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TIGHTENING THE HEADS OF SINGLE HEADED INSTRUMENTS

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2 Sheets-Sheet 2

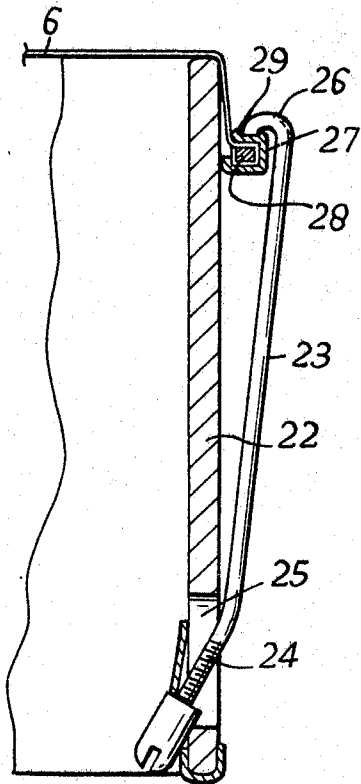
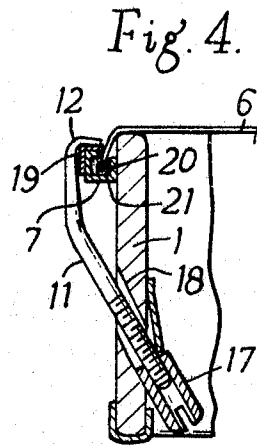
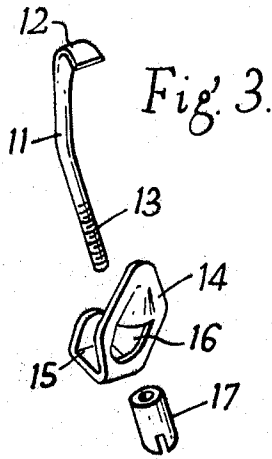


Fig. 5.

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**TIGHTENING THE HEADS OF SINGLE
 HEADED INSTRUMENTS**

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1 Claim

ABSTRACT OF THE DISCLOSURE

Single-headed percussion instruments such as tam-
 bourines, bongos, and the like are furnished with head-
 tightening devices which pass obliquely through the wall
 of the instrument shell and can be tightened up to apply
 oppositely-acting longitudinal forces to the shell from
 the two sides of the latter and hold it in compression.

This invention relates to single-headed percussion in-
 struments, by which term is meant such instruments as
 tambourines, tambours, bongos, and tomtoms of the kind
 which comprises a rigid tubular shell, for example of
 cylindrical shape, which is open at one end and has a
 percussive head of skin, vellum, plastics, or other ma-
 terial stretched over the other end. The term "percussion
 instruments" is also to be interpreted as including instru-
 ments with a tunable head, e.g. a banjo, which is not
 necessarily struck in use. The present invention is con-
 cerned, in particular, with the tightening of the head in
 instruments of this kind.

Where such instruments have been equipped with head-
 tightening means, e.g. for tuning the head, these have
 usually been implemented by screw bolts or equivalent
 spaced around the outside of the shell and applying clamp-
 ing forces to the head and the shell from the exterior.
 These unilateral forces have a tensile effect on the whole,
 i.e. tend to bow the wall of the shell inwards—and this
 can lead to distortion of the shell and impairment of
 the quality of the instrument, or even ultimate fracture of
 the shell wall.

With the aim of eliminating this defect, the present
 invention provides a single-headed percussion instrument
 of the kind set forth with head tightening means includ-
 ing a plurality of tightening devices spaced around the
 periphery of the shell, each such device comprising a
 stem which is equipped at one end for engagement with
 the head from the outer side of the wall of the shell,
 which has a portion passing obliquely through the wall
 of the shell, which has at its other end means for clamp-
 ing the shell from the inner side of the latter, and which
 is operable to adjust the head-engaging means relatively
 to the shell-clamping means.

In principle then, the instrument has a set of tightening
 devices around the periphery, these engaging a marginal
 part of the instrument head extending beyond the rim of
 the shell over which the head is to be tautened. The stem
 of each device passes downwards from this point of en-
 gagement and through the shell into the interior of the
 latter. It is within the confines of the shell that it is pro-
 vided with the clamping means which are operable to
 tighten or loosen the head of the instrument. When the
 head is tightened up a force component is applied com-
 pressively, through the head, to the upper rim of the
 shell from the outer side, and a counteracting force com-
 ponent is applied in the opposite sense to a lower part
 of the shell from the inner side, for example, to the lower
 rim of the shell or to the upper edge of an opening part-
 way down the shell wall. Thus the shell is subject en-

tirely to axial compressive stresses and any tensile stresses
 are balanced out.

By this means the clamping and tightening means can
 be disposed unobtrusively within the shell so that they
 will not mar the external visual appearance of the in-
 strument and will not hamper hand manipulation of the
 instrument (as in the case of a tambourine), or grasping
 of the instrument by the knees (as in the case of bongos)
 or mounting the same on most types of support (as in
 the case of tomtoms).

The invention is illustrated by way of example in the
 accompanying drawings, in which:

FIGURE 1 is a perspective illustration of a tambourine
 equipped with head tightening and tuning means in ac-
 cordance with a first embodiment of the invention.

