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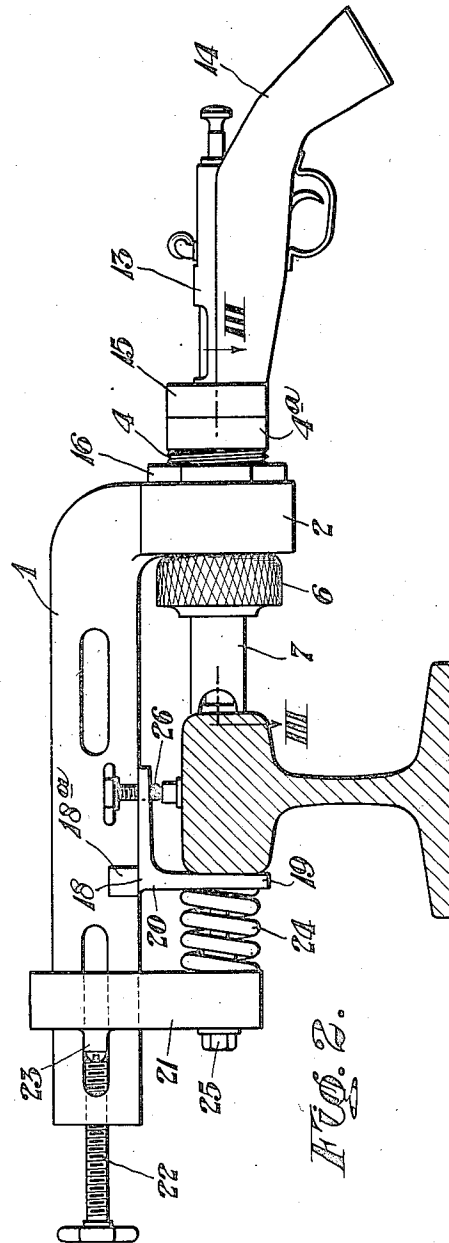
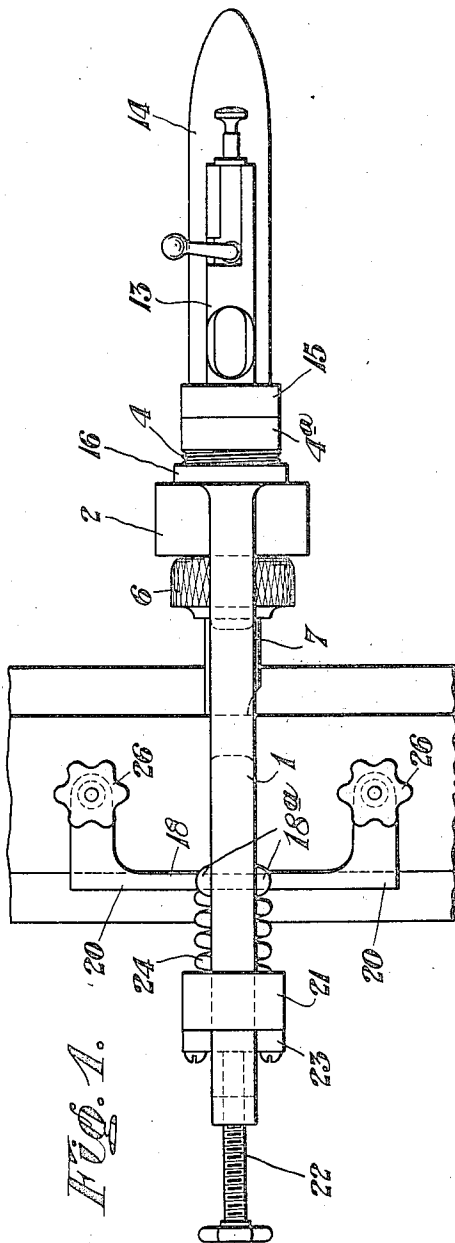
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2,096,002

