April 5, 1927. 1,623,185

J. J. HINDE

RAILWAY TIE

Filed July 17, 1926

Fig. 1

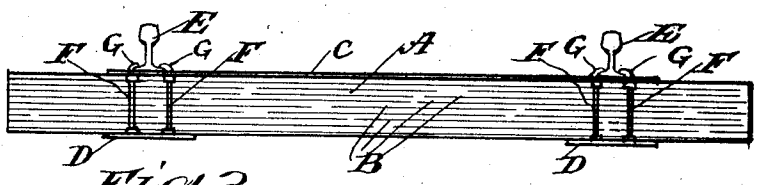


Fig. 2

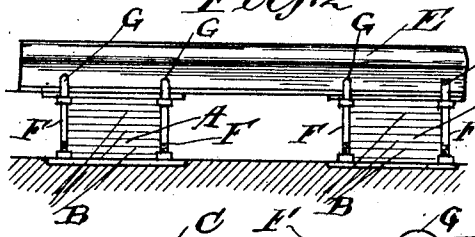


Fig. 3

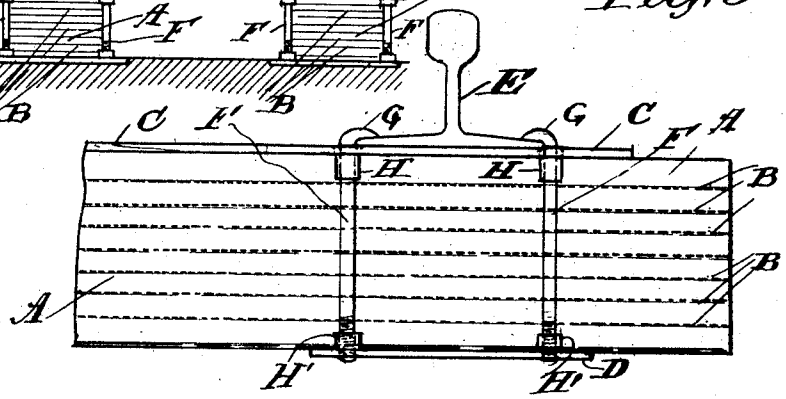
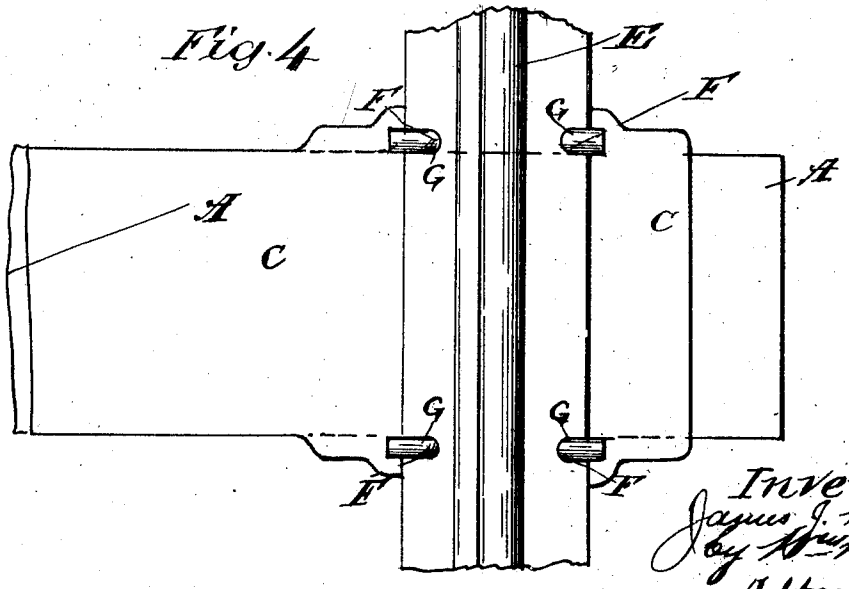


Fig. 4



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UNITED STATES PATENT OFFICE.

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RAILWAY TIE.

Application filed July 17, 1926. Serial No. 123,111.

The object of this invention is to utilize old railway ties and other waste lumber or timber accumulating in and around railway yards or tracks in the production of railway ties, and thus in addition to conserving the waste material to produce ties at a greatly reduced cost and conserving the forest supply of tall timber for other purposes.

