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ROD OR PIPE CLAMP

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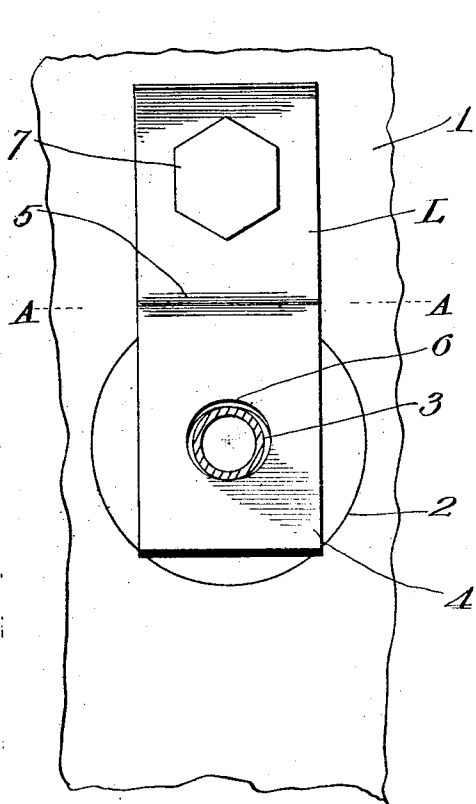


FIG. 1.

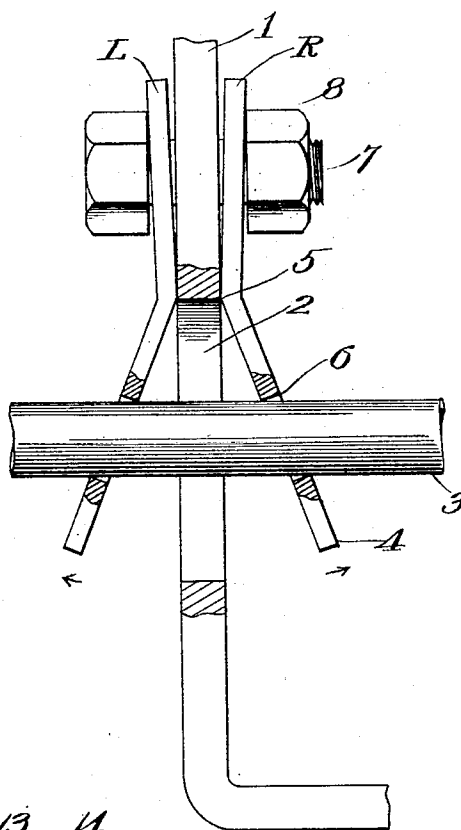


FIG. 2.

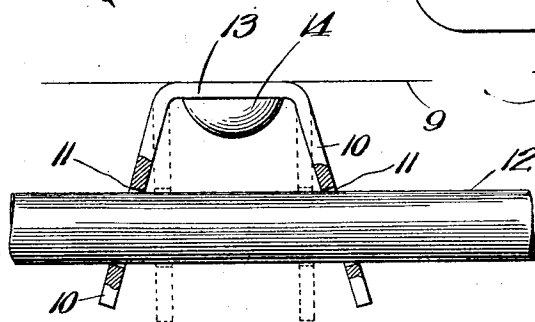


FIG. 3.

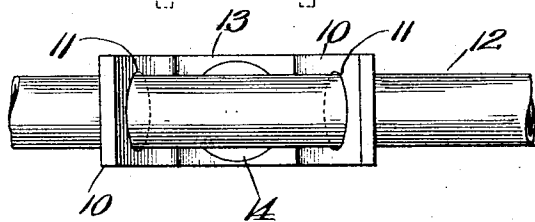


FIG. 4.

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ROD OR PIPE CLAMP

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This invention relates to clamps for securing rods, pipes, conduits or any regular or irregularly shaped member in position adjacent a support and is particularly designed for use in the clamping of air brake pipes and the like of railway cars. Many attempts have been made to produce a simple and efficient construction for tightly clamping the air pipes of railway cars against vibration and longitudinal slippage caused by the shocks and jars to which the cars are subjected.

The general object of the invention is to provide a simple clamping device of the character outlined so constructed that the tendency of the pipe to move longitudinally shall automatically effect the tightening of the clamp on the pipe.

A further object of the invention is to produce a device of the character outlined in which one embodiment thereof is adapted to be secured by a bolt, the resiliency of the member in the preferred construction obviating the necessity for the use of double nut or lock washer.

A still further object of the invention is to produce a simple, inexpensive and efficient construction which in its various forms may be used to clamp a pipe extending longitudinally or transversely of a support, or which may project through an opening of any size in the support, it being possible to install the device on old equipment without a great deal of reorganization of parts.

