

3,029,679

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2 Sheets-Sheet 2

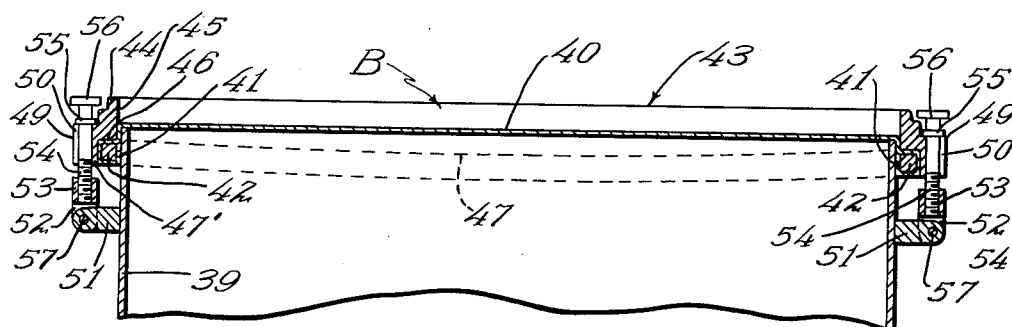


FIG. 4

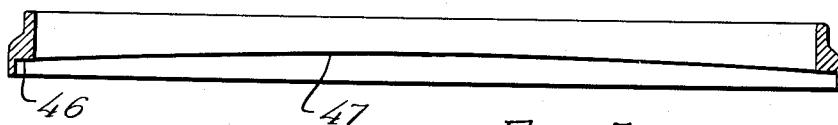


FIG. 5

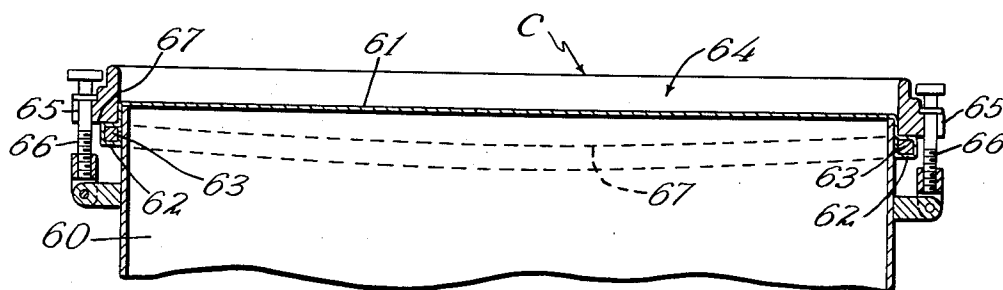


FIG. 7

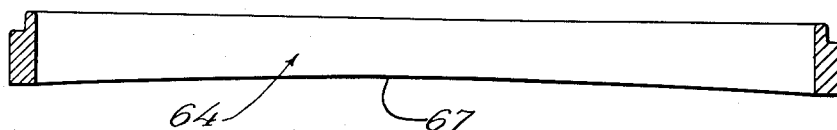


FIG. 8

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DRUMS

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This invention relates to an improvement in drums and deals particularly with a means of tightening the skin or drum head on the ends of the drum.

Drums are usually produced with the peripheral edge of the skin wrapped about a flesh hoop of proper diameter to slide down over the outer surface of the cylindrical drum shell. The flesh hoop is drawn downwardly by engagement with a counter hoop which fits over the flesh hoop and abuts against the portion of the drum skin overlying the flesh hoop. The counter hoops of a snare drum are usually drawn together by a series of angularly spaced clamping bolts or by other connecting means connecting the counter hoops. Thus, in usual constructions the drum head or skin is tightened by tightening the clamping bolts or other connecting means all about the periphery of the drum.

An object of the present invention resides in the provision of a novel means of tightening the drum head through the use of a single pair of clamping bolts. The counter hoop which may be combined with the flesh hoop is so shaped that when opposite sides of the hoop are drawn downwardly, the skin is stretched over the end of the drum shell.

