

June 10, 1947.

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2,421,981

ANCHORAGE FOR FRAME STRAIGHTENING APPARATUS

Filed July 18, 1944

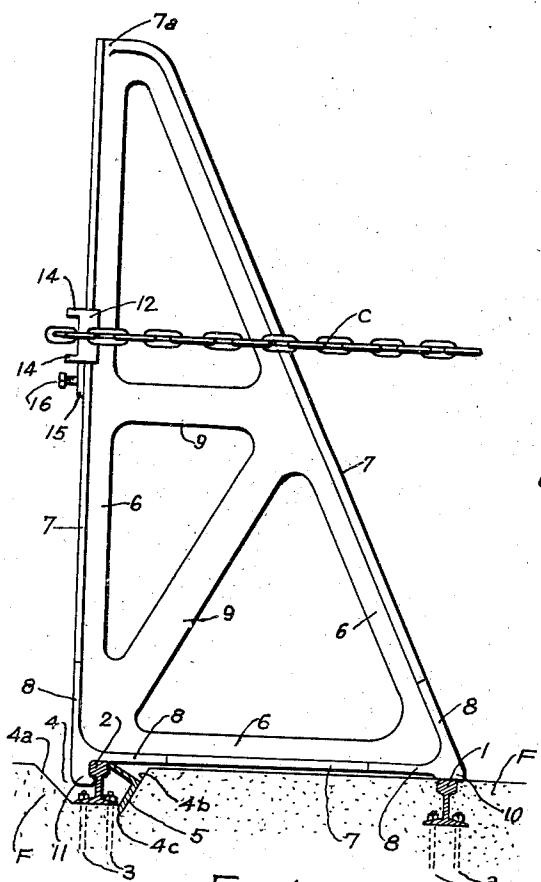


FIG. 1

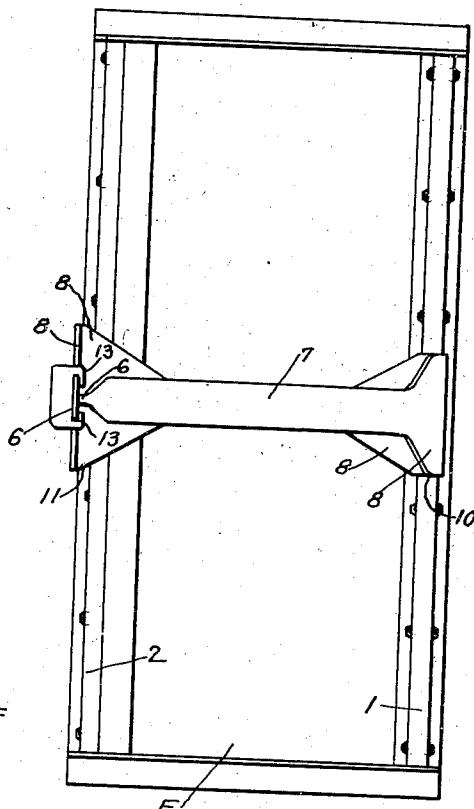


Fig. 2

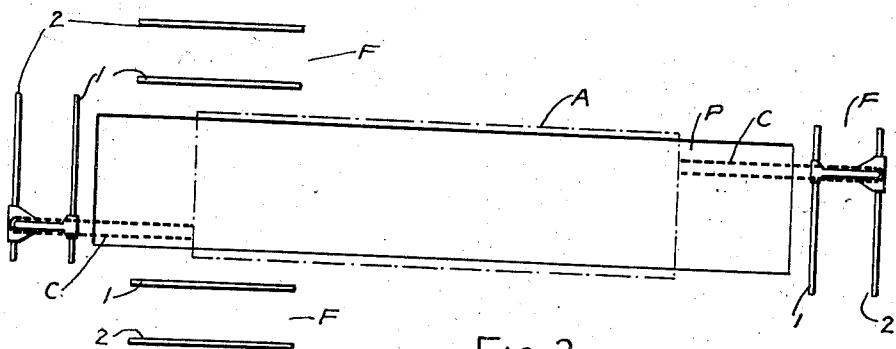


Fig 3

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Patented June 10, 1947

2,421,981

UNITED STATES PATENT OFFICE

2,421,981

ANCHORAGE FOR FRAME STRAIGHTENING APPARATUS

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Application July 18, 1944, Serial No. 545,512

4 Claims. (Cl. 153—32)

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This invention relates to anchorage for frame straightening apparatus and especially to improvement in means to be used in connection with apparatus for straightening frames of automotive vehicles while such frames are cold and while they remain assembled in the vehicle, the improved means providing anchorage for selected parts of such frame to hold the same in place while straightening forces are exerted upon other portions of such frame.

