

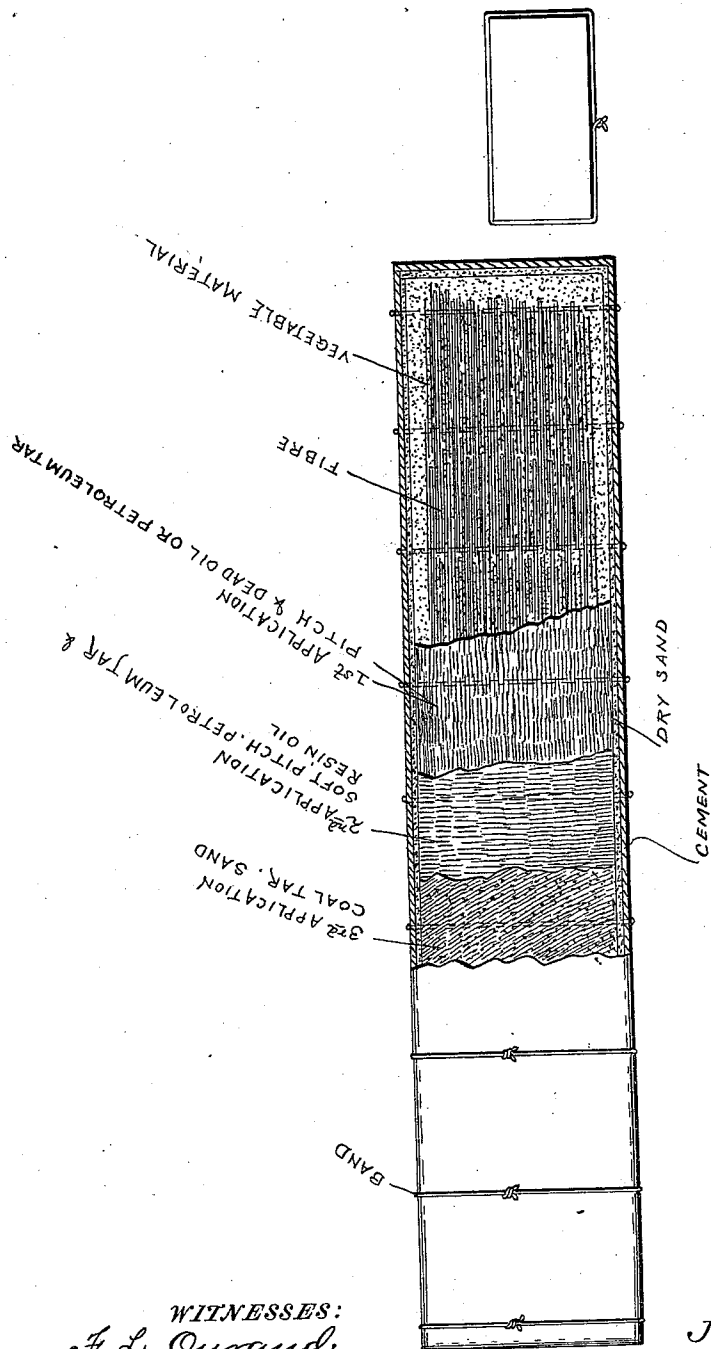
(No Model.)

J. H. AMIES.

PROCESS OF MANUFACTURING COMPOSITION RAILWAY TIES, &c.

No. 553,821.

Patented Feb. 4, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH H. AMIES, OF PHILADELPHIA, PENNSYLVANIA.

PROCESS OF MANUFACTURING COMPOSITION RAILWAY-TIES, &c.

SPECIFICATION forming part of Letters Patent No: 553,821, dated February 4, 1896.

Application filed May 31, 1895. Serial No. 551,272. (No specimens.)

To all whom it may concern:

Be it known that I, JOSEPH H. AMIES, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Processes of Manufacturing Composition Railway-Ties, &c.; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in processes for manufacturing composition railway ties or sleepers, fence-posts, building-blocks, and other similar articles.

The accompanying drawing represents a railway-tie constructed according to my invention, partly broken away to show the interior construction.

In carrying my invention into effect I take any long-line fibers—such, for instance, as sea-grass, marsh-reeds, salt-hay, palmettoes or the like—and when necessary pass them through a suitable machine for reducing their diameters, but without reducing more than possible their lengths. These fibers are then placed in a suitable press, in one direction as near as possible, with their ends overlapping or breaking joints, as it were, so as to produce the necessary transverse length. With these fibers may be incorporated a filling of fine or powdered vegetable material, such as sawdust or ground peat. The fibers and filling are now subjected to a very heavy pressure, sufficient to give them a density of, say, from forty-five to seventy pounds to the cubic foot, so that the tie when completed will be sufficiently homogeneous to securely hold a nail or spike driven into it. While the fibers are still in the press they are bound with iron or steel bands or wire, flat or round, and from three to eight inches apart. After having thus been compressed and bound, the article so formed is then taken from the press and immersed in a boiling composition which consists preferably of soft pitch, petroleum, tar, or dead-oil in the proportions of about one-eighth to one-twelfth of the pitch and from seven-eighths to four-twelfths of the tar or dead-oil. This compound oil will penetrate the fibers to from one-eighth to one-fourth of

an inch. To still further facilitate the penetration of said oil, I immerse the article in a second and heavier composition of soft pitch, petroleum, tar, and resin-oil in the proportions of about ten-twelfths pitch, one-twelfth tar, and one-twelfth resin-oil. This second composition will readily blend with the first and will cause the composition to penetrate from one to three inches. As the article thus produced would be very inflammable if left in this condition, I use a third application which also causes the further penetration of the oil. This composition consists of any kind of oil which does not readily mix and blend with the former compositions—such as coal-tar, bitumen or asphalt. I bring this oil to the boiling-point, add a suitable quantity of sand or hydraulic cement thereto and dip the ties or articles therein, and let them remain therein for a suitable length of time. This last application, owing to the resistance and weight, will cause the first and second application to run or penetrate deeply into the tie. The hot gummy surface of the tie is now covered with dry sand and hydraulic cement to secure a stone surface and render the tie non-inflammable.

Having thus fully described my invention, 80 what I claim is—

The process herein described of making composition railway-ties and other objects, which consists in the following steps: first subjecting overlapping long vegetable fibers and a filling of fine or powdered vegetable matter to great pressure and binding them together with wire or other fastenings; then immersing them in a boiling composition of thin vegetable oil; then immersing them in a boiling composition of heavier vegetable oil which will readily blend therewith; then immersing them in a mineral oil having sand and hydraulic cement incorporated therewith, and finally coating the hot gummy surface with dry sand and hydraulic cement; substantially as specified. 95

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOSEPH H. AMIES.

Witnesses:

J. B. JOSLIN, Jr.,
THOMAS F. GROSS.