Oct. 16, 1923. 1,470,740

T. S. HOSE

POLISHING WHEEL

Filed Jan. 23, 1922

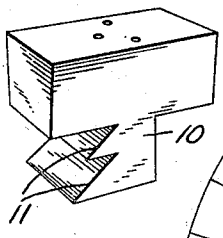


Fig. 5.

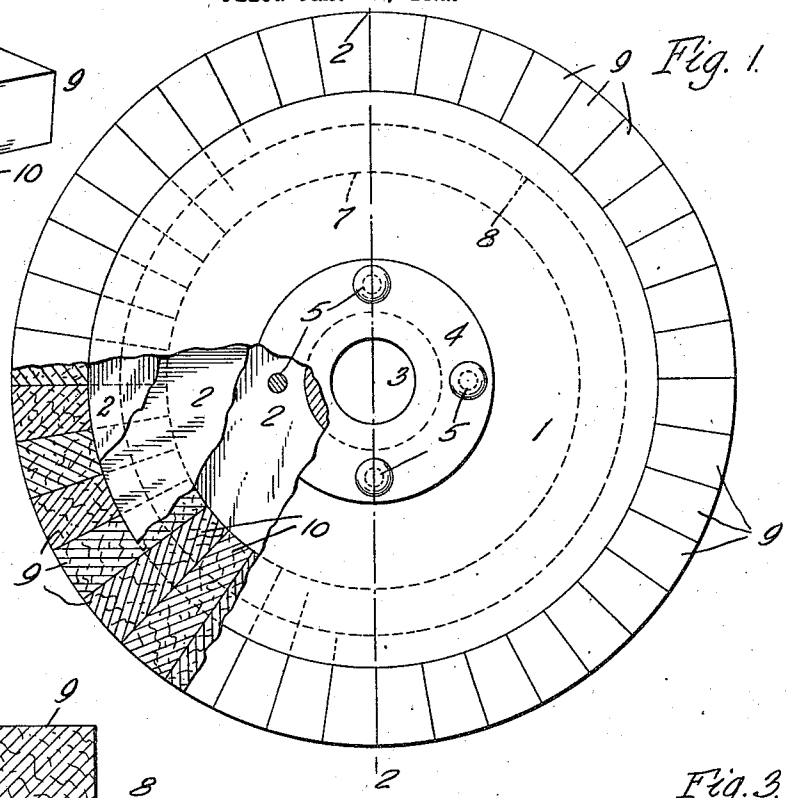


Fig. 1.

Fig. 2.

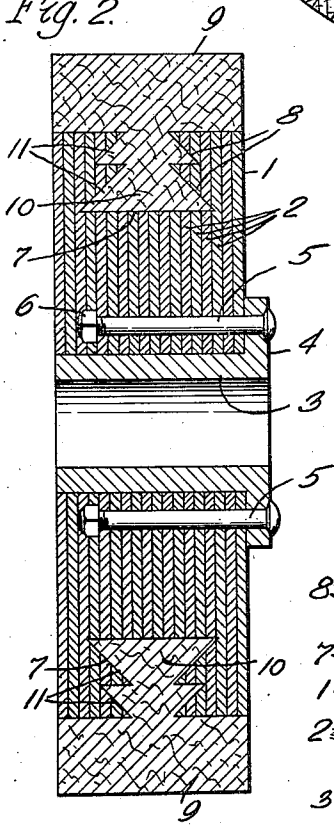
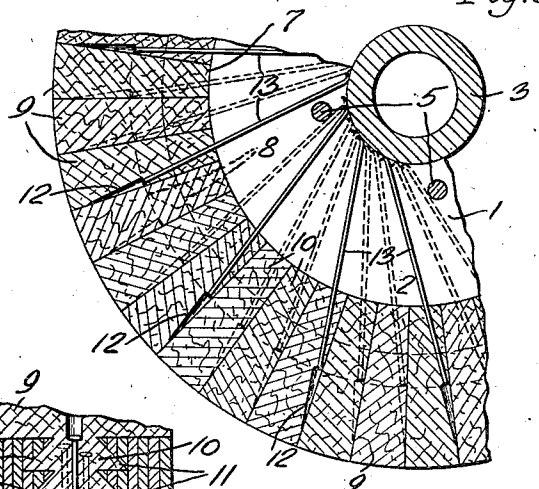


Fig. 3.



