

No. 683,959.

Patented Oct. 8, 1901.

G. W. MARBLE.
LOOSE WOOD PULLEY.
(Application filed May 21, 1900.)

(No Model.)

FIG. 1.

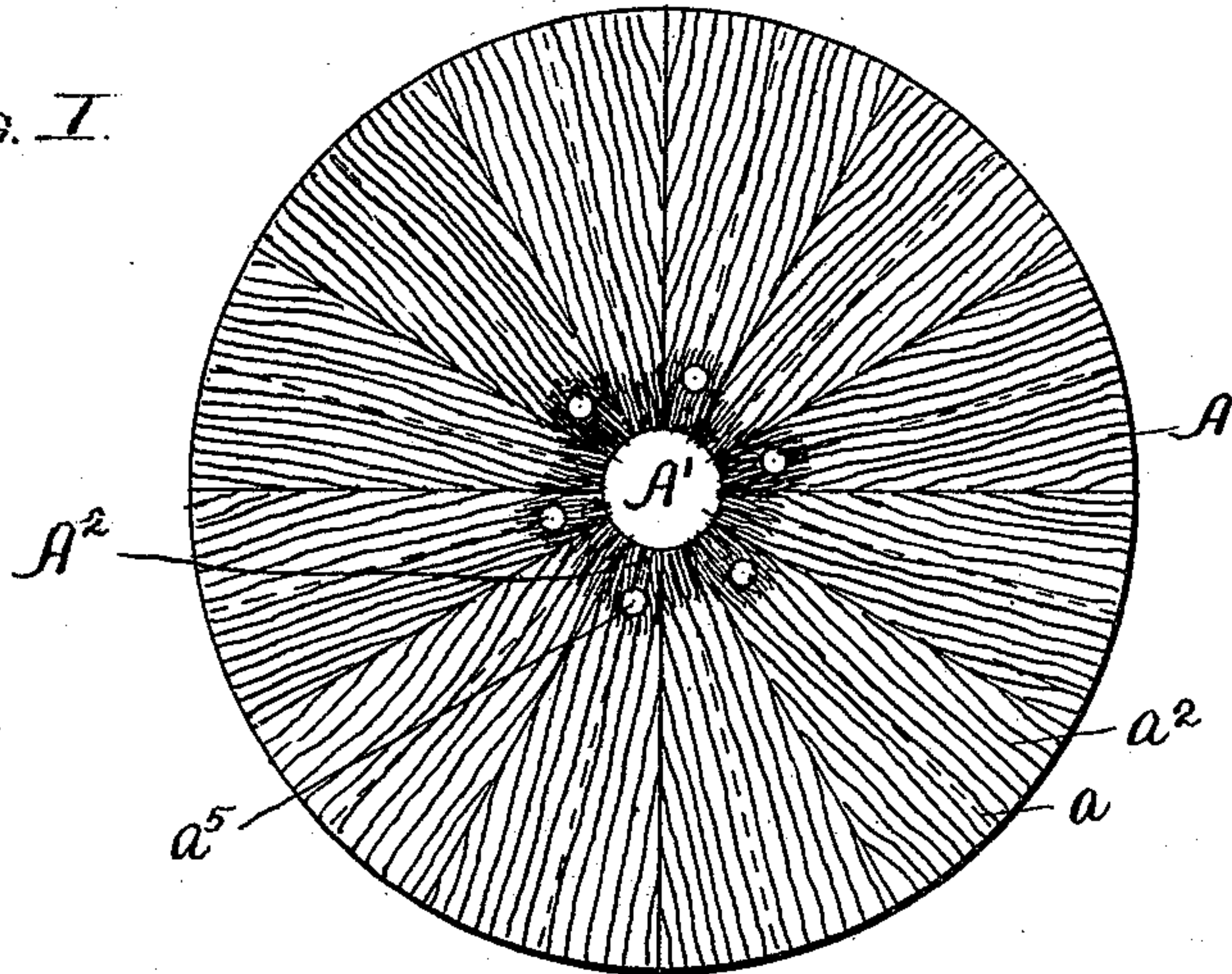
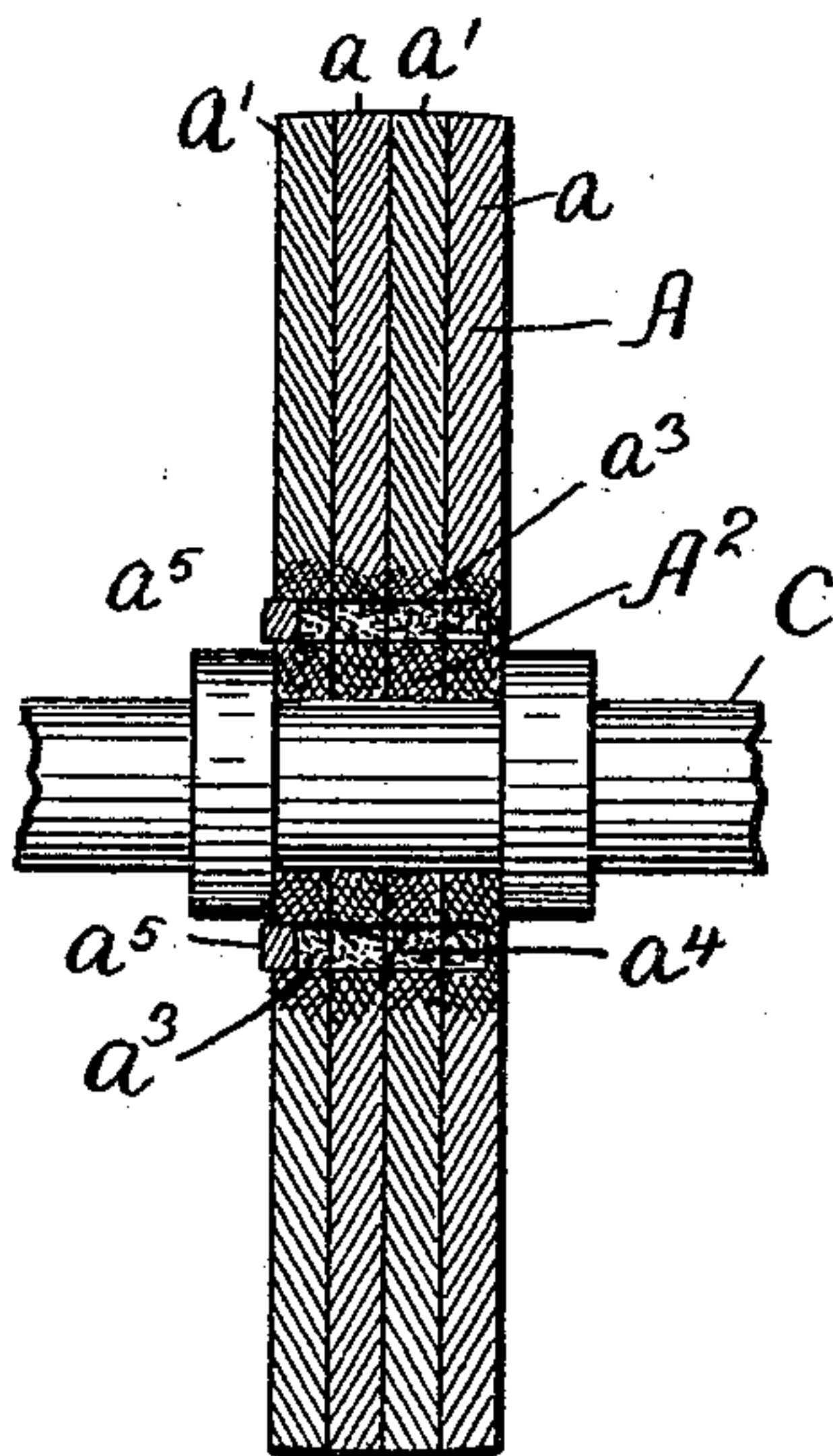


FIG. 2.