In its essential details the device of the invention comprises a plate either provided with a fulcrum point and means tending to rock the plate around its fulcrum, or being of spring metal and thus inherently having this tendency, the free end of said plate being formed with an opening through which the pipe or other member to be clamped projects, the axis of the opening in the plate being normally at an angle to the axis of the member to be clamped. It is to be understood that the fulcrum type of device may be and preferably is also constructed of spring metal. With the construction outlined and by reference to the drawings, it will be noted that the device is under a continuous strain

tending to force the axis of its hole or opening to a position at right angles to the axis of the pipe and consequently tightly clamping the pipe or member. Any shifting of the pipe in one direction through any particular plate tends to increase the clamping pressure through frictional engagement of the parts tending to decrease the diameter of the hole in the plate.

With the general objects named in view, the invention consists in certain novel and useful features of construction and organization of parts as hereinafter described and claimed; and in order that it may be fully understood, reference is to be had to the accompanying drawings, in which:

Figure 1 is a front elevation of a clamp embodying the invention as it will appear in operative position.

Figure 2 is a side elevation of the device as shown in Figure 1, partially in section to illustrate parts otherwise hidden.

Figure 3 is a side elevation partially in section of a modified form of construction.

Figure 4 is a bottom plan view of the device as shown in Figure 3.

In the said drawings, referring specifically to Figures 1 and 2, 1 indicates a support which is illustrated as the web of a cross sill or the like on a railway car, said support being formed with an opening 2 through which a train pipe or rod 3 projects. This construction is the standard arrangement in railway cars, but it will be understood that as far as this invention is concerned the support 1 might terminate at the line A—A, Figure 1, as the hole and web below said line are not necessary for the proper operation of the clamp of the invention.

In the drawings a pair of clamps are shown, identified as R and L to prevent movement of the pipe to the right or left respectively, said clamps cooperating together when it is desired to hold the pipe from slipping in either direction. As the clamps are duplicates and may be used interchangeably on either side of a support, the description hereinafter appearing will be confined to a single element.

The clamp of the invention comprises a metal plate 4, preferably of spring metal al-

though this is not essential, said plate being bent to form a fulcrum point 5 intermediate its ends, and being provided adjacent one end with an opening 6 through which the pipe 3 projects, said opening being slightly greater in diameter than the largest pipe for which it is designed, the upper end of said plate being provided with an opening for the reception of a clamp-bolt 7 carried by the support 1.

The parts are so designed that the pipe 3 is slipped through the opening 6 in the plate, while that portion of the plate provided with the opening is in such a position that the axis of its opening is substantially in alinement or parallel to the axis of the pipe 3. A nut 8 is now threaded on the bolt 7, and clamping pressure is applied on the plate 4 to rock said plate on its fulcrum 5 against support 1 and move the pipe-engaging end of the clamp in the direction of the arrows, throwing the axis of the hole or opening 6 in the plate angularly of the axis of the pipe and effecting clamping pressure against the top and bottom of said pipe. If the device is of spring metal and the bolt is sufficiently strong, the nut 8 may finally be screwed home until the portion of the plate engaged by said nut is clamped tightly against the face of the support, as will be readily understood, and the resiliency of the metal will act as a lock washer to prevent accidental loosening of the nut. However with a clamp which is not in contact with the support wear may be taken out by the tightening of the nut

The devices R and L prevent moving of the pipes to the right or left as the shifting of the pipe tends to approach the axis of the pipe opening to a position at right angles to the axis of the pipe, thereby lessening the effective diameter of the pipe opening as will readily be understood.

In Figures 3 and 4, a modified form of construction is shown which will be utilized when the supporting surface 9 is of sufficient area, either below the body or at the ends of a car, said construction comprising a pair of diverging spring metal plates 10 having openings 11 for the reception of a pipe 12. The members are connected at one of their ends by a cross strip or base 13 which is secured to the support 9 by a rivet or bolt 14.

This construction corresponds substantially in mode of operation with the plates 4, but as the plates are of integral construction, they must be held in the dotted positions shown in Figure 3 while the pipe 12 is being projected through the openings. Upon the release of the plates they immediately spring to the full line positions and apply clamping pressure to retain the pipe against vibration or longitudinal slippage. It will be noted that in this construction the resiliency of the metal is depended upon to clamp the pipe and that there is no take up or tightening mechanism, except that which may be im-

parted to the plates by disengagement of the pipe and increasing the tension on the plates by bending them to a greater angle.

It is believed the construction and operation of the device has been so set forth that recapitulation is unnecessary, and it is to be understood that while I have described and claimed what now appears to be the preferred embodiment of the invention, I reserve the right to make all changes properly falling within the spirit and scope of the appended claims.

I claim:

1. The combination with a support, of a clamp comprising a pair of plates each formed with an opening adjacent one end adapted to receive a member to be clamped and each plate having a fulcrum point intermediate its ends in contact with said support, and means engaging the support and plates tending to rock the plates on their fulcrum points to increase the force tending to hold the member to be clamped.

2. The combination with a support, of a clamp comprising a pair of resilient plates each formed with an opening adjacent one end adapted to receive a member to be clamped and each plate having a fulcrum point intermediate its ends in contact with said support, and means engaging the support and plate tending to rock the plates on their fulcrum points.

In testimony whereof I affix my signature.
HARLEY E. ANDERSON.