An object of the present invention lies in the provision of a counter hoop having means for connection with a pair of clamping bolts on opposite sides of the drum. A shoulder or edge of the hoop which engages the skin is shaped in such a manner as to exert a greater pull upon the skin at points intermediate the clamping bolts so that as the clamps are tightened the sides of the hoop as well as the portions of the hoop engaged by the clamping bolts will draw the skin tightly over the end of the drum shell.

A feature of the present invention resides in the provision of a counter hoop having a shoulder which is engageable with the drum skin which is not in a common plane. This skin engaging shoulder is lower at points 90° from the clamping means than it is adjacent the clamps. As a result, when the clamps are tightened, the drum head is first stretched to the greatest extent at points intermediate the clamps and as the clamping action continues the skin is stretched evenly and tightly over the end of the drum shell.

A further feature of the present invention lies in the fact that when flesh hoops are used about the periphery of the skin, the shoulder on the counter hoop tends to distort the flesh hoop out of a common plane, first exerting a stretching action upon the drum head at points intermediate the clamps and then gradually drawing the skin tightly over the end of the shell about its entire periphery.

A feature of one form of the present invention resides in the provision of a combined counter hoop and flesh hoop which may clamp the marginal edges of the skin and eliminate the necessity of folding the marginal edge of the skin about the flesh hoop.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claim.

In the drawings forming a part of the specification:

FIGURE 1 is a vertical sectional view through an end of a drum showing the construction of the combined counter hoop and flesh hoop.

FIGURE 2 is an enlarged sectional view through the hoop, the section of the hoop being taken substantially

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along lines 2-2 of FIGURE 3, said hoop being shown removed from the shell portion.

FIGURE 3 is an enlarged top plan view of the hoop as shown in FIGURE 2.

FIGURE 4 is a sectional view through the upper portion of a modified form of drum.

FIGURE 5 is a sectional view through the counter hoop shown in FIGURE 1, the position of the section being at right angles to the section shown in FIGURE 4.

FIGURE 6 is a top plan view of the counter hoop shown in FIGURES 4 and 5.

FIGURE 7 is a cross sectional view through another modified form of drum.

FIGURE 8 is a cross sectional view through the counter hoop shown in FIGURE 7, the position of the section being at right angles to the section shown in FIGURE 7.

FIGURE 9 is an enlarged detail showing a portion of the clamping surfaces of the rings marginally clamping the drum skin.

The present invention may be applied to drums of various types and in the figures only one end of the drum is illustrated. Obviously, the drum may have two similar ends or may be formed in the manner of a kettle drum or may be of various other shapes.

The drum A illustrated in FIGURES 1, 2 and 3 of the drawings includes a cylindrical drum shell 10 which forms the body of the drum. A combined flesh hoop and counter hoop structure 11 is designed to encircle the shell 10 and to slide relative thereto. The hoop structure 11 includes a bottom portion 12 which is of ring shaped form having two pairs of projections 13 extending from diametrically opposite sides thereof. These projections 13 are spaced to provide a slot 14 therebetween for a purpose which will be described.

As is indicated in FIGURES 1 and 2 of the drawings, the upper surface 15 of the ring 12 is not on a single plane, this surface 15 being at a higher elevation at points adjoining the ears 13 than at right angles thereto. In other words, the sides of the ring 12 are concave along its upper surface intermediate the clamps 13, the lowest point of concavity occurring at 90° from the position of the ears 13. The undersurface 16 of the ring 12 may be on a common plane as illustrated. When the under surface 16 is on a common plane, the ring 12 is thinnest at points 90° from the ears 13 and thickest at points adjoining the ears.

The ring 12 is provided with an upwardly projecting circular rib 17 in its upper surface, this rib 17 being spaced outwardly from the inner surface 19 of the ring. This rib 17 forms a male clamping member which is designed to extend into a cooperable groove 20 in the undersurface of the upper hoop portion or upper ring 21.

The ring 21 is provided with an upwardly projecting circular flange 22 flush with its inner surface and this ring 21 is also designed to slide down over the outer surface of the drum shell 10. As indicated in FIGURES 2 and 3 of the drawings, angularly spaced clamping bolts 23 extend through the outer portion of the upper ring 21 and are threaded into the lower ring 12.

The upper ring 21 is provided with a convex undersurface 24 which is shaped to fit the concavity of the upper surface 15 of the ring 12. Thus, the adjacent surfaces of the two rings are of the same shape and may be clamped together around the entire periphery of the two rings.