RAIL BONDING APPARATUS

Filed Oct. 14, 1935

2 Sheets-Sheet 1



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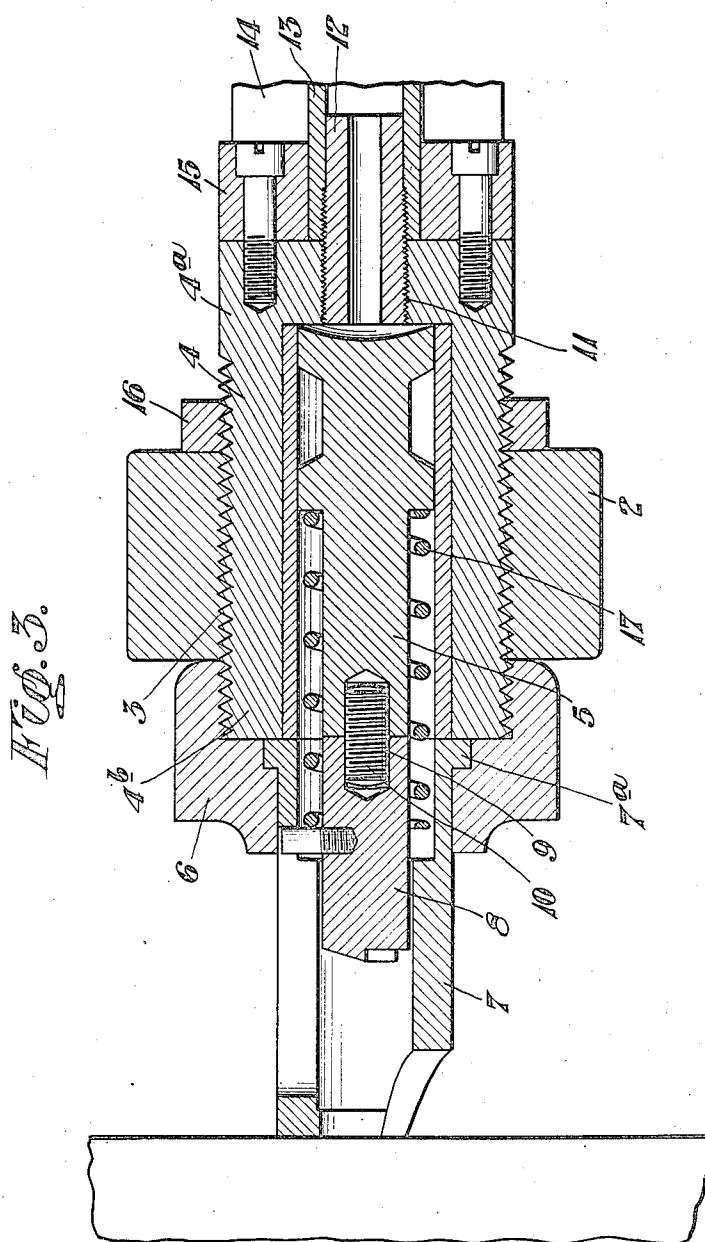
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UNITED STATES PATENT OFFICE

2,096,002

RAIL BONDING APPARATUS

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Application October 14, 1935, Serial No. 44,996

3 Claims. (Cl. 78—50)

This invention is a rail binding apparatus which is particularly intended to apply stud terminal bonds to holes in railroad rails by means of an impacting tool powered by an explosive.

Referring to the accompanying drawings:

Figure 1 is a top view of the apparatus.

Figure 2 is a side view.

Figure 3 is a longitudinal section from the line III—III in Figure 2.

More specifically, the apparatus includes a frame 1 constructed to transversely bridge a railroad rail to be bonded and having a depending end 2 in which a bore 3 is formed with its axis directed toward the side of the rail to be bonded.

A cylinder 4 is threaded into this bore and has portions 4^a and 4^b projecting beyond both ends of the latter.

A piston 5 is reciprocally arranged in the cylinder 4, and an inwardly flanged nut 6, which is screwed onto the end 4^b of the cylinder, constitutes a means for mounting a tool guide 7 in which an impacting tool 8 is reciprocally arranged, a threaded hole 9 in the piston 5 functioning in conjunction with a threaded stud 10 to provide a means for interfastening the piston and the tool.

The guide 7 and tool 8 are not more specifically described because they do not form a part of the present invention, it being sufficient to say that the tool hits the head of the usual type of bond applied to a rail head so as to expand the terminal stud of the bond. It should be noted that the guide 7 has an outwardly flanged end 7^a which is engaged by the inward flange of the nut 6.