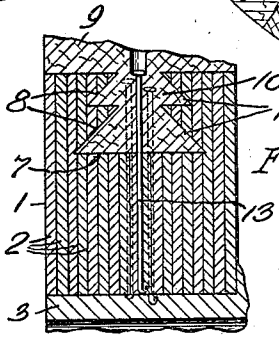


Fig. 4.

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UNITED STATES PATENT OFFICE.

TITUS S. HOSE, OF LITTLE FALLS, NEW YORK.

POLISHING WHEEL.

Application filed January 23, 1922. Serial No. 531,057.

To all whom it may concern:

Be it known that I, TITUS S. HOSE, a citizen of the United States, residing at Little Falls, in the county of Herkimer and State of New York, have invented a new and useful Improvement in Polishing Wheels, of which the following is a specification.

This invention relates to polishing wheels of that type having a wooden center on which is supported a polishing pad.

One of the objects of the invention is to provide, in a polishing wheel, a light center of wood which will not warp and thereby distort the wheel, and which will have increased resistance against bursting strains resulting from driving the wheel at high polishing speeds.

Another object of the invention is to provide an improved means for securing the polishing pad to the periphery of the wheel to hold it securely in position and against the centrifugal force developed by rotating the wheel at high polishing speeds..

Another object of the invention is to provide an improved means for securing the metallic thimble, which is adapted to fit over the driving spindle of the wheel, in position in the wooden center.

Other objects and advantages of the invention will appear more fully hereinafter.

For the purpose of disclosing the invention one embodiment thereof has been illustrated in the accompanying drawings, and in said drawings—

Fig. 1 is a side elevation of a wheel embodying the invention, a portion thereof being shown in section,

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1,

Fig. 3 is a longitudinal sectional view showing the manner of inserting the securing nails for the pad segments,

Fig. 4 is a detail section showing the means for securing the pad segments in position, and

Fig. 5 is a perspective view illustrating one of the pad sections.

In the embodiment of the invention illustrated the center or core 1, on which a polishing pad is arranged to be mounted, is formed of a plurality of laminations or veneers 2 preferably formed of wood, the laminations being arranged side by side in a cross-grained relation and preferably with the grain of one lamination at right angles to the grain of the next succeeding lamination. In constructing this core or center 1, the laminations are preferably assembled before the core is turned to its disc form. The wooden laminations in their rough form are substantially square and are laid one on top of the other, the grain of each being across the grain of the next adjacent one until a sufficiently thick block is produced, a layer of glue being interposed between each lamination to secure them together. The square laminations thus assembled each preferably has a central opening to receive the metal thimble 3. This thimble is provided with a flange 4 through which the securing bolts 5 pass and project into the wooden center. After a certain number of the laminations have been assembled the nuts 6 of the securing bolts 5 are screwed onto the bolts thereby clamping the thimble and laminations together, the threaded ends of the bolts being headed over the nuts to prevent any danger of the bolt from turning out of the nut. The remaining laminations are then placed in position thereby entirely concealing the nuts of the bolts and rigidly holding them in position. The entire structure thus formed is then placed under pressure and held in position until the glue between the laminations has had ample time to harden. After the glue has hardened and the structure become a practically solid piece, the squared block thus built up is secured upon a suitable thimble or turning member of a lathe or other device and the circular disc forming the center core turned out. By assembling the laminations in their squared form and afterwards turning the wheel, the assembling of the laminations in a cross grained relation is insured and a perfectly smooth periphery on the wheel provided. Such a manner of assembly is preferable to cutting the laminations into disk form first, as by this latter arrangement there is danger of not getting the laminations in proper cross-grained relation and, furthermore, the glue will tend to squeeze out around the periphery of the disks thus leaving the periphery of the wooden center rough.

After the wooden center or core has been trimmed to a circular shape, a recess 7 is formed in its outer periphery having in each of its side walls annular, concentric beveled grooves 8, thus forming a double dove-

tailed groove to receive the fastening tongue of the polishing pad segments.

