Dec. 25, 1923. 1,478,805

W. I. TUTTLE

BEAM CONSTRUCTION

Filed Nov. 28, 1922

Fig. 1.

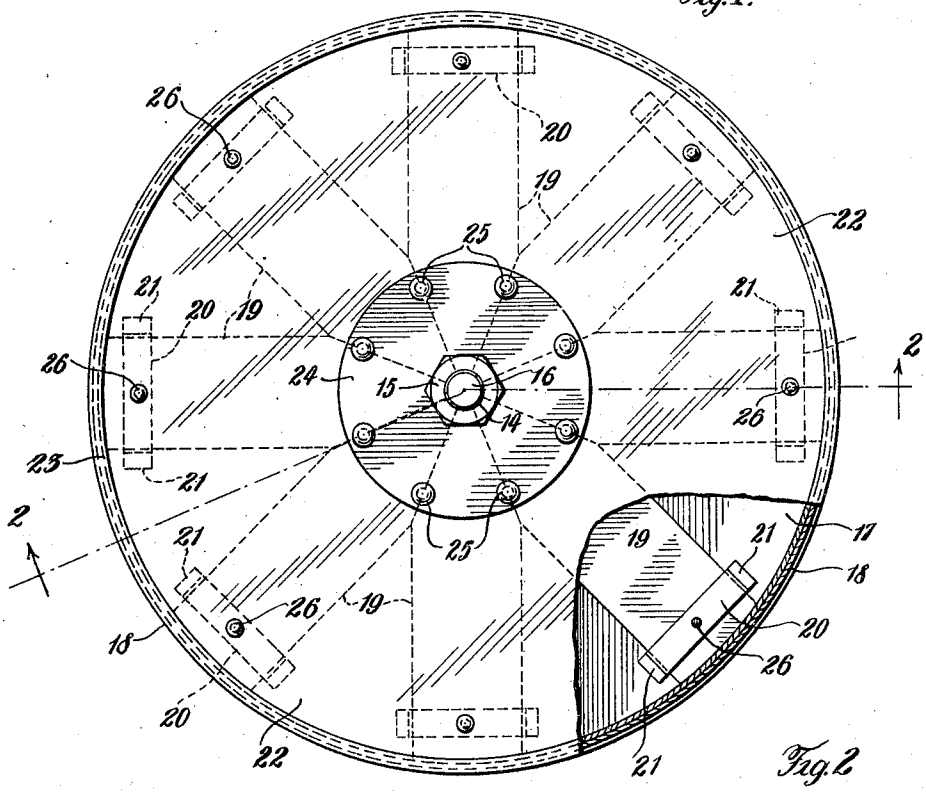
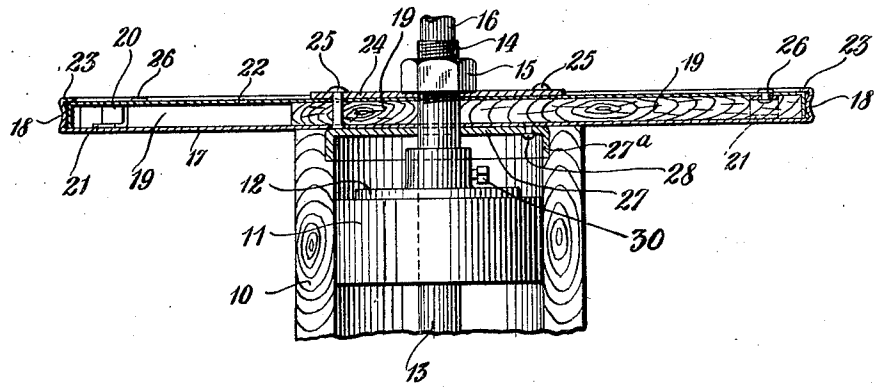


Fig. 2.



Inventor

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By his Attorney Robert S. Blair

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UNITED STATES PATENT OFFICE.

WALTER I. TUTTLE, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO FRANK MOSSBERG COMPANY, OF ATTLEBORO, MASSACHUSETTS, A CORPORATION OF RHODE ISLAND.

BEAM CONSTRUCTION.

Application filed November 28, 1922. Serial No. 603,753.

To all whom it may concern:

Be it known that I, WALTER I. TUTTLE, a citizen of the United States, and a resident of Providence, in the county of Providence and State of Rhode Island, have invented an Improvement in Beam Constructions, of which the following is a specification.

