

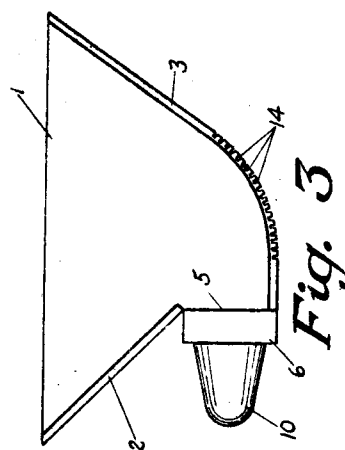
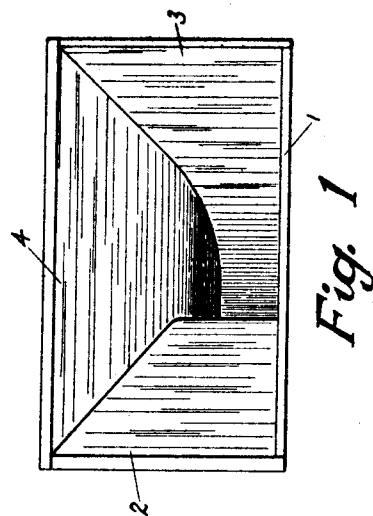
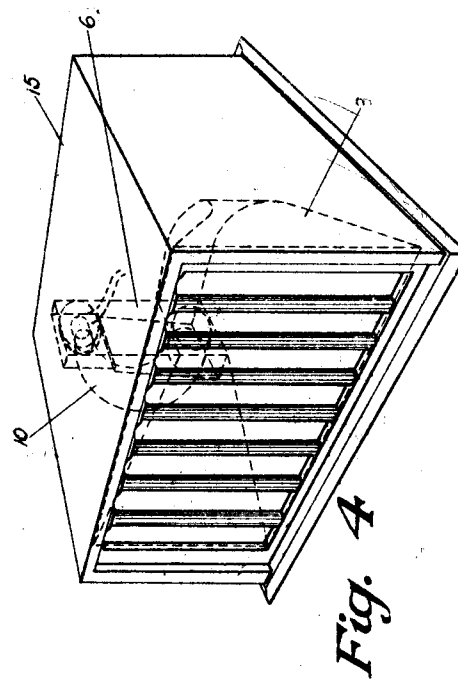
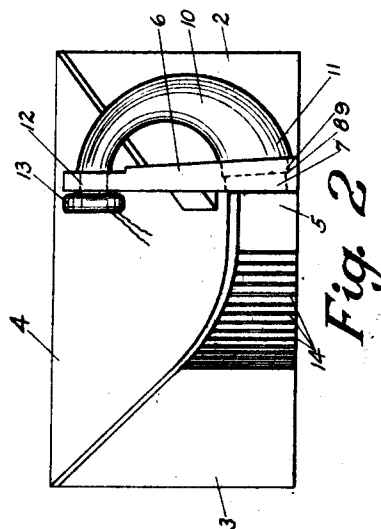
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HORN FOR RADIO LOUD SPEAKERS AND THE LIKE

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HORN FOR RADIO LOUD SPEAKERS AND THE LIKE.

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To all whom it may concern:

Be it known that I, CARL BORNMAN, a citizen of the United States, and a resident of the city of Binghamton, county of Broome, and State of New York, have invented certain new and useful Improvements in a Horn for Radio Loud Speakers and the like, of which the following is a description, reference being had to the accompanying drawing, which forms a part of this specification.

This invention relates generally to horns and is particularly directed to that type of wooden horn suitable for use as a radio loud speaker. After reading the following description however, it will be readily understood that my improved horn is readily applicable to any purpose wherein it is desired to reproduce and amplify sound. My invention may be adopted for use in a talking machine or phonograph with practically no modification from the form shown and described herein.

It is the primary object of my invention to provide a horn of proper shape and design for faithful reproduction and amplification without distortion of sound received either through a radio set or from the record of a phonograph.

It is a further object to render the curved side of my horn entirely free from vibration. This is accomplished by releasing the strain at the curve of the wood.

Another object is to construct a horn light in weight and which may be built and assembled with a minimum amount of labor and material.

My improved horn, because of its peculiar construction, readily adapts itself to use in the popular cabinet type of loud speaker horns for radio sets.

A still further object lies in the provision of simple and efficient means for connecting and supporting the tone arm of the instrument to the body of the horn.

Still another object lies in the construction permitting the use of wood or similar substance for the curved portion of the horn without splitting or breaking.

While I have shown and described my new horn as constructed of wood, it will be understood that any other material such as fibre or metal may be used if desired with-

out departing from the scope of my invention.

Other objects and advantages in details of construction and operation will be apparent as the description proceeds, reference being had to the accompanying drawing wherein like reference numerals indicate like parts.

In the drawing:

Figure 1 is a front view of my improved horn showing the four piece construction of the body of the horn.

Figure 2 is a rear plan view of the horn showing the tone arm mounted in place.

Figure 3 is a bottom plan view of the horn.

Figure 4 illustrates one manner in which my horn may be used as a radio loud speaker, the horn being shown in dotted lines within the cabinet.

My horn comprises the bottom piece 1, the short straight side wall 2, the long curved side wall 3, and the top piece 4. It will be noted that where the side walls 2 and 3 approach each other to form the neck 5, said walls are narrower than they are at the front of the horn where they are quite wide thus providing for the bell or amplifying portion of the horn.

