June 3, 1930. J. KERSTEN 1,761,568

SECTIONAL FORM

Filed Dec. 5, 1927 2 Sheets-Sheet 1

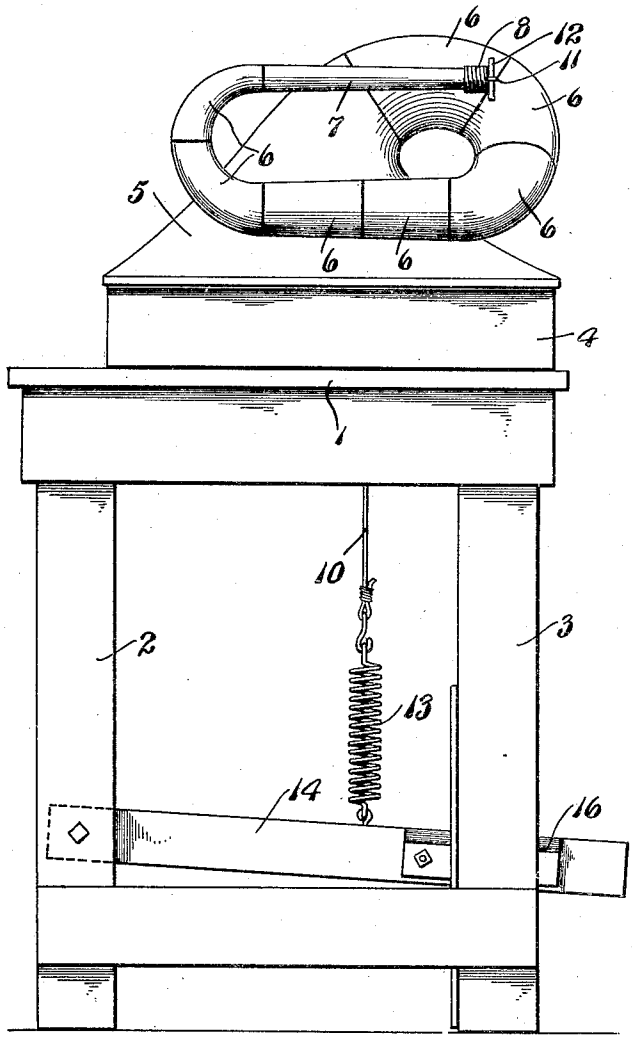



Fig. 1.

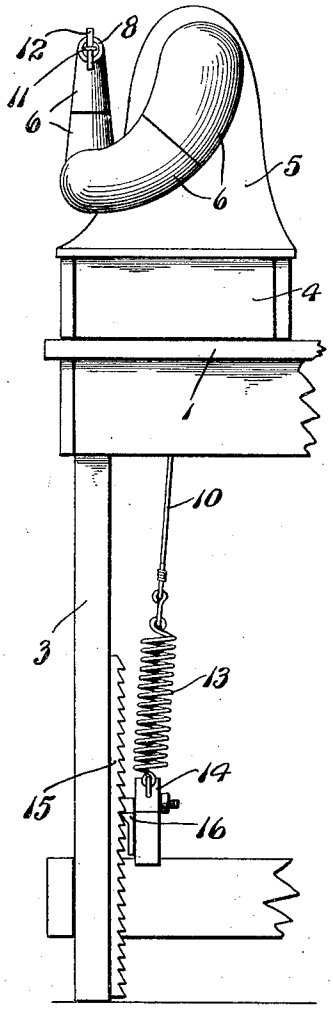



Fig. 2.

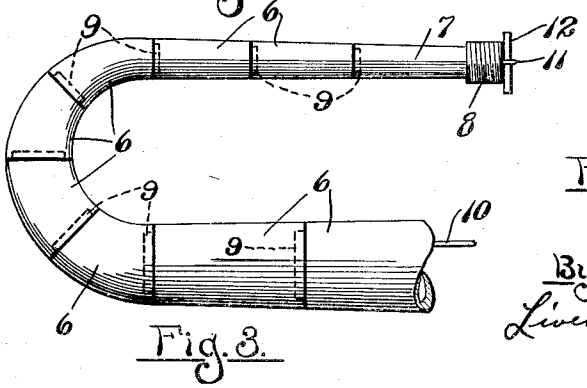



Fig. 3.

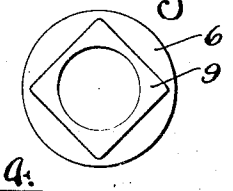



Fig. 4.