The end 4^a of the piston 4 has a threaded hole 11 in which a bored screw 12 is fixed. This screw extends beyond the end 4^a, and the interiorly threaded barrel 13 of a firearm 14 is screwed onto this end. A heavy plate 15 is bolted to the end 4^a around the barrel 13 so as to strengthen the assembly, while a lock nut 16 is threaded on the piston 4 so as to engage the face of the end of the frame 1 that is opposite to that engaged by the nut 6. The firearm 14 is part of a small caliber rifle suitably adapted for the purpose and which fires blank cartridges into the barrel 13.

In the operation of this gun, a blank cartridge is placed in the firing chamber of the firearm 14 and fired, the force of the explosive going through the bored screw 12 from the barrel 13, thus driving the piston 5 forwardly and causing the impacting tool 8 to strike against the terminal of the bond being applied to the rail. Means are

provided for resiliently urging the piston 5 away from the rail, this being a spring 17.

A bracket 18 slidably mounts the frame 1 and includes a depending member 19 for engaging the other side of the rail from that to which the bond is being applied. This bracket also has arms 20 that oppositely extend in the direction of the rail, and upstanding lugs 15^a between which the frame slides transversely of the bracket.

A depending part 21 is adjustably slidably fixed to the frame 1 so as to oppose the member 19. This part slides on the frame 1 and is fixed by means of a screw 22 which bears against a plate 23 transversely fixed to its upper end. A spring 24 is arranged between the part 21 and the member 19 and is retained in position by a bolt 25 which extends between these two. Adjustment of this bolt permits some variation of the resilient characteristics of this spring.

Vertically adjustable elements 26 depend from the ends of the arms 20 so as to contact the top of the rail. These elements are here screws, but may be substituted by other easily adjusted devices.

In use, the frame 1 is transversely arranged over the rail to be bonded so that the elements 26 contact its top and so that the depending member 19 is against the side of the rail which is opposite from that to be bonded. Adjustment of the elements 26 provides for both vertical and angular movements, while adjustment of the screw 22 serves to bring the guide 7 against the terminal of the bond. When the gun is fired toward the side of the rail in the manner previously described, the recoil is transmitted through the frame 1 to the opposite side of the rail by way of the spring 24. It is apparent that the part 21, spring 24 and depending member 19 cooperatively function as a shock absorber.

Although a specific example of this invention is described in accordance with the patent statutes, its scope is not to be limited except as defined by the following claims.

We claim:

1. Rail bonding apparatus including a frame constructed to transversely bridge the rail to be bonded, a gun carried by one end of said frame so as to fire towards one side of said rail, a bracket slidably mounting said frame and including a depending member for engaging the other side of said rail, and arms that oppositely extend in the direction of said rail, a depending part adjustably slidably fixed to the other end of said frame and opposing said member, spring means intercon-

necting said part and said member, and vertically adjustable elements depending from the ends of said arms so as to contact the top of said rail.

5 2. Rail bonding apparatus including a frame constructed to transversely bridge the rail to be bonded and having a depending end in which a bore is formed with its axis directed towards the side of said rail, a cylinder fixed in said bore and having portions projecting beyond both ends thereof, a piston in said cylinder, means on the 10 end of said cylinder towards said rail for mounting a tool guide, means for interfastening said piston and a tool reciprocating in said guide, means for fastening the barrel of a firearm to the 15 end of said cylinder that is remote from said rail, and means for resiliently urging said piston away from said rail.

3. Rail bonding apparatus including a frame constructed to transversely bridge the rail to be 20 bonded and having a depending end in which a bore is formed with its axis directed towards the

side of said rail, a cylinder fixed in said bore and having portions projecting beyond both ends thereof, a piston in said cylinder, means on the end of said cylinder towards said rail for mounting a tool guide, means for interfastening said 5 piston and a tool reciprocating in said guide, means for fastening the barrel of a firearm to the end of said cylinder that is remote from said rail, means for resiliently urging said piston away from said rail, a bracket slidably mounting said 10 frame and including a depending member for engaging the other side of said rail and arms that oppositely extend in the direction of said rail, a depending part adjustably slidably fixed to said frame and opposing said member, spring means 15 interconnecting said part and said member, and vertically adjustable elements depending from the ends of said arms so as to contact the top of said rail.

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