FIGURE 2 is a vertical cross section through the part
 of the shell of this tambourine, and through one of the
 tightening devices,

FIGURE 3 is an exploded illustration of a tightening
 device per se,

FIGURE 4 is a cross sectional illustration similar to
 FIGURE 2, but illustrating modified features which can
 be used within the present invention, and

FIGURE 5 is another and similar cross section showing
 further modified arrangements.

The tambourine illustrated in FIGURE 1 comprises a
 cylindrical wooden shell 1 with a flat upper edge 2 and
 a rounded lower edge 3. This shell is equipped at spaced
 locations around its periphery with two sets of jingles 4
 each of which is mounted by a pin in an aperture 5 in
 the wall of the shell. It will be understood that one or
 more sets of such jingles can be provided, according to
 requirements.

The head is provided by a circular sheet 6 of vellum
 or other material used in this art, this being stretched
 over the upper rim 2 of the shell 1 and being tightenable
 (see below) to vary the tuning of the tambourine. The
 sheet 6 is of greater diameter than the rim 2 and the
 overlapping marginal portion 8 thereof is engaged in a
 hoop 7 disposed around the upper part of shell 1, this
 portion 8 being wrapped around a metal ring 9 which is
 trapped within the hoop 7.

The tightening means used in this construction com-
 prise a set of tightening devices, denoted 10, which are
 spaced at intervals around the instrument. Each of these
 devices comprises a stem 11 in the form of a rod or bar
 which is provided with a hook formation 12 at one end
 and is screw-threaded at the opposite end 13. At this end
 13 the tightening device has means for adjustable clamp-
 ing against the lower part of shell 1, and for this purpose
 use is made of a plate 14 of stirrup shape and having a lip
 15 which will comfortably engage around the lower
 rim 3 of the shell. This plate 14 is apertured at 16 for
 the passage of the screw-threaded end 13 of stem 11, and a
 nut 17 with a screwdriver slot is provided to screw on the
 end 13 of stem 11.

It will further be observed that the hook 12 is offset
 relatively to the remainder of the stem 11 so that, when
 this hook is engaged with the upper surface of hoop 7 the
 main length of stem 11 is inclined to shell 1, and passes
 through an inclined slot 18 in the latter and through the
 apertured plate 14.

It will consequently be seen that the tightening device,
 when assembled in the instrument, is unobtrusive and that
 the tightening nut 17 can be conveniently operated but
 does not obtrude from the instrument when the latter is
 being used for normal playing. Further, the stresses ap-
 plied, in tightening, to the shell, balance each other as de-
 scribed above.

In the modification illustrated in FIGURE 4, still as-
 sumed applied to a tambourine, use is made of a counter
 hoop 19 which is disposed on the hoop 7. This figure

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also shows an alternative method of engaging the outer edge of the head 6. In this case the edge is wrapped around a wire 20 which is disposed in a block of glue or epoxy resin 21 within the hoop 7.

The principles underlying this form of construction are the same as those applicable to the embodiment illustrated in FIGURES 1 to 3, and it will be appreciated that the FIGURE 4 construction is merely illustrative of certain alternative features which may be used. It should further be noted that instead of using counter hoop 19, or even a hoop 7, the hook 12 could be engaged with the block 21 of epoxy resin or other material, in certain forms of tambourine or other instruments to which the invention is applied.

The modified arrangement illustrated in FIGURE 5 is assumed applied to a bongo drum. In this case, it will be observed, the shell 22 is of relatively greater depth than the shell 1 previously illustrated, and that the stem 23 of the fastening device is also of the modified shape, commensurate with the particular dimensions of the drum. Once again the stem is provided with a threaded end portion 24 which passes obliquely through a slot 25 in the shell 22.

At its upper end the stem 23 is hooked at 26 to engage in a hoop 27 trapping the annular insert 28 around which the margin of the head 6 is wrapped. In this case, the hoop 27 is provided with indentations 29 and the tip of the hook 26 can engage in a corresponding indentation.

I claim:

1. A single-headed percussion instrument comprising a rigid tubular shell which is open at one end and includes a tunable percussion head stretched over the other end; and a plurality of head-tightening devices spaced

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around the shell; each of said tightening devices comprising a stem member including a portion passing obliquely through the shell, means located at one end of said stem member for engaging with the head from the outer side of the wall of the shell, means located at the other end of the stem member for clamping the shell from the inner side of said wall, and means for adjusting the head-engaging means relatively to the shell clamping means; said adjusting means including a tightening nut located at the said other end of said stem member and disposed within the shell; said tightening devices further comprising a stirrup-form plate including a lip portion for engaging around the free rim of the instrument shell, the remainder of said plate being applied against the adjacent inner wall portion of the shell; said plate further including an aperture through which passes the end of said stem member, the last-mentioned end of stem member being screw threaded for mating cooperation with said tightening nut which nut can be screwed up against the surface of said plate.

References Cited

UNITED STATES PATENTS

493,635	3/1893	Mayer	84-269
1,377,067	5/1921	Groebel	84-275
1,894,968	1/1933	Whitten	84-411
2,934,989	5/1960	Belli et al.	84-411

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