Such frame straightening apparatus is usually positioned on the floor of a shop or garage and surrounding, or in the rim of, work-pit in such floor. Anchoring means have been heretofore provided at or adjacent the outer parts of such apparatus. The present invention relates to improvement in such anchorage means.

It will be understood that in straightening such frames, while cold, high pressures are required, running to 30 and 40 tons in heavy work. To hold a portion of the frame in place as against such pressures, great strength is required in the anchorage. This strength could be provided for by permanently embedding a plurality of anchors at various points about the apparatus but such permanently positioned anchors would be appropriate, and exclude from use for other purposes, a large amount of floor space and would also materially interfere with workmen and the use of appliances during the straightening operation, as well as in the positioning of the work and adjustment of the apparatus for such operation.

An object of the present invention is to provide an anchorage which shall have the required strength but which shall occupy floor space, and interfere with workmen and appliances, only at the point or points where such anchorage is required for the particular straightening operation being performed and then only during preparation for and performance of such particular operation.

Other objects are to provide, in a floor, an improved mounting for an anchor of the class described, along which such anchor shall be adjustable and into and from which it may be readily inserted and/or removed and which shall not interfere with or occupy floor space when the anchor is not positioned therein and which shall have the required strength; to provide an anchor of sufficient strength but of extreme simplicity, lightness, and economy and which shall be adapted to be readily inserted in, adjusted along and removed from such mounting and which shall have improved adjusting means within itself.

These objects and purposes will more fully

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appear and further objects and purposes will appear in the following specification, including the definition thereof in the appended claims, and to these ends the invention comprises certain novel constructions, combinations and arrangements of parts as will now be described and claimed, having reference to the illustration in the accompanying drawing of the preferred embodiment of the invention.

10 Fig. 1 is a side elevation of the anchor positioned in the mounting and showing the mounting in section, and also showing a fragment of an anchoring chain.

15 Fig. 2 is a plan view of the structure shown at Fig. 1, the chain being omitted.

Fig. 3 is a conventional plan of a pit with adjacent anchor mountings, a frame being indicated in broken lines and anchors being indicated as positioned in the mountings at the ends of 20 the pit, the chain connections between the anchors and frame being indicated in dotted lines.

25 The invention is illustrated, and will be described, as in use adjacent a pit in or over which the straightening apparatus is located, but, as above stated, it may be installed and used adjacent any frame straightening apparatus. It will be understood that at Fig. 3 rails 1 and 2 are only partially illustrated and that they preferably extend for the major part or all of the length of 30 the straightening apparatus.

35 It will be understood that the floor in which the mounting is embedded will ordinarily be of concrete, and properly reinforced to take the strains and stresses imposed upon it in the contemplated operations. Any floor having the required strength and in which the mounting can be properly embedded may, of course, be used. The description will be in terms of a reinforced concrete floor.

40 The floor is indicated at F, the pit at P, the frame at A and the chains at C, and it will be understood that the outline of the pit is likewise, for the purpose of this description, the outline of the straightening apparatus.

45 The mounting comprises a pair of parallel rails 1 and 2, preferably of I shape in cross section and conveniently of ordinary railroad rail type. Both rails have their bases suitably anchored into the floor material as by bolts 3. Rail 1 is, itself, embedded in the floor material with its top flush with the floor and is substantially parallel with the adjacent rim of the pit, or side or end of the apparatus, as the case may be. Rail 2 is substantially co-planar with rail 1 but 50 suitably spaced therefrom away from the pit

and is not itself embedded in the floor material in the manner of rail 1, but is positioned in a channel 4 the walls of which are spaced from rail 2, preferably by inclining the walls outwardly and upwardly as clearly shown at the left at Fig. 1. The spacing between rail 2 and the channel wall 4a on the side of the rail away from the pit permits engagement of the rail by a hook depending from the anchor as later described. The space between the rail and the channel wall 4b, nearer the pit, provides for the bracing of rail 2 as will now be described.

