W. C. NASH.

PRESS ROLL FOR PAPER MAKING MACHINES.

APPLICATION FILED NOV. 29, 1907.

912,254. Patented Feb. 9, 1909.

Fig. 1.

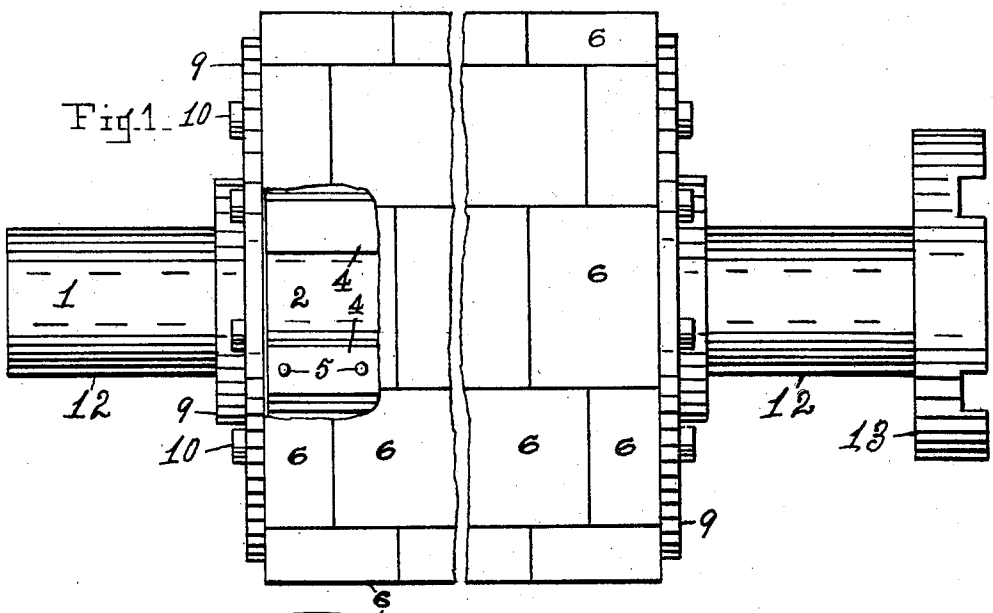
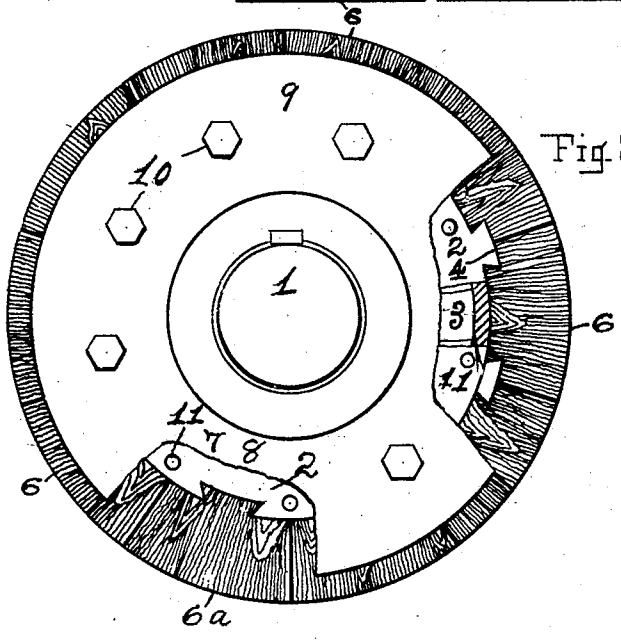


Fig. 2.



WITNESSES:

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PRESS-ROLL FOR PAPER-MAKING MACHINES.

No. 912,254. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed November 29, 1907. Serial No. 404,459.

To all whom it may concern:

Be it known that I, WILLIAM C. NASH, a citizen of the United States, residing at Neenah, in the county of Winnebago and State of Wisconsin, have invented a new and useful Press-Roll for Paper-Making Machines, of which the following is a specification.

