Dec. 25, 1945. J. P. ELLIOTT 2,391,449

SANDING DRUM

Filed March 31, 1942

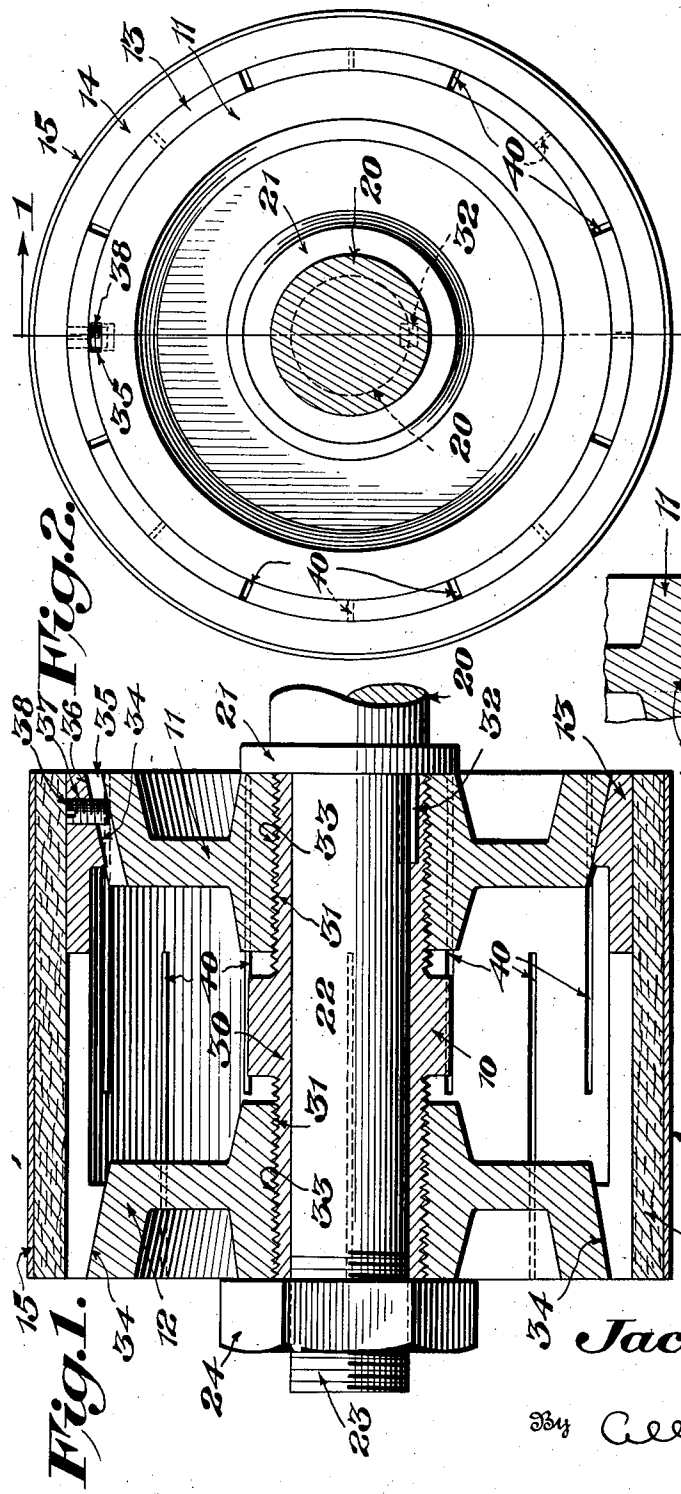


Fig. 1.

Fig. 2.

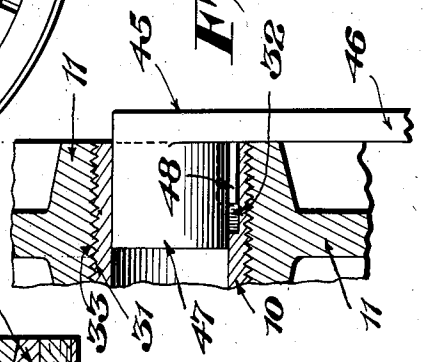


Fig. 4.