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LOOSE WOOD PULLEY.

SPECIFICATION forming part of Letters Patent No. 683,959, dated October 8, 1901.

Application filed May 21, 1900. Serial No. 17,328. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MARBLE, a citizen of the United States, residing in Plymouth, in the county of Marshall and State of Indiana, have invented a new and useful Improvement in Loose Wood Pulleys, of which the following is a specification.

My invention relates to improvements in wood pulleys of the class commonly known as "loose pulleys," and which are designed to rotate on their shaft. These loose wood pulleys as heretofore constructed are generally provided, in order to give them durability, with metal centers furnished with Babbitt or other soft metal bushings, which can be renewed from time to time when the bushings become worn. The metal centers and soft-metal bushings add considerably to the cost of the pulleys and occasion a good deal of annoyance, inconvenience, and delay from the necessity of frequently renewing the soft-metal bushings.

The object of my invention is to provide a loose wood pulley of a much simpler and cheaper construction than those heretofore in use, and which at the same time will be far more durable and less liable to get out of order.

My invention consists in the means I have discovered and employ to practically accomplish this important result and which, I have fully demonstrated by my experiments, will and does, in fact accomplish it—that is to say, it consists in a loose wood pulley having a central hole or bearing through the wood to receive the shaft upon which the pulley turns, and consisting or built up of a series of layers of sector-shaped wood pieces, each having the grain of the wood extending in the direction of the length of the sector or radially of the pulley, said pulley having the pores of the wood in the central portion of the pulley saturated or impregnated with lubricant, and being provided at the central portion thereof near the shaft with transverse holes or pockets charged with lubricant, so that the lubricant may gradually but continually feed through the pores of the wood in a radial direction to the shaft, and thus keep the shaft and pulley bearing continually and properly lubricated. The pulley is preferably made up of alternate layers or

pieces of hard or close-grained wood and of soft or porous wood. The combined hard and soft wood pulley thus unites in itself the advantages of the hard wood in respect to wear and of the soft wood in respect to the porosity and feed of the lubricant through its pores. My loose wood pulley is thus rendered surprisingly and extraordinarily durable and is caused to run almost without any appreciable friction or wear.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of a loose wood pulley embodying my invention, and Fig. 2 is a central section of the same.

In the drawings, A represents a loose wood pulley, having a hole A' through the central portion or bearing A² of the same to receive the shaft C and composed or built up of a series of layers of thin flat sector-shaped pieces of wood a a', having the grain or fiber a² of the wood extending in the direction of their length—that is to say, radially of the pulley—and having the central portion or bearing A² thereof surrounding the shaft-hole A' saturated or impregnated with lubricant and provided with a number of holes or pockets a³, charged with lubricant a⁴ and closed by plugs a⁵, so that the lubricant may feed or flow radially toward and to the shaft through the pores of the wood, the pores extending lengthwise of the sectors or in the direction of the grain of the wood. The layers or sector-shaped wood pieces comprising the pulley may be secured together by glue, nails, screws, or other fastenings. The sector-shaped pieces of one layer should overlap or break joints with those of adjacent layers. In pulleys of large sizes the central or hub portion A² and the outer or rim portion of the pulley may be made thicker or composed of a greater number of layers than the intermediate or web portion. The wood sector-shaped pieces a are preferably of hard wood, and those marked a' are preferably of soft or porous wood. The lubricant feeds or flows from the pocket a³ radially through the pores of the wood to the surface of the shaft and is spread by the shaft over the entire inner surface of the hole A' in or bearing A² of the pulley, so that the pores of the wood which are not cut by or in line with the pocket a³ may absorb the lubri-

cant, and thus keep themselves charged or impregnated therewith. The entire bearing-surface A^2 of the hole A' is thus kept constantly and perfectly lubricated without any waste and with the least possible amount of lubricant.

