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J. LUPO, JR

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LINED TUMBLING BARREL

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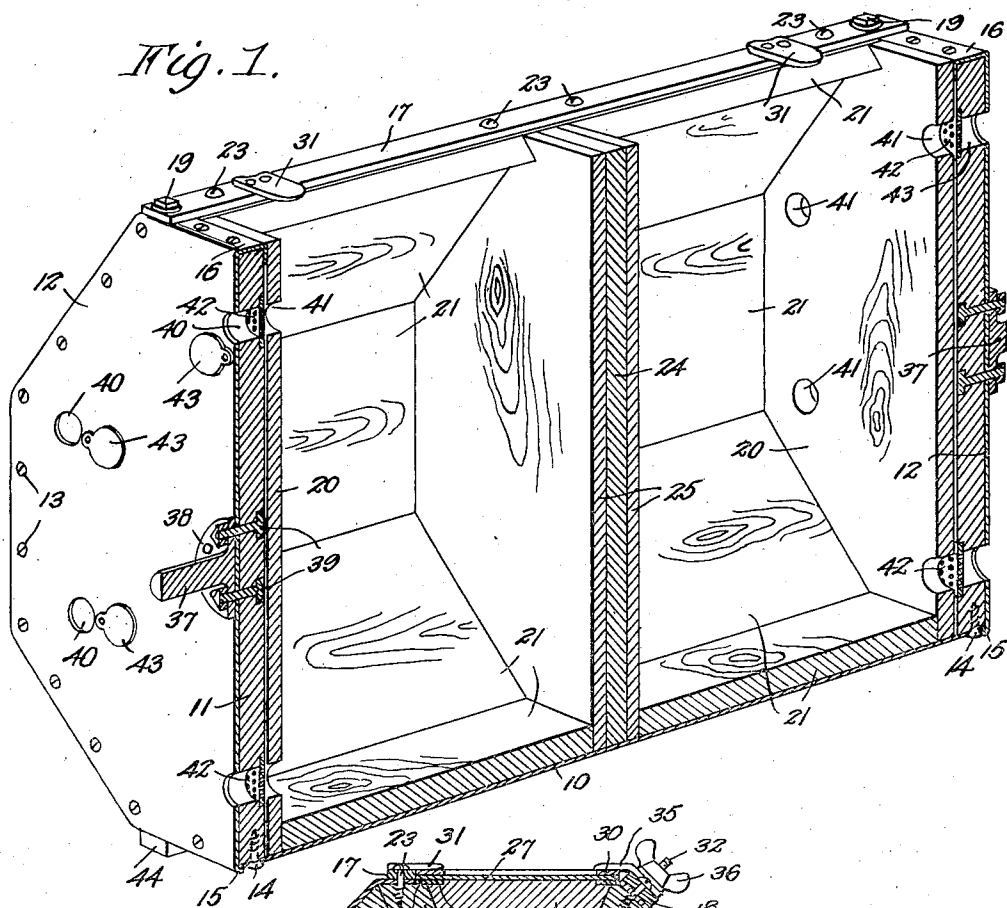


Fig. 2.

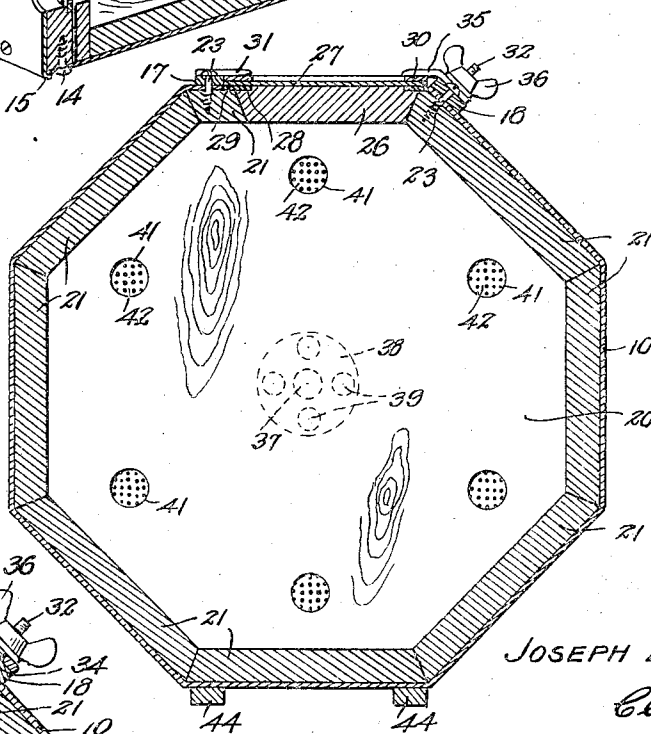
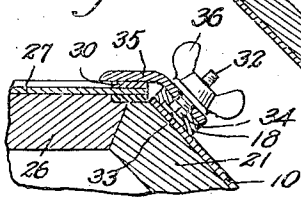


Fig. 3.