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SECTIONAL FORM

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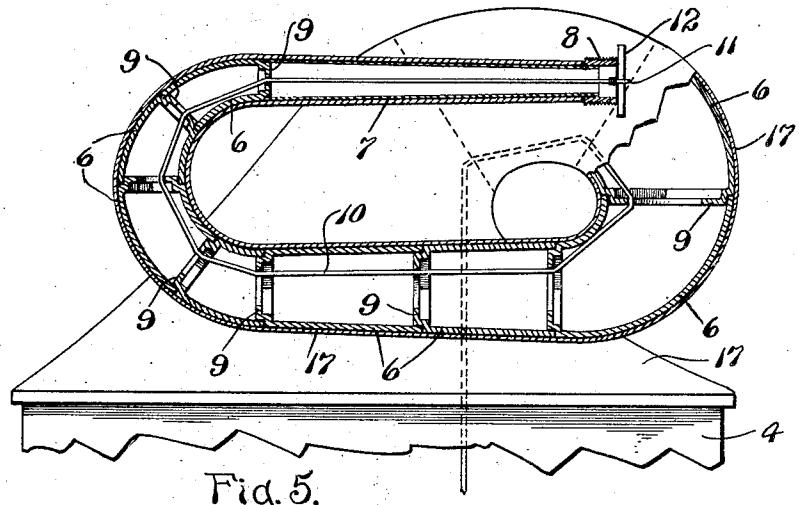



Fig. 5.

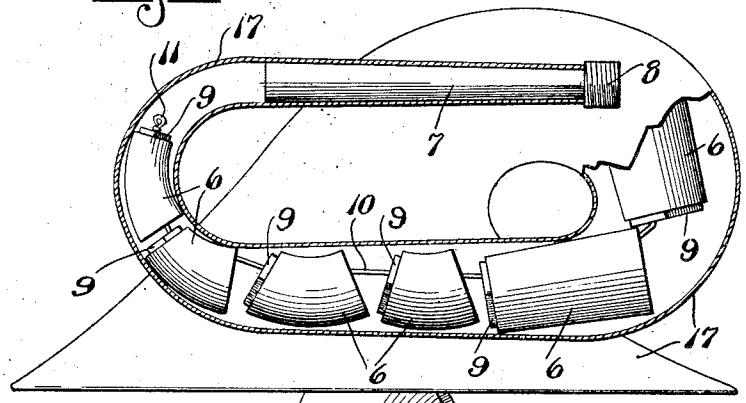



Fig. 6.

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# UNITED STATES PATENT OFFICE

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## SECTIONAL FORM

Application filed December 5, 1927. Serial No. 237,807.

This invention relates to a sectional form and mechanism for operating the same, useful in the manufacture of amplifying horns. Amplifying horns used for either radio reception or phonographs are of many varied shapes having curved sections. The manufacture of these horns, particularly when the same are made partly of a cementitious composition, requires that they be made over properly shaped forms and the problem which has to be solved is that of removing the form from the completed horn.

With my invention a sectional form is used, the parts of which may be held firmly together, making in effect the same as a solid form during the time that the horn is being built over the form; then, upon completion of the manufacturing process of the horn, the sections of the form may be released and the form withdrawn from the horn and afterward again firmly held together for the subsequent manufacture of another horn.

It is an object and purpose of the present invention to provide a section form and a mechanism usable in conjunction therewith whereby the manufacture of radio and other horns may be accomplished quickly and expeditiously and in quantity.

An understanding of the invention may be had from the following description taken in connection with the accompanying drawings, in which,

Fig. 1 is a side elevation of the sectional form and the mechanism used to hold the sections securely together.

Fig. 2 is a fragmentary front elevation thereof.

Fig. 3 is a fragmentary side elevation of the horn form slightly modified from the construction shown in Fig. 1.

Fig. 4 is an end elevation of one of the form sections.

Fig. 5 is a fragmentary side elevation, with parts broken away and shown in section, illustrating the manner in which the different sections of the form are held together in operative relation to each other, and,

Fig. 6 is a similar elevation illustrating the removal of the sections of said form from the completed horn.

Like reference characters refer to like parts in the different figures of the drawings.

In the construction a table support 1 is used which is carried by suitable legs 2 and 3 whereby the table is located a distance above the forms. On the table a support 4 is fixed on which, in turn, the horn form is carried.

The horn form is made up of a plurality of sections 5 and 6. The lower section 5 is largest and around it the bell or outlet end of the horn is made. The remainder of the form is made up of the plurality of sections 6 which are of the desired shape and dimensions that when placed together end to end they provide a form of curved irregular shape. At the end of the last section 6 of the series a sheet metal neck 7 is engaged, terminating at its outer end in an exteriorly threaded nut 8 on to which the loud speaker unit of a radio loud speaker may be detachably screwed. The upper end of the section 5 and the corresponding end of each of the sections 6 are provided with projections 9, shown as square in cross section, the opposite ends of said sections 6 having recesses to receive said projections 9.