The upper surface 25 of the upper ring 21 may be on a single plane in which case the depth of the ring is greatest at points at right angles to the location of the ears 13 on the rings 12. If desired, the ring may be of the same cross sectional size throughout its periphery in which case the portion of the flange edge 25 at right angles to the ears 13 will project from the drum skin a

lesser amount than the portion of the flange adjoining the clamping ears 13 when the ring is in place upon the shell 10.

The drum skin 26 is placed upon the ring 12 and the upper ring 21 is placed above the skin. Clamping bolts 23 are then inserted through the angularly spaced apertures 27 in the upper ring 21 and are threaded into the threaded apertures 29 in the lower ring 12, the bolts preferably passing through the marginal edge of the drum skin. As the two rings are tightened together, the rib 17 will urge the drum skin into the groove 20 of the ring 21 thus tending to stretch this skin tautly across the ring. When clamped in place, the skin is not on a common plane but is distorted, being highest across the diameter of the hoops between the clamping ears 13 and curving downwardly on either side of this diameter.

The drum shell is shown as having a pair of lugs 30 projecting radially from opposite sides of the shell. Internally threaded sleeves 31 are provided with bifurcated ends 32 which straddle each lug 30. A pivot pin 33 connects the bifurcated ends 32 of the sleeves 31 to the respective lugs 30.

Clamping bolts 34 having bearing shoulders 35 thereupon are designed to engage in the slots 14 between the ears 13 with the shoulders 35 bearing against the upper surfaces of the lugs 13. The bolts 34 are provided with a T-shaped upper extremity 36 or are provided with suitable knob means by means of which the bolts may be rotated.

In attaching the head to the drum, the head is placed over the end of the shell 10 with the ring 12 encircling the shell and the clamping bolts 34 are tightened, drawing the skin 26 over the end of the shell 10. Due to the shape of the hoops, the portions of the skin at right angles to the clamping bolts are first stretched across the end of the drum and as the hoop is drawn downwardly the pressure gradually increases on portions of the skin nearer the clamping bolts until the skin is finally tightened down against the end of the shell. This gradual increasing of the tension on the drum head on opposite sides of a diameter tends to stretch the skin more smoothly than would otherwise be possible. The degree of concavity of the rings is a matter of choice and need not be particularly great in order to obtain the result desired. For example, in a snare drum of ordinary size the lowest point of the shoulder may be a quarter of an inch below the plane of the highest portions of the shoulder.

In FIGURES 4, 5 and 6 of the drawings a modified form of drum is illustrated, this drum being indicated in general by the letter B. The drum B includes a cylindrical drum shell 39 having a skin 40 drawn across the end of the shell, the end of the shell being on a plane normal to the axis of the shell as in the previous construction. In the drum B, the peripheral edge 41 of the drum skin is folded about the flesh ring 42, this ring being normally made of wood or similar material. Drum skins are available on the market which are sold with their marginal edges folded about the flesh ring in readiness for application to the drum.

A counter hoop 43 encircles the upper end of the shell 39 and includes an upwardly projecting lip or flange 44 forming the upper surface thereof. The inner surface 45 of the counter hoop 43 is provided with a groove 46 in the ring adjoining the lower surface 47 of the ring. The upper surface of the notch 46 forms a shoulder 47 designed to engage against the flesh hoop. As is indicated in FIGURES 4 and 5 of the drawings this shoulder 47 is convex in form with the areas of greatest convexity on diametrically opposite sides of the hoop. The hoop 43 is provided with pairs of projecting ears 49 on opposite sides thereof, these ears being spaced to provide a slot 50 therebetween. The slots 50 are designed to accommodate clamping means which will be described. The ears 49 project in a generally radial direction from the hoop at the point of least convexity.

The groove 46 is of proper size to accommodate the flesh hoop 42 and the marginal edge of the drum skin wrapped about this hoop. Lugs 51 project from the drum shell 39 on opposite sides thereof and pivotally support the bifurcated ends 52 of internally threaded sleeve sockets 53. Clamping bolts 53 are threaded into the sleeves 53 and are provided with bearing shoulders 55 engageable with the uppersurfaces of the ears 49. T-shaped handles 56 or other suitable means are provided at the top of the clamping bolts by means of which the bolts may be rotated.