INVENTOR.
JOSEPH LUPO, JR.

Clark & Ott
ATTORNEYS

UNITED STATES PATENT OFFICE

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LINED TUMBLING BARREL

Joseph Lupo, Jr., Bronx, N. Y.

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2 Claims. (Cl. 51—164)

This invention has general relation to tumbling barrels for dry tumbling and is directed more particularly to a lined tumbling barrel for this purpose.

Heretofore tumbling barrels for this purpose which have usually been constructed entirely of wood were open to numerous objections and have been found defective due to the fact that there is a tendency of the same to cause the articles being tumbled to rebound as a result of vibration in the barrel walls after limited use. They also sift dust due to the opening up of the barrel seams while loosening of the trunnions is caused by wear on the heads adjacent the bolts which secure the trunnion flanges to the heads resulting in worn bearings, while the entire barrel must be replaced after limited use.

In order to overcome these and many other objections and difficulties, the present invention broadly comprehends an improved tumbling barrel which is so constructed and arranged as to provide a more rigid construction, avoiding vibration and bouncing of the articles being tumbled, positively precluding the sifting of dust, increasing the length of life and usefulness of the barrel and insuring against the loosening of the trunnions and wearing of the bearings.

More particularly the invention provides in a tumbling barrel, a combination of sheet metal and wood in which a removable and replaceable wooden lining is provided which may be initially emplaced and subsequently replaced with the greatest facility and without the aid of special tools or equipment and by persons who are not necessarily skilled mechanics.

As a further feature the invention embodies a tumbling barrel structure provided with a cover which is fashioned and secured in place in such a manner as to render the barrel substantially air and dust tight and wherein ventilation means is provided which may be optionally used to vent the barrel so as to avoid overheating of the articles being tumbled caused by friction.

Other objects of the invention are to provide an improved tumbling barrel for the purpose specified which is not unduly complicated in its construction, is capable of economical production and assembly, and which is highly efficient for its intended purposes.

With the above recited and other objects in view, the invention is more particularly set forth in the following detailed description and the accompanying drawing wherein a preferred embodiment is disclosed, while the appended claims cover variations and modifications thereof.

In the drawing:

Fig. 1 is a longitudinal sectional perspective view of a tumbling barrel constructed in accordance with the invention.

Fig. 2 is a transverse sectional view thereof through.

Fig. 3 is an enlarged fragmentary detailed sectional view of the cover clamping device.

Referring to the drawing by characters of reference, 10 designates a sheet metal shell having angularly disposed longitudinally extending portions, eight of which are shown in the present instance, to provide an octagonal barrel although it is to be understood that the barrel may be of any desired shape within the scope of the invention. As shown, the end edges of the shell or casing 10 are spaced apart to provide an opening for introducing the articles to be tumbled and the tumbling mixture or elements to be used and for removing the same therefrom.

A head is provided for each end of the barrel which is arranged within and secured to the opposite ends of the shell. As illustrated, each head consists of an inner ply of wood 11 and an outer ply of sheet metal 12 which are secured together by any suitable fastening elements, such as screws 13, the ends of the shell 10 being also secured to the wooden inner ply by screws or equivalent fastening elements 14, and the marginal edge of the sheet metal ply for the major portion thereof being flanged over the shell 10 as at 15 except at the end of the opening where the ply 12 is formed with a portion 16 covering the exposed edge of the ply 11, and extending behind the same to provide a smooth metal covered finish in these regions. A pair of metal straps 17 and 18 extend longitudinally of and cover the spaced end edges of the shell 10 so as to provide a rigid frame at the longitudinal sides of the barrel opening to strengthen the shell and avoid sagging or distortion while providing a mounting for the cover retaining elements, hereinafter described. As shown, the metal straps 17 and 18 are rigidly secured to the barrel heads by lag screws 19 anchored in the inner wooden plies 11 of the heads.