This invention relates to construction for warp beams and the like. One of the objects thereof is to provide a construction of the above nature which is strong and dependable and particularly adapted to withstand the conditions of hard and long-continued service and wear. Another object is to provide a construction of the above nature which is thoroughly efficient and reliable in action; another object is to provide a construction of the above nature in which the parts are compactly and securely held in assembled relation and joined in such a manner as to promote ease and convenience in manufacture. Other objects will be in part obvious or in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangements of parts as will be exemplified in the structure to be hereinafter set forth and the scope of the application of which will be indicated in the following claims.

In the drawing, in which is shown one of the various possible embodiments of this invention,

Figure 1 is an end elevation of a beam, certain parts being cut away; and

Figure 2 is a partial sectional elevation, the section being taken along the line 2—2 of Fig. 1 viewed in the direction indicated by the arrows.

Similar reference characters refer to similar parts in both views of the drawing.

Referring now to the drawing in detail and first to Fig. 2, there is shown the barrel member 10 of the beam which is preferably of a hollow wooden type. The construction at both ends of the beam is substantially the same and therefore one end only is shown. Inside the barrel 10 is mounted an abutment 11 preferably of wood, and a metal or wooden spacing block 12 may be secured to the face of the abutment 11. A shaft 13 extending axially throughout the length of the barrel passes through the abutment 11 and the spacing block 12, and threaded into the latter is a set-screw 30 adapted to engage the shaft 13 and prevent relative rotation between the barrel and the shaft. The shaft 13 extends through the beam head, the construction of which will be later described in detail, and is threaded as at 14 to receive a nut 15 which bears against the head and draws it snugly against the end of the barrel 10. The shaft 13 may be provided with an end portion 16 adapted to rest in suitable trunnions to rotatably support the beam.

Referring now to the construction of the head, there is shown a member 17 against which the end of the barrel 10 abuts and which preferably comprises a solid circular metal disk having its periphery flanged over as at 18 to provide a belt race. Resting against the metal member 17 is a wooden head member which preferably comprises a plurality of radial arms 19 extending from the center of the head substantially to its periphery. The arms 19 are preferably evenly spaced and adjacent the center of the head they are tapered to interfit and thus form a substantially solid member about the center of the head. Adjacent the outer end of each of the wooden arms 19 is a metal strip 20 passing thereover and secured at each end 21 to the face of the metal member 17 as, for example, by spot welding.

Covering the other surface of the wooden head member, that is, the surface remote from the metal member 17, is a metal sheath 22 which preferably extends from the center of the head to its periphery and has its edge portion 23 flanged over and extending between the ends of the wooden arms 19 and the belt race 18, as shown in Fig. 2. Exterior of the metal sheath 22 is a metal member or collar 24 of smaller diameter against which the nut 15 bears. Rivets, as 25, headed against the collar 24, pass through the head and are countersunk and headed in the metal member 17, thus securely and dependably clamping the members of the head in assembled relation. The sheath 22 is preferably of comparatively light metal and, as will be seen, its central portion is securely clamped between the collar 24 and the wooden head member. Adja-

cent its outer edge the sheath 22 is further secured, as by means of rivets 26 passing through openings in the strips 20 and headed against the inner surface thereof. Thus the exterior face of the assembled beam head, that is, the face remote from the barrel 10, presents a smooth even surface. The beam head is particularly strong and sturdy and yet light and flexible, the wooden reinforcing arms 19 lending the desired strength and rigidity without adding greatly to the weight of the head. At the same time, by the use of the metal sheath 22 the wooden members and their securing devices are encased and uneven surfaces and projecting parts which might interfere with the operation of the beam are effectually avoided.

Secured to the inner face of the head is a projecting member 27 which preferably takes the form of a metal cup, as shown, secured to the head member 17 as by rivets 28 and adapted to project into the end of the hollow barrel member 10. The rim 27ª of the cup-shaped member 27 rests against the inner surface of the barrel 10, which surface may be recessed slightly to receive it. Thus, the member 27 serves to transmit the weight of the barrel 10 to the head, which weight would be carried entirely by the shaft 13 without the provision of such a construction. When these beams are loaded they are often of great weight and being roughly handled in use there is danger of the shaft 13 becoming bent and out of true due to too great stress being placed upon it. A construction such as that just described, for example, overcomes this difficulty in a simple and effective manner by making possible the transmission of a part of the weight of the barrel and its load directly to the head, relieving the strain upon the shaft. The strength of the beam and its adaptability to withstand hard usage are thus greatly enhanced.