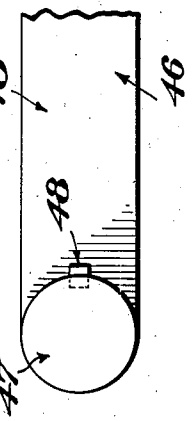


Fig. 5.

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SANDING DRUM

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4 Claims. (Cl. 51—190)

This invention relates to the art of sanding machines, and more particularly to an improved sanding drum therefor.

Prior sanding drums have comprised fixed members provided with an external sanding medium, but these have been objectionable owing to their overheating, non-adjustability, etc.

I have found that it is possible to produce a new and improved sanding drum which eliminates these disadvantages, as pointed out more particularly hereinafter.

It is therefore an object of this invention to provide a new and improved sanding drum.

It is a particular object to produce a sanding drum which is adapted to avoid overheating.

It is another object to provide a sanding drum which can be easily replaced or repaired.

With the above and other objects in view, which will be apparent as the description proceeds, I have set forth my invention in the following specification and have illustrated it in the accompanying drawing, in which:

Figure 1 is a longitudinal sectional view through my improved sanding drum on the line 1—1 of Fig. 2;

Fig. 2 is an end elevation thereof;

Fig. 3 is a partial longitudinal view of a wrench adapted for use in assembling or disassembling my improved sanding drum; and

Fig. 4 is a partial longitudinal section, on an enlarged scale, showing the use of my wrench.

In the accompanying drawing, I have illustrated the preferred embodiment of my invention, which comprises six main parts as follows:

An inner sleeve **10**,
Two (2) tapered heads **11** and **12**,
An outside ring **13**,
A cushioning material **14**, and
A sanding medium **15**.

As best shown in Fig. 1, the sanding drum, when assembled, is adapted to be received on any convenient shaft or arbor **20** provided with a shoulder **21** and a portion of reduced diameter **22** which has a threaded end **23** adapted to receive a lock nut **24**.

The sleeve **10** preferably comprises an elongated hollow member having an enlarged central zone **30** and a threaded periphery **31** on either side thereof, the threads on one side being right hand and those on the other side being left hand threads. It is also provided with a key-way **32** for a purpose to be described later.

Tapered heads **11** and **12** are similar except that one is provided with left hand and the other with right hand internal threads **33** adapted to cooperate with the threaded periphery **31** of the sleeve **10**. As shown, the heads are dish-shaped members provided with an inwardly tapering periphery **34**, preferably at an approximately 10° angle. At least one of these heads, for example head **11**, is also provided with a key-way **35** for a purpose described below.

Ring **13** is provided at each end with a reversely arranged internally tapered portion **36**, corresponding to the internally tapered periphery **34** of heads **11** and **12**, and with a key **38**. The latter may be of any desired type, but is here shown as a threaded key **38** that is received in a transverse threaded aperture and engages the key-way **35** in head **11** or **12**.

A particular feature of my invention is the fact that the ring **13** is also provided with a series of narrow longitudinally extending slots **40** which preferably extend inwardly from the ends of the ring to points beyond the midzone thereof. These slots **40** are cut in staggered relation from the opposite ends of the ring. They act similarly to that of an expanding mandrel for a lathe and also provide additional means for cooling the drum. They also are adapted to provide convenient means for the expansion of the ring without distorting it.

The cushion **14** is of any suitable material, such as felt, and is secured to the periphery of ring **13** in any desired way, as by cementing, to provide a cushion between the metal of the ring **13** and the sanding medium **15**.

The latter comprises a continuous band which is preferably of such diameter that it will adhere to the periphery of the cushion **14** without having to be permanently secured thereto.

