment of the invention, by fastening belt 65 at plates 66 and screws 67 directly to bars 30 at spaced apart locations, adjacent to pulleys 63 and 64, assuming bars 30 to be in their fully retracted position, thereby permitting belt 65 to move along a limited path corresponding to somewhat less than one-half of its complete length. Obviously, if some greater extension of bars 30 were required, some other expedient should preferably be employed, such as spacing pulleys 63 and 64 further apart, or resorting to some different expedient such as a jack screw, or a pair of rubber frictional drive pulleys bearing directly on bars 30 (not shown) any of which would permit substantially greater extension than the mechanism presently illustrated. The purpose of employing two motors 50 and 51 is of course merely to simplify the controls and circuits required to produce both extension and retraction, other expedients being capable of eliminating one of such motors if desired, which will be obvious to those skilled in the art.

In order to provide positive limiting of the extension of speakers 11 in any desired predetermined location, all that is required is to provide a simple limit switch device in circuit with electrical motors 50 and 51 actuated by the movement of speaker cabinets 11. Thus, according to this preferred embodiment of the invention there is provided a slide means 70, a sliding shaft member 71, operated by indicator arm 72 extending through the front of cabinet 10. A micro-switch 73 is mounted at one end of sliding member 71 and is oriented to be actuated by cam 74 mounted upon upper sleeve member 37. Any suitable on-off control switch 75 may be suitably located on the front of the cabinet 10 and connected by circuits (not shown) or on off control of motors 50 and 51.

As noted above, the sleeve 37, and also the sleeve 31, covering respective upper and lower bar members 36 and 30, will be seen to be offset with respect to their respective said bars. This feature makes it possible to locate bars 36 and bars 30 in the most suitable manner with respect to central cabinet 10, which position may not necessarily be aligned directly with the center of speaker cabinets 11, while providing a pleasing symmetrical appearance and concealing the majority of the extension and retraction mechanism, even when such cabinets 11 are fully extended. This is particularly important in the case of bars 30 which are, as noted, offset with regard to one another and would otherwise pro-

vide an unsightly appearance, this being overcome by the location of sleeves 31 symmetrical with one another.

It will be understood that according to the invention many variations are possible in the extension and retraction mechanism and it may for example be located entirely along the back wall of the main cabinet and attached to the rear of the speaker cabinets, and be concealed from view, at least with respect to persons standing in front of the cabinet, by means of covering panels retracting within the central cabinet, but such alternative expedient obviously does not affect the particular concept of providing a separate extension and retraction mechanism by means of which the speaker cabinets themselves can be extended entirely beyond the limits of the central stationary cabinet while yet being maintained rigid and effective in use even under full power. Similarly, if it were desired to provide much deeper speaker cabinets, for example, equal to the depth of the main cabinet, it might prove to be expedient to dispense with the provision of speaker cabinet recesses in either side of the main cabinet, and instead, to merely build the main cabinet and the speaker cabinet of the same overall design so that the same fitted flush together with one another and separated one from the other as the speaker cabinets were extended. However, the various alternatives are not illustrated here and are deemed to be included within the overall concept of the invention.

In some cases, it may be found that the form of extension and retraction mechanism described above may be too costly and result in the speaker cabinet having only a very limited sales potential. According to a further embodiment of the invention simple provision may be made for a much simpler more economical form of extension and retraction mechanism to be incorporated in a lower priced speaker cabinet, in which some lesser degree of separation or spacing between the speaker cabinet will be acceptable, while retaining the various advantages of the invention, and in particular, the concealment of the speaker cabinet themselves within the same cabinet, when not in use. Accordingly, as shown schematically in FIG. 7, a modified form of the invention may comprise a main cabinet indicated generally as 100 having a front 101, a back 102 and two ends 103 and may be provided essentially in the same general layout as the embodiment of FIG. 1, and incorporating speaker cabinet recesses 104 and intermediate partitions 105, and intermediate wall members 106, separating the main cabinet 100 into record storage areas, and providing central spacing for location of the sound reproduction apparatus, which for the purposes of this invention, is taken to include radio, record player, and tape reproduction apparatus with or without associated speakers, the term sound reproduction apparatus being intended to be a comprehensive general term covering all or part of a complete apparatus.

In this modified form of the invention, the speaker cabinets 107 are hingedly mounted along the rear wall 102 at the hinges 108, and are capable of being swung outwardly into the position shown in solid line, and swung inwardly into the position shown in phantom, so that they are fully retracted within the cabinet recesses 104, when not in use.

The retraction and extension linkage mechanism comprises the extension arm members 109 which are hingedly connected to the speaker cabinets as at 110, and at their inner ends are mounted on two journal pins 111 which are located spaced apart 180° on a drive wheel 112. Wheel 112 is in turn driven by the reversible electrical motor 113 through belt drive 114. In order to control the operation of the motor 113 two micro-switches 115 are provided around wheel 112, operated by suitable cam means (not shown), and connected in circuit with the motor 113 by means (not shown) so as to provide on/off limit control.

Accordingly it will be understood that any suitable manual on/off control to actuate motor 113 is also provided as in the case of in the embodiment of FIG. 1, being omitted from the embodiment of FIG. 7 for the sake of clarity.