A removable and replaceable wooden lining is shown which is composed of the head sections 20 corresponding to the size and shape of the inner head plies 11 which are fitted within the shell respectively against the inner head plies 11. Said lining also includes longitudinally extending sections 21 fitted against the angularly disposed portions of the shell and having abutting beveled edges 22. The lining sections 21 are in-

terposed between the head sections 20 and function as a means for retaining the head sections in place while the endmost longitudinal sections 21 adjacent the barrel opening are secured by screws or other equivalent removable fastening elements 23 which extend through the metal straps 17 and 18 and the ends of the shell 10, these screws or fastening elements being the only required means for retaining the complete lining in place and thereby facilitating its replacement when worn out.

In some instances, one or more partitions may be utilized to subdivide the barrel into spaced compartments and as shown in the present embodiment, the partition 24 which conforms generally to the size and cross sectional configuration of the barrel is interposed between similarly formed wooden liner sections 25. In this instance, the longitudinal sections extend from the head lining sections 20 to the partition lining sections 25 and serve to retain the partition and its lining sections in fixed position. It is, of course, obvious that where no partition is employed, the longitudinal lining sections 21 extend from one head lining section 20 to the other.

The cover or door for closing the barrel opening consists of an inner ply of wood 26 of a size and shape to snugly fit between the end lining sections 21 and an outer sheet metal ply 27 extending beyond the marginal edges of the inner ply and suitably secured thereto. In order to provide an air or dust tight seal, the inner wooden ply 26 is rabbeted as at 28 and the felt gasket 29 is applied to the inner surface of the extending marginal portion of the outer ply and within the rabbeted portion 28. The outer surface of the outer sheet metal ply 27 of the cover or door is reinforced with a marginal frame 30 of metal strap material secured thereto.

The means for removably securing and clamping the cover or door in place consist of a plurality of lugs 31 riveted to the metal strap 17 and under which one edge of the cover is initially inserted. The other metal strap 18 has protruding therefrom threaded studs 32 which are provided with heads 33 countersunk in the under-surface of the strap and having a squared shank portion 34 which is secured by a drive fit in the metal strap to permit ready replacement of the threaded studs in event of breakage or stripping of the threads. Apertured clamping clips 35 are loosely engaged over the studs and wing nuts 36 are employed for tightening the clamping clips down against the cover or door.

The trunnions 37 for mounting and rotating the barrel are provided with apertured flanges 38 through which bolts 39 extend to secure the trunnions in place against the outer surfaces of the barrel heads. As shown, the bolt heads are countersunk in the inner surfaces of the inner plies 11 of the heads where they are protected from loosening by wear by means of the head liners 20 which cover the same to thereby avoid wear on the trunnion bearings.

In order to provide means for optionally ventilating the interior of the barrel to dissipate heat generated by friction where necessary, the barrel head plies as well as the head liners 20 are formed with an annular series of aligned vent openings 40 and 41 and a screen or foraminous disk 42 is countersunk in the inner surface of the inner ply 11 of the head members. Where it is desired in some instances to retain the frictional heat within the barrel where the same is operated in a cold place, pivoted vent cover elements 43 are provided on the outer surface of the heads which are shiftable to and from covering relation to the vents.

In order to counterbalance the weight of the barrel adjacent the cover, longitudinally extending balancing bars 44 are secured to the barrel diametrically opposite the cover to make for an even operation.

What is claimed is:

1. A tumbling barrel comprising an open ended tubular sheet metal shell having angularly disposed contiguous portions, a head closing each of the opposite ends of the shell and including a wooden inner ply and a sheet metal outer ply permanently secured together with said inner ply fitted within the shell, securing means extending through the shell and anchored in said inner ply, a supporting trunnion projecting from each head having securing means extending through both plies thereof and a removable and replaceable wooden lining for said barrel composed of head sections fitted within the shell against the inner plies of the heads and longitudinal sections interposed between the removable head lining sections for retaining said sections in place, said longitudinal sections fitted against the angularly disposed portions of the shell and having abutting beveled longitudinal edges functioning to retain each other in place.
2. A tumbling barrel comprising an open ended tubular sheet metal shell having contiguous angularly disposed portions, a head closing each of the opposite ends of the shell and including a sheet metal outer ply and a wooden inner ply permanently secured thereto and telescopically fitted and permanently secured within the ends of the shell, a supporting trunnion projecting from each head having securing means extending through both plies thereof and a removable and replaceable wooden lining for said barrel composed of head lining sections fitted within the shell against the inner plies of the heads to cover the securing means and protect the inner wooden ply of the head from wear and loosening of the trunnion securing means and longitudinal sections interposed between and retaining the removable head lining sections in place and fitted against the angularly disposed portions of the shell and having abutting longitudinal edges, and means securing the endmost longitudinal lining sections to the shell for removably retaining the head and longitudinal lining sections in place.

JOSEPH LUPO, JR.