The polishing pad, mounted on this wooden center or core is preferably composed of leather although it may be made of other material, such for instance as paper, canvas, fiber or any polishing material desired, and consists of a series of segments 9 of substantially of the same width as the wooden center. These segments are arranged side by side peripherally on the wooden center and each block is provided on its under face with an integral tongue 10 having on its opposite faces a pair of beveled lateral flanges 11 arranged to fit in the beveled grooves 8, forming a double dove-tailed tongue and groove connection between the segment and core or center 1. By forming the recess 7 with the double dove-tailed grooves 8 as shown, a relatively deep recess is formed, to permit the use of segments with very strong, deep tongues to resist the bursting strains due to high polishing speeds. The grooves 8 nevertheless do not unduly weaken the center disk, as would a single dove-tailed groove of equal depth as the intermediate shoulder between the grooves materially reduces the amount of wood removed and greatly strengthens the connection between the center disk and the segments. In assembling these segments 9 on the core, they are preferably turned endwise to permit the tongue 10 to be inserted in the perpheral recess 7 and afterwards turned crosswise to throw the flanges 11 into the beveled grooves 8. Diagonally extending through each of the segments from one face thereof is a countersunk recess 12 into which is driven, after each segment is placed in position, a securing nail 13 which passes diagonally through the tongue portion of the segment and into the wood center, the nail being sufficiently long to cause its end to strike against the metallic thimble 3 and be clinched, thus securely holding the segment in position. In addition to this holding means, each tongue is seated in glue.

The pad segments are thus assembled around the periphery of the center wooden core and are all of the same shape, with the exception of the last. This last segment has the two laterally extending flanges 11 on one side only to permit the tongue 10 being inserted in the groove without turning the segment endwise and that portion of the groove not filled by the flanges is filled with glue. An additional holding means for this segment is provided in the form of a plurality of nails 13 driven straight through from the top of the segment and countersunk. It will be noted that the heads of the securing nails 13 are all at or below the periphery of the wooden core or center so that the polishing pad may be worn down clear to the wooden core without danger of scratching the surface to be polished. By the arrangement above described the pad is supported on its underside at all points on the wheel so that there is no danger of the pad sinking in the center or being bent down at its outer edges. Furthermore, the sections are held in position without compression so that all portions of the polishing pad are of equal density.

I claim as my invention:

1. In a polishing wheel, a center disk built up of a plurality of wooden laminations, the grain of the wood of one lamination being at an angle to the grain of the wood of its adjacent lamination, said disk having a peripheral recess therein and having an annular groove in each of the side walls of said recess, and a polishing pad mounted on the periphery of said disk comprising a plurality of segments of polishing material arranged peripherally side by side on the disk, each segment having a tongue fitting within said recess and having oppositely disposed flanges engaging in said side wall grooves.

2. In a polishing wheel, a central disk built up of a plurality of wooden laminations, the grain of the wood of one lamination being at an angle to the grain of the wood of its adjacent lamination, said disk having a peripheral recess therein and having a plurality of concentric annular grooves and an intermediate shoulder in the side walls of said recess, and a polishing pad mounted on the periphery of said disk and comprising a plurality of segments of polishing material arranged peripherally side by side, each segment having a tongue fitting in said recess and a plurality of laterally extending flanges on each side of said tongue interfitting in said annular side wall grooves.

3. In a polishing wheel, a center disk formed of a plurality of laminations, the grain of the wood of one lamination being at an angle to the grain of the wood of its adjacent lamination, a center metallic thimble extending through said disk having a flange embracing a side of the disk, bolts extending through said flange and into said disk, nuts on the ends of said bolts imbedded in the wood of the disk and covered by a portion of the laminations comprising the disk, and a polishing pad secured on the periphery of said disk.

4. In a polishing wheel, a center wood core having a peripheral recess therein and a plurality of concentric grooves and an intermediate concentric shoulder in each of the side walls of said recess, and a polishing pad comprising a plurality of segments of polishing material arranged side by side around the periphery of said wheel, each segment having a tongue fitting in said re-

cess and a plurality of lateral flanges and an intermediate groove on each side of said tongue arranged to interfit with said concentric grooves and shoulder in the side walls of said recess.

5. In a polishing wheel, a center wooden core having a metallic thimble extending through the center of said core, a polishing pad on the periphery of said core comprising a plurality of segments of polishing material arranged side by side around the periphery of said core, and securing nails for said sections countersunk below the surface thereof extending into the wooden core and having the inner ends clinched on said thimble.

6. In a polishing wheel, a central wooden core having a metallic thimble extending through the center thereof, a polishing pad on the periphery of said core comprising a plurality of segments of polishing material arranged side by side around the periphery of said core, and securing nails extending diagonally from one side through each of said segments and into the central wooden core and having their inner ends clinched on said metallic thimble.

TITUS S. HOSE.