According to a further modification shown in FIG. 8, a still more economical version of the invention may be employed in which the front record storage space is omitted altogether. In the embodiment of FIG. 8, a cabinet indicated generally as 120 having a front 121, a rear 122 and end 123 (only one being shown for the sake of clarity) is made, having a somewhat reduced cabinet depth in relation to the embodiment of FIG. 7. Speaker cabinets 124 are provided, hingedly mounted at 125 to the back portion 122 are swingable inwardly and outwardly between the two positions as shown in FIG. 8 and are connected by suitable linkage means 126 connected to cabinet 124 at hinge point 127. The other details of the modification of FIG. 8 are essentially the same as in FIG. 7, the sound reproduction apparatus being contained in a central compartment of the cabinet 120, and being omitted for the sake of clarity.

As will be noted, the modification of FIG. 7 and 8 enables substantial economies in manufacturing costs to be achieved. In particular, the main weight of the speaker cabinet is borne directly on the rear portion of the main cabinet itself, being hinged directly thereto, the linkage means being provided solely for the purpose of moving the speaker cabinets between extended and retracted positions.

The foregoing is a description of a preferred embodiment of the invention which is given here by way of example only, and without limitation.

What I claim is:

1. Stereo sound reproduction apparatus of the type having at least two speakers and sound reproduction channel means connected thereto, said apparatus comprising;

main cabinet means having symmetrical front and back panel means of equal length, and two ends; speaker unit recesses formed within the interior of said main cabinet means at each end thereof between said front and back panel means; openings in said ends of said cabinet means giving access to said speaker unit recesses, said openings being concealed from the front of said main cabinet means by said front panel means; two speaker units having outer and inner ends shaped and dimensioned to fit within the interior of said main cabinet means between said front and back panel means in respective said recesses and being movable relative to said main cabinet means

between at least partially extended and retracted positions without disturbing said front panel means, said speaker units when in said retracted position being substantially concealed by said front panel means with said outer ends of said speaker units closing said end openings, and said two speaker units being connected to said sound reproduction channel means, and,

movable speaker unit support means connected between said main cabinet means and said speaker units, said support means being adapted to permit at least partial extension and retraction of said speaker units as aforesaid with respect to said main cabinet means whereby to permit movement of said speaker units out of and into respective recesses in said main cabinet means, without disturbing said front panel means.

2. Stereo sound reproduction apparatus as claimed in claim 1 including motion transmission means connected to respective said speaker units and power operated drive means for driving said motion transmission means.

3. Stereo sound reproduction apparatus as claimed in claim 1 including movement limiting means associated with said support means, said limiting means controlling the extension of said speaker units.

4. Stereo sound reproduction apparatus as claimed in claim 1 wherein said speaker units are dimensioned to fit snugly within said recesses, and said support means is offset relative to said units within said recesses thereby leaving same clear for substantially complete retraction of said speaker units into said recesses.

5. Stereo sound reproduction apparatus as claimed in claim 1 wherein said main cabinet means is of generally rectangular box-like construction having top and bottom wall means, and back and front wall means;

and including inner wall means extending at least partially between said top and bottom walls spaced inwardly from said ends and defining said speaker unit recesses between said inner wall means and portions of said front and back wall means and said top and bottom wall means, and

shelf means located in said main cabinet means between said inner wall means for supporting at least in part said sound reproduction means therein.

6. Stereo sound reproduction apparatus as claimed in claim 1 wherein said main cabinet is of generally rectangular box construction having top and bottom wall means, and a front and back wall means;

partition means extending at least partially between said top and bottom wall means spaced between said front and back wall means and defining speaker recesses on one side thereof corresponding substantially in height and width to the dimensions of said speaker units;

said openings in said ends of said main cabinet giving access to said speaker recesses and dimensioned to receive said speaker units therethrough, thereby permitting extension and retraction of said speaker units therethrough, thereby permitting extension and retraction of said speaker units with respect to said speaker unit recesses;

intermediate wall members defining a spacing therebetween extending at least partially between

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said top and bottom walls lying in planes parallel to but spaced inwardly from said ends and forming inner walls of said recesses; and,

shelf means located in said main cabinet means for supporting at least part of said sound reproduction means therein.

7. Stereo sound reproduction apparatus as claimed in claim 1 including end wall means on each said speaker unit shaped and dimensioned to close its respective said openings in respective said ends of said main cabinet when said speaker units are in their retracted position.

8. Stereo sound reproduction apparatus as claimed in claim 1 including hinge means mounted between a corner of each said speaker unit, and said main cabinet

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pivotally mounting said speaker units for pivotal movement about vertical axes relative to said main cabinet into and out of said speaker recesses.

9. Stereo sound reproduction apparatus as claimed in claim 1 including linkage means pivotally mounted on said speaker units, and electrical drive means operatively connected to said linkage means to swing said speaker units between said extended and retracted position.

10. Stereo sound reproduction apparatus as claimed in claim 1 wherein said speaker units are swingably mounted on said main cabinet for swinging into and out of said recess.

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