A cable 10 passes upwardly through the form section 5 and thence through the several sections 6 to the last one of the series, terminating in a loop 11. The opening through the outer end of the last section 6 is large enough only to pass the cable through but will not permit the loop 11 to be drawn therethrough. When the form is assembled with its several sections placed together end to end, the end of the sheet metal sleeve 7 is placed over the projection 9 of the free end of the last section 6, the cable 10 having been threaded through the sleeve 7 and the nut 8 and a pin 12 is passed through the loop 11, lying across the outer end of the nut 8 as best shown in Fig. 5. The cable 10 leads downwardly below the table 1 and is connected to the upper end of a coiled spring 13 which, at its lower end, is connected to a lever 14 at a point between

the ends thereof. Lever 14 at its rear end is pivotally connected to one of the legs 2 and extends forwardly in front of the front leg 3 at the same side. Along the inner side of said leg 3 a bar 15 with a plurality of ratchet teeth at its inner side is permanently secured. Lever 14 on its adjacent side is equipped with a dog 16 to engage with said teeth.

After the form sections have been placed together the sleeve 7 put in place and the pin 12 passed through the loop 11, the operator of the device steps on the free end of lever 14 moving it down, stretching the spring 13, thereby drawing all of the sections of the mold, together with the sleeve 7, into firm engagement with each other. They are held in such engagement by moving the lever laterally for its dog 16 to engage with one of the teeth of the ratchet bar 15.

The horn which is made by stretching Jersey cloth over the form and the sleeve 7, spreading a composition of plaster of Paris mixture over the Jersey cloth, covering the same with burlap and covering the burlap with paper, is indicated at 17. As soon as it is completed lever 14 is released, thereby releasing the cable 10 and permitting removal of the pin 12. The cable 10 may be then drawn through the form sections until the loop 11 comes to the outer end of the last section 6, as shown in Fig. 6. The horn may be lifted and the various sections 6 drawn therefrom. The sleeve 7 with the attached nut 8 remain as a part of the horn. For the succeeding horn the process is repeated, a new sleeve 7 with a nut 8 at its outer end being used with each horn.

In the construction shown in Figs. 1, 5 and 6 the sleeve 7 is of considerable length, but it is not necessary that it shall be as long as shown; and when it is shortened the discrepancy is supplied by additional sections 6 to the forms as shown in Fig. 3.

The device described is very practical and useful and has been in use for a considerable time in the practical manufacture of radio horns. With it a horn can be made complete without the necessity of building it in two or more sections and securing the sections together. The assembly of the horn form or its disassembly is simple and easy. Horns can be made over the form expeditiously and the process repeated whereby large quantity production is attained.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In a device of the class described, a horizontal support, a form located over the support comprising a plurality of sections having end to end engagement, the outermost of said sections comprising a tubular sleeve having an outer exposed end, a cable extending through said form having a loop at its outer end, a pin passing through said loop adapted to bear against the outer exposed end of the sleeve section of the form, and means for releasably applying a continuous pulling force to said cable to hold the sections of the form in rigid end to end engagement and, when released, permitting withdrawal of said pin and separation of the sections.

2. A device of the class described comprising, a supporting table, a form located above said table comprising a plurality of separable sections adapted to have end to end engagement and having longitudinal openings therethrough, a cable passing through all of the sections of the form, a loop at the outer end of the cable, a cross pin extending through the loop adapted to bear against the outer exposed end of the outer section, a lever pivotally mounted at one end below the cable, a coiled spring connecting the lever at an intermediate point to the opposite end of the cable, and releasable latching means for holding the lever in any position to which it is operated on downward movement of the outer free end of the lever.

3. In combination, a supporting table, legs for carrying said table, a form located above the table comprising a plurality of separable sections adapted to have end to end engagement and having longitudinal openings therethrough, a cable passing through all of the sections, exteriorly exposed means at the outer end of the cable for detachably connecting the same with the outer end of the outer section of the form whereby a pulling force on said cable will hold the sections against disengagement, a lever pivotally mounted at one end to one of said legs and extending forwardly therefrom, yielding spring means connecting the lever and the lower end of the cable, a dog on said lever and a ratchet bar on another of said legs with which said dog is adapted to be engaged on downward movement of the lever to tension said spring means, and hold said form sections in end to end engagement with each other.

4. In a device of the class described, a form comprised of a plurality of sections located end to end and each having a longitudinal opening, said form being larger at one end than at the other end, the end of the section at the small end being exposed outside of the object to be molded over said form, a cable extending through said longitudinal openings in all of said sections, exposed means at the exposed small end for detachably connecting one end of the cable thereto, and releasable means at the large end of the form for exerting strain upon

said cable to retain said sections in operative relation whereby said strain may be released and said detachable connection disconnected to release the respective sections from each other.

5. In a device of the class described, a form comprised of a plurality of sections located end to end and each having a longitudinal opening, said form being larger at one end than at the other end, the end of the section at the small end being exposed outside of the object to be molded over said form, a cable extending through said longitudinal openings in all of said sections, exposed means at the exposed small end for detachably connecting one end of the cable thereto, said end of the cable being adapted to pass through the openings in the sections, and releasable means at the large end of the form for exerting strain upon said cable to retain said sections in operative relation whereby said strain may be released and said detachable connection disconnected to release the respective sections from each other.

In testimony whereof I affix my signature.

JACOB KERSTEN.