My invention relates to improvements in the construction of the roll by forming its surface of many blocks of wood of any suitable kind which are secured upon a metallic core with the grain of the wood arranged to lie in a radial direction, as near as possible, from the center of the roll, and the objects of my invention are, first, to produce a roll at a much lower cost than one formed of a single solid log in which the grain of the wood runs lengthwise of the roll; second, to form a roll having superior wearing qualities to one in which the grain is arranged in a direction parallel with the length of the roll, as with the grain arranged at right angles with the surface, the soft and sappy parts of the log from which the blocks are made can be avoided; third, to avoid all knots and knurls and obtain a surface of even texture; fourth, to reduce the amount of lumber in the roll from what would be required if made from a solid log; fifth, to make the roll of what would be waste material in other industries; sixth, to prevent the roll from swelling out of round in consequence of the direction in which the grain of the wood is arranged; seventh, to avoid any liability of splinters breaking off, as they sometimes do when the grain runs lengthwise of the roll; eighth, to produce a roll with a much harder surface than one in which the grain runs lengthwise of the roll; ninth, to produce a roll of any desired length and diameter without a long search in the forest over many acres of land for a tree that will meet the requirements of the roll. I attain these objects by the construction illustrated in the accompanying drawing, in which,—

Figure 1 is a side elevation of a roll, broken intermediate its ends, constructed in accordance with my improvement. Fig. 2 is an end view of the roll, a part of its metallic flange at the end of the roll being broken for showing the manner in which the roll is constructed.

Similar numerals and letters indicate like parts in the several views.

1, indicates the journal shaft upon which the roll is mounted; 2, a metallic core, or drum, upon said shaft, which core can be cast hollow as shown at 3 in Fig. 2 and in practice is made integral with the shaft 1. 4, indicates dovetails, which may be integral with the core, or made separate and secured to the core with bolts 5; 6, indicates wood blocks which are connected with the core by means of dovetails 7 thereon, and their engagement with the dovetails 4 upon the core.

If desired, dovetails may be formed upon the blocks and grooves, as 8, cut in the core as shown at the block 6^a, at the lower side of Fig. 2. The blocks are to be made in suitable sizes lengthwise of the roll with a rectangular outer surface and preferably, so as to break joints with the joints of adjacent rows, the length of the rows being uniform and a little in excess of the length of the core, so that when the end flanges 9, are drawn by their bolts 10 toward the ends of the core, which the bolts engage with through the bolt holes 11, the blocks can be compressed tightly together. The blocks being individual and in no way connected with any other block, if at any time one or more in a row prove to be defective, by removing the bolts 10, one of the flanges 9 can be removed and the defective block replaced by a perfect one, without disturbing the blocks in any other row.

12, indicates the journals of the shaft and 13, a clutch coupling by which the roll may be driven.

In making the roll the blocks and dovetail parts are to be accurately fitted to the core and mounted thereon. The timber from which the blocks are made is to be thoroughly kiln dried and the blocks formed of the proper dimensions, with the grain of the wood running endwise from the surface of the core, or radiating as near as is practicable from the center of the roll. After being thus dried and fitted to the core and clamped together with bolts 10, they should be soaked in water until sufficiently swelled and then turned off to a perfect surface and the required diameter, no joints being visible between the blocks. A surface can be thereby produced of selected material, of a uniform hardness, of great wearing qualities, and one that will retain a round form.

I am aware that rolls have been made in which the grain of the wood was arranged radially with the axis of the shaft, as in patents to Sargent and Sargent, #431,174, July 1,

1890, and Fletcher, #800,845, Oct. 3, 1905, but the rolls were made up of a plurality of disks formed of several segments, instead of individual blocks as in this improvement. I am also aware of the pulley of Winter, #662,046, having a core with longitudinal ribs and wooden facing blocks, but said blocks extend the entire length of the face of the pulley, the grain running lengthwise of the face, and the blocks are counterbored upon their outer surface for providing fastening means for the blocks, which counterbores would destroy the surface as a press roll.

Having described my invention, what I claim and desire to secure by Letters Patent, is,—

In a press roll, in combination, a shaft, a metallic core mounted upon said shaft and revoluble therewith, a series of metallic dovetail strips arranged longitudinally around the core, and projecting from its cylindrical surface, a covering for the core consisting of longitudinal rows, corresponding in number with the number of said dovetail strips which are mounted upon said core and are composed of a plurality of individual blocks of wood having a rectangular outer surface, each block having a dovetail upon its inner surface for being engaged with the dovetails of the strips, upon the aforesaid core, a flange upon each end of said shaft, and a plurality of bolts fitted to pass through each flange and into the core and to clamp the blocks of said rows together upon the core, and between said flanges.

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Witnesses:
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