The invention includes a reinforced laminated railway tie composed of alternating layers of shredded wood saturated with an adhesive and waterproofing material and a metal reinforcement, and the process or method of constructing the same, as hereinafter described, illustrated in the accompanying drawings and specifically pointed out in the claims.

In the accompanying drawings Fig. 1 is a side elevation of a railway tie constructed by my improved method. Fig. 2 is a side elevation of a short portion of track showing two ties; Fig. 3 is an enlarged side elevation of one end of the tie; Fig. 4 is a plan thereof.

In these drawings A represents the body of the tie which is composed of layers of shredded wood saturated with a binding and waterproof material such as asphalt. B, B are intermediate layers of wire netting or other metallic reinforcement. C and D are upper and lower metal plates, one being above the tie and the other below it. E, E, are the rails which lie upon the upper plate and F, F, are screw rods which connect these plates and are provided with heads G, G, which are clamped over the flanges of the rails.

The plates are preferably provided with integral sleeves H, H through which the rods F, F, pass, the sleeves H, H being screw threaded. The upper plates extend across both of the rails to prevent them from spreading and creeping, but the lower plates may be much shorter. These ties are constructed as follows:

Waste wood material such as old discarded railway ties are first chipped in a suitable chipping machine into small chips, which are then shredded into small particles which are boiled to soften them. The moist product is then fed into a disintegrator which refines the mass into long and short fibres suitable to be woven together into a suitable mixture to be gathered upon a revolving screen. After being gathered to a mass of suitable thickness it is carried between open mesh screens between successive revolving press rolls, where the mass is compacted and the excess of moisture is squeezed out of it. From this wet press it is carried to a drying apparatus where the remaining moisture is extracted, leaving the flattened sheets with a suitable amount of porosity to absorb readily asphalt, tar or other waterproofing compound.

It is then ready to be saturated with the waterproofing material, and compressed with interposed sheets of wire cloth or other metal reinforcement into a unitary structure of suitable size and shape to form railway ties or other useful timber.

In this manner a tie is constructed which is sufficiently strong to bear the weight of rolling stock, and at the same time is sufficiently resilient to relieve the rolling stock from the jar and shock incident to a metal or concrete roadbed. The tie thus constructed will possess the resilient qualities of wooden ties and will also be much more practicable and durable in use, and more economical in its initial cost.

Having described the invention, what I claim as new and desire to secure by Letters Patent is:

1. An article of manufacture comprising a shaped mass composed of layers of compressed, shredded woody fibre saturated with a binding and waterproofing material and vertically spaced open mesh weave metallic reinforcing material through the openings in which the wood fibers are thoroughly embedded and interwoven.

2. An article of manufacture comprising a shaped mass composed of layers of compressed, shredded woody fibre saturated with a binding and waterproofing material and interposed reinforcing members composed of metallic open mesh material, said mass being subjected to pressure to intimately incorporate said fibers with said woven material.

3. A railway tie comprising a body formed of porous shredded woody fiber having embedded therein an open mesh metal reinforcement, said tie being saturated with an adhesive and waterproofing material, said fiber being incorporated in said open mesh reinforcement by pressure.

4. The hereinbefore described method of constructing a railway tie of sufficient flexibility to absorb the shock of heavy rolling stock, consisting in first chipping railway ties or other woody material, disintegrating

it to suitable particles capable of compression into a homogeneous mass, softening the same in hot water, forming the mass into sheets of suitable thickness for building up a body of superimposed laminations, saturating the same with a waterproofing adhesive material, and building a body composed of said laminations alternating with metal reinforcements and subjecting the body thus constructed to pressure to compact the same to the required density.

5. A railway tie composed of a shaped mass of fibers saturated with waterproofing and cementing material combined with divided metallic reinforcing members with which said fiber is incorporated.

6. The combination with a composite tie for railway rails of upper and lower metal plates, across which upper plates said rails are mounted and metal bolts adjustably connecting said upper and lower plates, exterior to said tie, said bolts being provided with clamping heads, engageable with the flanges of said rails.

In testimony whereof I hereunto affix my signature.

JAMES J. HINDE.