In constructing my loose wood pulley I first build it up of and glue or otherwise secure together the thin flat sector-shaped pieces $a a'$ comprising it and turn it to shape, and then apply the lubricant to a hot pipe or spindle, onto which I slip the pulley and let it there remain until the pores of the wood by absorption have impregnated the central portion or bearing A^2 of the pulley with the lubricant, and I then fill or charge the pockets a^3 , when the pulley is ready for use. As the central portion A^2 of the pulley is impregnated with lubricant at the time the pulley is manufactured and before it is sold and put into use, its bearing-surface A^2 on the shaft C will not wear or heat, as the lubricant will have time to feed from the pockets a^3 through the pores of the wood before the pulley can begin to heat or wear.

In my invention, if desired, especially in large sizes, the outer rim and the intermediate or web portion of the pulley may be made of other materials than wood or of pieces of wood in which the grain extends in other directions than radially, as in my invention it is only essential that the central, hub, or bearing portion of the pulley surrounding the shaft and bearing thereon and through the pores of which the lubricant feeds from the pockets therein should have the grain of the wood extending radially or standing endwise against the shaft.

In my improved pulley as the oil or lubricant is soaked into and confined within the wood bearing and can only feed very slowly through the pores of the wood to the shaft the shaft and bearing are at once always kept perfectly lubricated, so that the pulley runs without friction or wear and without any noise or rattle and with no waste whatever of the oil or lubricant, while at the same time the oil cannot accumulate on the surface of the rotating shaft or pulley, so as to be thrown and scattered over the belt or other surrounding objects. My pulley also requires but little or no attention, as all that is required is to see every two or three months that the lubricant-pockets are refilled, whereas in the loose pulleys heretofore in use, with metal centers and babbitt bushings, much time and attention are required to keep them properly oiled or lubricated, and the lubricant when applied being on the surface of the metal shaft and metal bearing of the pulley the lubricant is wasted and thrown over surrounding objects and the belt is liable to become soon saturated with oil and thus ruined, much care, time, and labor are required to keep the bushings rebabbitted from time to time, and great noise is occasioned in the factory by the rattle and clatter of such loose

pulleys. It is well known that loose pulleys are one of the chief causes of noise in factories. All these difficulties and objections are overcome by my invention.

I claim—

1. A loose wood pulley having a central hole to receive the shaft upon which the pulley turns, and consisting or built up of a series of layers of sector-shaped pieces of wood having the grain of the wood extending in the direction of their length or radially of the pulley, said pulley having the central portion thereof surrounding the shaft-hole saturated with lubricant, and provided with pockets charged with lubricant, so that the lubricant may feed or flow slowly and continually radially toward and to the shaft through the pores of the wood as required to keep the shaft properly lubricated to prevent friction or wear, substantially as specified.

2. A loose wood pulley having a central hole to receive the shaft upon which the pulley turns, and consisting or built up of a series of layers of sector-shaped pieces of wood having the grain of the wood extending in the direction of their length or radially of the pulley, said pulley having the central portion thereof surrounding the shaft-hole saturated with lubricant, and provided with pockets charged with lubricant, so that the lubricant may feed or flow slowly and continually toward and to the shaft through the pores of the wood as required to keep the shaft properly lubricated to prevent friction or wear, said sector-shaped pieces of wood being in part of hard wood and in part of soft or porous wood, substantially as specified.

3. The loose wood pulley A , composed of a series of layers of thin, flat sector-shaped pieces of wood, having the grain of the wood extending in the direction of their length, said pulley being provided at the central portion thereof with pockets a^3 charged with lubricant, the lubricant feeding through the pores of the wood to the shaft, substantially as specified.

4. A loose wood pulley having a central hole to receive the shaft, and comprising a series of sector-shaped pieces of wood having the grain of the wood extending radially of the pulley, and provided with pockets charged with lubricant, the lubricant feeding through the pores of the wood to the shaft, substantially as specified.

5. The combination with a shaft, of a wood bearing, the one rotating in respect to the other, said bearing comprising a series of sector-shaped pieces of wood having the grain thereof extending radially and provided with pockets for the lubricant, the lubricant feeding through the wood in line with its grain to the shaft, substantially as specified.

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Witnesses:

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