As shown in Figs. 3 and 4, I have provided a wrench **45** for use with my improved sanding drum, and this comprises a handle **46** and a cylindrical head **47** at one end thereof. The diameter of head **47** is just sufficiently smaller than the internal diameter of the sleeve **10** to permit its insertion into the latter. Wrench **45** is also provided with an integral key **48** for cooperation with the key-way **32** in sleeve **10**.

When it is desired to assemble my drum, the head **11** is screwed onto the end of the sleeve **10** until the external ends of these members are nearly in alignment. This assembly is then inserted into one end of ring **13**, which has the cushion **14** cemented to its periphery. The key **38** thus engages key-way **35** in head **11**. The other head **12** is then screwed onto the opposite end of the sleeve **10**, and inside of ring **13**, until

the external ends of head 12 and sleeve 10 are nearly in alignment. The sanding medium 15 is then telescoped around the periphery of the assembled drum. Head 11 is then tightened on sleeve 10 by engaging the key 48 on wrench 45 with the key-way 32 in sleeve 10. In this way, the heads are tightened the desired amount and the drum is expanded evenly in view of the staggered slots 40.

When it is desired to use my drum on a sanding machine, it is telescoped onto the corresponding shaft or arbor 20 until the end of the drum abuts the shoulder 21, and nut 24 is inserted on the free end of the shaft 20 and drawn up tightly against the end of the drum, thus locking all threads and other portions of the drum securely in position.

My drum may be made of any desired materials, although I prefer to make the head 11 and 12 out of aluminum for the sake of lightness, and to make the ring 13 out of spring bronze to resist expansion. The cushion 14 is preferably made of felt, although it may be made of any other suitable material. Where I have referred to the sanding medium, it will be understood that this may be sand paper, emery paper, emery cloth, carborundum, or any desired sanding material.

It will be seen that I have therefore developed a new and useful sanding drum which is of general application, although a preferred use is in connection with sanding machines for leather taps and soles, or similar material.

My improved sanding drum is particularly designed to provide a light, inexpensive, and efficient sanding drum which may be easily assembled or disassembled for repair or replacement. It is particularly adapted to provide for expansion under heat, for convenient adjustment, and to dissipate the heat generated in the sanding operation.

It is apparent that many widely different embodiments of this invention may be made without departing from the spirit and scope thereof; and, therefore, it is not intended to be limited except as indicated in the appended claims.

I claim:

1. A sanding drum comprising an internal sleeve, a pair of tapered heads secured on opposite ends thereof, a metal ring surrounding said heads, and a sanding medium around the periphery of the ring, the ring being provided with a plurality of longitudinally extending expansion slots.

2. A ring for a sanding drum, comprising a longitudinal sleeve-like member provided with a plurality of expansion slots extending inwardly from opposite ends thereof in staggered relation.

3. A sanding drum, comprising a hollow internal sleeve whose ends are reversely threaded, a pair of internally threaded heads for engagement with the threaded portions of the sleeve, reversely arranged tapering surfaces on the periphery of the heads, a continuous metal ring provided with similar reversely arranged tapered internal surfaces for cooperation with the tapered surfaces of the heads, means for preventing turning between the ring and the heads, a cushion surrounding the periphery of the ring, and a sanding medium arranged around the periphery of the cushion.

4. A sanding drum, comprising a hollow internal sleeve whose ends are reversely threaded, a pair of internally threaded heads for engagement with the threaded portions of the sleeve, reversely arranged tapering surfaces on the periphery of the heads, a metal ring provided with similar reversely arranged tapered internal surfaces for cooperation with the tapered surfaces of the heads, means for preventing turning between the ring and the heads, a cushion surrounding the periphery of the ring, and a sanding medium arranged around the periphery of the cushion, the ring being provided with a plurality of longitudinally extending slots extending inwardly from the opposite ends of the ring to permit the uniform expansion of the drum and facilitate the dissipation of heat therefrom.

JACK P. ELLIOTT.