It will thus be seen that there is herein provided a device which embodies the features of this invention, which device in its action attains the various objects of the invention and is well adapted to meet the conditions of hard practical use.

As various possible embodiments may be made of the above invention and as many changes might be made in the embodiment herein set forth, it is to be understood that all matter hereinbefore set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

I claim as my invention:

1. In beam construction, in combination, a wooden head member, a metal head member resting against a face thereof and having its outer edge flanged over to form a metallic belt race, and a metallic member resting against the other face of said wooden head member and having its outer edge flanged to extend beneath said belt race.

2. In beam construction, in combination, a metal head member having a diameter substantially equal to that of the head, a wooden head member resting against a face thereof and comprising a plurality of spaced arms, and metallic means substantially encasing the face of said wooden head member remote from said metal head member.

3. In beam construction, in combination, a pair of metal head members spaced from each other and each having a diameter substantially equal to that of the head, and a plurality of substantially radial wooden stiffening members interposed between said two metal members.

4. In beam construction, in combination, a wooden head member having spaced portions cut away to lessen its weight, a metal head member having a diameter substantially equal to that of the head secured to one face of said wooden head member, and metallic means substantially encasing the other face of said wooden head member.

5. In beam construction, in combination, a wooden head member having a plurality of arms interfitting about the center of the head and extending outwardly therefrom toward the periphery of the head, a metal head member secured to a face thereof and having a diameter substantially equal to that of the head, and metallic means substantially encasing the other face of said wooden arms.

6. In beam construction, in combination, a wooden head member having parts extending substantially to the periphery of the head, a metal head member resting against a face thereof and having its periphery flanged over the periphery of said wooden head member to form a metal belt race, and a second metal head member resting against the other face of said wooden head member and having its edge flanged to extend between said flange forming said belt race and the periphery of said wooden head member.

7. In beam construction, in combination, a wooden head member comprising a plurality of spaced members, a solid metal head member having a diameter substantially equal to that of the head secured to a face of said wooden head member, and a protective metal sheath substantially encasing the other face of said wooden head member.

8. In beam construction, in combination, a metal head member having a diameter substantially equal to that of the head one face thereof resting against a barrel member, a wooden head member resting against the other face thereof and having parts extending substantially to the periphery of the head, a metal member substantially encasing the face of said wooden head member re-

mote from said first metal member, a metal member of smaller diameter resting against the outer face of said last metal member, and means passing through said four members adapted to secure them together.

9. In beam construction, in combination, a metal head member having a diameter substantially equal to that of the head, a wooden head member resting against a face thereof, means securing said wooden head member to said metal head member adjacent its periphery, a metal sheath substantially covering the face of said wooden head member and said securing means, and means coacting with said securing means for holding said metal sheath in place.

10. In beam construction, in combination, a barrel member, a head member, a member passing through said barrel member and said head member adapted to support them in substantially coaxial relation, and supporting means secured to the inner face of said head member adapted to engage said barrel member to supplement said first supporting means.

11. In beam construction, in combination, a head member, a barrel member positioned in substantially coaxial relation therewith, and means upon said head member forming a projecting flange adapted to engage a surface of said barrel member to maintain said two members in said coaxial relation.

12. In beam construction, in combination, a head member, a barrel member having its end surface abutting a face of said head member, and a cup-shaped member secured to said head member, the rim of said cup-shaped member being adapted to engage said barrel member and prevent relative slipping of said abutting surfaces.

13. In beam construction, in combination, a head member, a hollow barrel member positioned in substantially coaxial relation therewith, and a cup-shaped member secured to said head member, the rim portion of said cup-shaped member being adapted to enter said barrel member and prevent relative movement of said two members out of said coaxial relation.

14. In beam construction, in combination, a barrel member, a metal head member having a face abutting said barrel member, a wooden head member secured to the other face of said metal head member, and reinforcing means secured to said metal head member engaging said barrel member to support the same.

15. In beam construction, in combination, a metal head member having a diameter substantially equal to that of the head, a plurality of spaced wooden arms resting against a face of said metal head member, metal bands securing said arms to said head member, and a metal sheath substantially encasing said wooden arms and said metal bands.

In testimony whereof, I have signed my name to this specification this 20th day of Nov., 1922.

WALTER I. TUTTLE.