Secured in any suitable manner to the neck 5 of the horn is a supporting block 6 having an opening 7 in its lower end communicating with the neck or restricted portion of the horn. This opening 7 is counter-bored to form a shoulder 8 against which abuts a shoulder 9 on the lower end of the tone arm 10. A second shoulder 11 on the tone arm abuts against the surface of the supporting block 6 around the opening 7. This construction provides an exceptionally tight connection or fit between the tone arm 10 and the neck of the horn, whereby all sound passing through the tone arm is communicated directly into the neck of the horn through a continuously smooth, uninterrupted surface. The supporting block 6 is extended upwardly and provided near its upper end with an opening 12 through which passes the upper end of the tone arm 10. Secured to this upper end of the tone arm, is a sound box 13 containing the diaphragm or other instrument for receiving sound waves and reproducing them for amplification by the horn.

It will be noted that the bottom 1, the side wall 2, and the top 4 of the horn may be all perfectly flat pieces. The side wall 3 however is curved inwardly at the neck of the horn whereby a smooth curved chamber is formed to receive the sound passing from and through the tone arm. By thus curving this side wall no corners or abutments are offered to hinder or deflect the sounds as they enter the horn. Instead an evenly surfaced sound chamber of the right curvature to prevent distortion is formed for receiving and amplifying the sound coming from the tone arm.

Ordinarily in bending or curving the side wall 3 of the horn, a tension or stress would be set up in the material, particularly if composed of wood, resulting in a tendency of that side wall to vibrate when the sound waves pass against it. I have overcome this objection however by scoring the side wall 3 as at 14 at the point of curvature. These scorings 14 as will be noted in figure 3 extend only part way through the material composing the side wall 3. This breaks the tension or stress caused by bending the side wall 3 and thus eliminates any possibility of discordant vibration within the horn.

These scorings 14 at the curve of the side wall 3 also serve the additional purpose of rendering the wall much easier to form and to bend into the required shape.

By placing the scoring 14 on the outside wall of the horn, I leave the inner surface perfectly smooth and free from obstruction which might interrupt the sound coming through the tone arm. The scored portion of the horn is of course concealed when the same is mounted within a cabinet as shown in Figure 4.

The cabinet 15 shown is merely illustrative and it will be understood that my horn is adapted for use in any type of cabinet desired, either for loud speaker radio work or for phonograph work.

The various walls of the horn may be secured together in any suitable manner as by nailing or glueing.

From the foregoing, it will be seen that I have provided a horn for use as a radio loud speaker which may be constructed cheaply of wood or other suitable material and which offers an amplifying chamber of the necessary and desirable curved construction and eliminating all possibility of objectionable vibration because of such curved construction. I have also provided a novel and practical means for mounting a tone arm upon the horn whereby all sounds transmitted by the sound box are communicated directly into the amplifying horn through a perfectly smooth chamber free from objectionable obstructions usually formed by connecting elements.

Of course my invention is susceptible to

various changes in details of construction and operation without departing from the spirit and scope thereof. I do not limit myself therefore to the exact construction shown other than by the appended claims. 70

I claim:

1. A horn comprising a sound chamber, one wall of which is curved, said wall being scored at the point of curvature.

2. A horn comprising a sound chamber, one wall of which is curved, said wall being scored on the outside at the point of curvature.

3. A horn comprising a sound chamber having a restricted portion or neck, a tone arm communicating with said neck, one wall of said chamber being curved at a point adjacent said neck and said wall being scored at the point of curvature.

4. A horn comprising a sound chamber having a restricted portion or neck, a tone arm communicating with said neck, one wall of said chamber being curved at a point adjacent the neck and said wall being scored on the outside at the point of curvature.

5. A horn comprising a sound chamber having a restricted portion or neck, a supporting block mounted on said neck provided with an aperture opening therein, said aperture being counterbored, a tone arm supported by said block, one end thereof fitting within said aperture, a shoulder on said tone arm cooperating with said counterbore whereby a tight fitting connection is made with an uninterrupted inside surface between the tone arm and neck.

6. A horn comprising a sound chamber having a restricted portion or neck, a supporting block mounted on said neck and provided with an aperture opening therein, said aperture being counterbored, a tone arm supported by said block, one end thereof fitting within said aperture, two shoulders on said tone arm, one cooperating with said counterbore, and the other with the face of said block, whereby a tight fitting connection is made with an uninterrupted inside surface between the tone arm and neck.

7. A horn comprising a sound chamber having a restricted portion or neck, a supporting block mounted on said neck provided with an aperture opening therein, a tone arm having one end secured to said block and communicating with said aperture, the opposite end of said tone arm being supported by an extension of said block.

8. A horn comprising a sound chamber having a restricted portion or neck, a supporting block mounted on said neck provided with an aperture opening therein, said aperture being counterbored, a tone arm having one end provided with a shoulder secured to said block and communicating with said aperture, said shoulder and said counterbore cooperating to provide a tight

fitting connection and affording a smooth uninterrupted passage from the tone arm to said neck, and the upper end of said tone arm being supported by an extension of said supporting block.

- 5 supporting block.
9. A horn comprising a sound chamber having a restricted portion or neck, a supporting block mounted on said neck provided with an aperture opening therein, said
- 10 aperture being counterbored, a tone arm having one end provided with a shoulder secured to said block and communicating with said aperture, said shoulder and said counterbore cooperating to provide a tight
- 15 fitting connection and affording a smooth

uninterrupted passage from said tone arm to said neck, the upper end of said tone arm being supported by an extension of said supporting block, and one wall of said sound chamber being curved adjacent said neck 20 and said wall being scored at the point of curvature.

10. A radio loud speaker unit comprising a cabinet and a horn therein comprising a sound chamber having a restricted portion 25 or neck, a tone arm mounted on said neck, one wall of said chamber being curved adjacent said neck, and said wall being scored at the point of curvature.

CARL BORNMAN.