Dec. 21, 1926. 1,611,293

E. TAUSCH

SHOCK ABSORBING BUFFER FOR BULKHEADS

Filed Oct. 27, 1925

Fig.1.

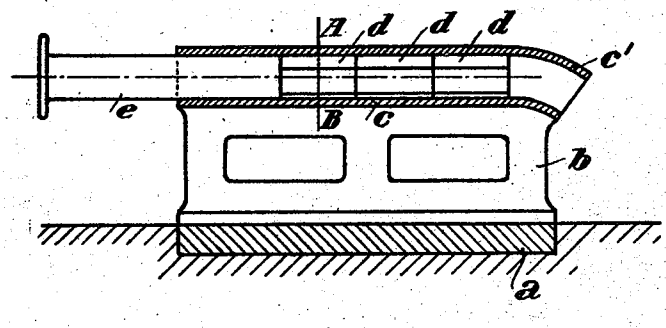


Fig.2.

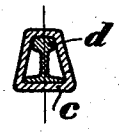


Fig.3.

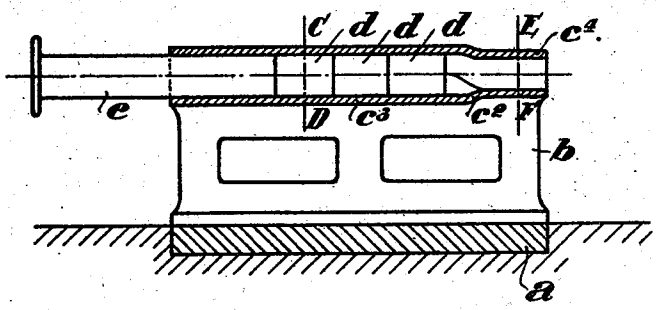


Fig.4.



Fig.5.



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UNITED STATES PATENT OFFICE.

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SHOCK-ABSORBING BUFFER FOR BULKHEADS.

Application filed October 27, 1925, Serial No. 65,130, and in Germany October 27, 1924.

My invention relates to a shock-absorbing buffer which is suitable as a bulkhead, and more particularly to a buffer of that type in which instead of or in addition to the usual springs the force of the shock is lessened or absorbed by utilizing said shock to produce a non-elastic deformation of a suitable material.

My improved buffer is distinguished from the hitherto known buffers of this type by the fact that the material to be deformed by the shock is substantially in all its cross-sections stressed as uniformly as possible by bending or torsion strains up to the breaking limit and up to the complete utilization of the elasticity of the material, whereby the greatest possible utilization of the deformation work contained in the material is attained for the above specified kinds of stresses.

A further advantage of my invention is that the scrap products in railroad or other working may be employed as a cheap destruction material.

In the drawing, two embodiments of my invention are illustrated diagrammatically by way of example.

In the drawings is:—

Fig. 1, a sectional elevation of a shock absorbing buffer for bending strains,

Fig. 2, a cross-section along line A—B of the Fig. 1 through the tubular shock member,

Fig. 3, a sectional elevation of a shock absorbing buffer for torsional strains,

Fig. 4, a cross-section along line C—D of Fig. 3, and

Fig. 5, a cross-section along line E—F of Fig. 3.

Referring more particularly to Figs. 1 and 2, a tubular shock member or tube c is mounted upon a suitable supporting member b so as to be maintained substantially at the level of the railway wagon or truck buffers. The supporting member b is mounted upon any suitable or desired foundation a. In the end of the tubular member c facing the track is adapted to slide the buffer rod or plunger e of a cross-section corresponding with the cross-section of the tube c. The tube c also serves for the reception of the material for absorbing the force of the shock or blow. In the embodiment of my invention illustrated in this figure, short pieces d of any desired cross-section are employed as an equivalent for the usual springs, for instance short pieces of scrap rail, as illustrated in Fig. 2.

At the end opposite the buffer plunger, the tube c is bent at c' either in a circle or in any other desired curve.

When a substantially horizontal pressure is exerted upon the plunger e, it is pushed in the direction of the curved tube end c' and moves the pieces or bars d in the same direction and forces them through the curved end c' of the tube c. The pieces d are then also bent or curved and the shock is absorbed by the work expended in bending the pieces and the friction generated thereby. The curvature c' of the tube c is preferably so chosen that the elasticity of the outermost fibre of the material is utilized to its fullest extent so that the entire deformation material d is completely and uniformly destroyed.

The shock tube c is as a matter of course made of such a material and of such dimensions that it is capable of bringing about the deformation of the pieces d without being itself appreciably deformed or destroyed.

In the embodiment of my invention illustrated in the Figs. 3–5, the shock tube is turned or twisted near its rear end at c^2 around its axis through a certain angle, in the embodiment illustrated through an angle of about 90°, so that the front part c^3 serving for the reception of the buffer plunger e and of the deformation material d is twisted through an angle of about 90° in relation to the rear end c^4, as is shown particularly clearly in the Figs. 4 and 5.

When now in consequence of an axial displacement of the plunger e the pieces or sections d at the place c^2 are pushed from the part c^3 into the tube end c^4 they are subjected to a twisting or torsional deformation in correspondence with the twist of the tube by means of which deformation in conjunction with the friction caused thereby the force of the shock is absorbed.

Preferably the tube part c^3 is twisted in relation to the tube end c^4 by such an angle that the outside fibres of the material d are stressed up to the complete utilization of the tension whereby again all the material in any cross-section is utilized for the work of destruction up to its highest limit.

It will be readily understood that the embodiments illustrated are only examples and that the broad principle underlying any invention is capable of being varied or modi-

fied within wide limits, and it is therefore intended that all such modifications be covered by the appended claims.

What I claim as my invention is:—

1. A shock-absorbing buffer for bulkheads, comprising in combination, a tubular member preshaped at the rear end, a buffer plunger slidable within the front end of said tubular member, deformation material located at the rear of said plunger within said tubular member and adapted to be pushed along said tubular member by said plunger, said preshaped end of said tubular member being so formed that said deformation material in being forced through said rear end portion is subjected to a bending strain absorbing the force of the shock.

2. A shock-absorbing buffer for bulkheads, comprising in combination, a tubular member preshaped at the rear end, a buffer plunger slidable within the front end of said tubular member, deformation material located at the rear of said plunger within said tubular member, said preshaped end of said tubular member being so formed that said deformation material displaced by said plunger is in all its cross-sections uniformly strained for bending up to its complete exhaustion on passing through said tubular member.

3. A shock-absorbing buffer for bulkheads, comprising in combination, a tubular member, a buffer plunger slidable within the front end of said tubular member, deformation material at the back of said plunger within said tubular member and adapted to be pushed though said tubular member by the displacement of said plunger, the end of said tubular member opposite to said plunger being curved for the purpose of bending said deformation material displaced by said plunger within said tubular member on passing through the curved end of said tubular member.

In testimony whereof, I have signed my name to this specification.

ERNST TAUSCH.