The operation of the structure illustrated in FIGURES 4 to 6 is very similar to that previously described. In attaching the drum head, the flesh hoop is engaged over the end of the drum shell 39 and forced downwardly. The counter hoop 43 is then applied with the ears 50 between the ears 49 in position to accommodate the clamping bolts 54. The clamping bolts are then pivoted about their pivot connections 57 into the slots 50 and the bolts are tightened to draw the counter hoop against the flesh hoop.

As the shoulder 47 is drawn against the flesh hoop, it first contacts points of the flesh hoop which are 90° from the clamping means. As a result, the skin is first drawn taut across the drum in a direction at right angles to a diameter between the clamping means. As the clamping pressure is increased, the pressure against the flesh hoop on opposite sides of the first point of contact gradually increases until the pressure is applied entirely over the surface of the skin. Thus the proper tension may be applied to the skin by manipulation of a single pair of clamping members and the skin is more smoothly stretched than would be normally possible.

In FIGURES 7 and 8 of the drawings, I disclose a drum C which is somewhat of a combination between the drum A and the drum B. The drum C shown in these figures includes a cylindrical shell 60 terminating on a plane normal to the axis of the shell. The skin 61 is stretched across this end of the shell, the marginal edges 62 of the skin being wrapped about a flesh hoop 63. A counter hoop 64 is applied above the flesh hoop 63 to apply clamping pressure thereto. The counter hoop 64 is provided with spaced outwardly projecting ears 65 on opposite sides thereof which are designed to accommodate clamping means which are indicated in general by the numeral 66. As the clamping means shown are similar to those previously described, they will not be described in detail.

As will be noted from these figures, the undersurface of the counter hoop 64 is convex and forms a shoulder 67 which bears against the flesh hoop 63. The areas of greatest convexity or the parts recessed to the greatest extent below the portions of the shoulder adjoining the ears 65 are at right angles to these ears or approximately 90° spaced from the ears. As a result, as the counter hoop 64 is tightened into place, the flesh hoop will be distorted out of its normal common plane as in the arrangement shown in FIGURE 4. In other words, the structure shown in FIGURES 7 and 8 is practically identical to that shown in FIGURES 4 through 6 with the exception of the fact that the bottom of the counter-hoop forms the shoulder engaging the flesh hoop, leaving the flesh hoop exposed. In the construction shown in FIGURES 4 to 6, the flesh hoop is accommodated in the groove 46 and the upper surface 47 of this group forms the shoulder.

It will be seen that with this arrangement a gradual spreading of the pressure over the entire surface of the drum head is provided thus providing a smoother and tighter drum head which can be adjusted in tension by manipulation of a single pair of clamping screws.

As indicated in FIGURE 9, the surfaces of rings 12 and 21 which clamp the marginal edges of the skin may be provided with additional means for assisting in holding the marginal edges of the ring from slipping. Small diamond shaped projections 70 are provided on the mating

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surfaces of the rings 12 and 21, with the projections of one ring being intermediate the projections of the other ring. Alternatively, one surface may have projections 70 and the other surface may have opposed diamond shaped pockets into which the projections extend. As both surfaces would have a similar appearance when viewed in plan, only one such surface is illustrated.

In accordance with the patent statutes, I have described the principles of construction and operation of my improvement in drums, and while I have endeavored to set forth the best embodiments thereof, I desire to have it understood that changes may be made within the scope of the following claim without departing from the spirit of my invention.

I claim:

A drum comprising a cylindrical shell having an edge portion in a plane which is substantially normal to said cylindrical shell axis, a skin head overlying said shell in contact with said edge portion, a first hoop encircling said shell and having contact with an inner surface of said

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skin, a second hoop overlying said skin and said first hoop, clamping means interconnecting said hoops, at least two tensioning means interconnecting said hoops and said shell, said hoops having co-acting skin engaging surfaces between said tensioning means which extend convexly inwardly, whereby when said skin is clamped between said hoops and tension is applied thereto said co-acting surfaces will lie in substantially a single plane.

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