In order to suitably brace rail 2 the wall 4b is inclined as above described and the floor of the channel is cut somewhat below the base of the rail as at 4c and an angle iron 5 is seated against wall 4b, with the edge of one of its flanges seated in the cut 4c wherein it contacts the base of rail 2 as clearly shown, and the edge of its other flange fits snugly against the top of the rail. Thus the top of rail 2 is strongly braced against any pressure exerted on the top of the rail in the directions toward the pit.

Mountings constructed as just described are positioned in the floor substantially parallel with and at convenient suitable distance from each end of the pit and substantially parallel with and along the sides of the pit at convenient suitable distance therefrom. It will be noted that the mounting makes no break in the floor except for the two small spaces on each side of the rail 2 within the channel 4 which spaces are not of a width sufficient to interfere with the use of the floor for any purposes for which such floor is customarily used.

The anchor is substantially triangular having two of its sides interrelatively right angled, one of said sides, preferably the shorter, comprising the base, as clearly shown at Fig. 1. The anchor is formed of a substantially T-shaped rim with web 6 and flanges 7, the flanges being widened at and adjacent the two ends of the base as at 8. Suitable bracing members 9 are provided, which may conveniently be extensions of the web 6. The widened flanges 8 at the front of the base are projected downwardly below the general plane of the base to form an elongated bearing 10, adapted to rest upon and slide along rail 1, while the widened flanges 8 at the rear end of the base are extended downwardly and formed into a hooked pendant 11 adapted to hook under and against the rear top flange of rail 2, the underside of the base being adapted to rest upon and slide along the top of rail 2, all as clearly shown at the left at Fig. 1.

It will be seen from the foregoing description and the drawing that the elongated bearings on rails 1 and 2 provided by the widening of flanges 8, together with the elongated hooked pendant 11, provide a seat for the anchor on the mounting which affords great strength and also serves to seat the anchor solidly in upright position on the mounting while still leaving the anchor free to be slid along rails 1 and 2 to any desired position. It will also be seen that by tipping the anchor on rail 2 away from rail 1 the hooked pendant 11 may be readily disengaged from rail 2 whereupon the anchor becomes wholly separated from the mounting and may be positioned in another mounting or put aside, out of the way, as desired, leaving the floor space around the pit free for any other desired use.

The method of seating the anchor on the mounting is, obviously, very simple. The anchor being tipped, to the left as viewed at Fig. 1,

the hooked pendant 11 is hooked under rail 2 and bearing 10 is dropped onto rail 1. In fact a tipping of the anchor may not be required as a simple sliding of the anchor to the left will disengage the hooked pendant from rail 2, whereupon the anchor may be lifted off the mounting while in seating the anchor it may be seated in upright position sufficiently to the left of its position as shown at Fig. 1 to permit pendant 11 to clear the top of rail 2, whereupon the base will be seated on the top of rail 2 and the anchor may then be slid to the right until the pendant engages rail 2 in the manner illustrated at Fig. 1 whereupon the anchor will be seated in operative position.

Suitable means are provided for engagement of chain C with the anchor at any desired height such means comprising a yoke 12, slidably engaged to flanges 7 of the vertical rear side of the anchor as by flanges 13, rearwardly projecting flanges 14 being provided to retain chain C in engagement with the yoke which carries a lug 15 with set screw 16 for securing the yoke to the anchor at any desired height. It will be noted that flanges 7 are cut away at the top as at 1a whereby the yoke may be slid out of the top of the anchor and disengaged therefrom.

When a pull is exerted on chain C, by reason of pressures exerted on the frame during the straightening operation, the anchor will bear heavily on rail 1 through bearing 10 and will pull upwardly and forwardly on rail 2 through hooked pendant 11. Under such conditions the tendency is for the top of rail 2 to move forward and upward. The upward movement is prevented by anchored bolts 3 and the forward movement is prevented by angle iron 5 which is seated solidly against wall 4b with its lower flange engaged under rail 2 in cut 4c and its upper flange solidly seated against both the top of rail 2 and the under side of the base of the anchor at the junction of such top and base as clearly shown at the left at Fig. 1.

It will be understood that many changes in detail of construction may be made without departing from the spirit and scope of the invention as described and illustrated, in preferred embodiment, or as defined in the appended claims.

I claim:

1. Anchorage for automotive frame straightening apparatus comprising a pair of parallel rails secured in the floor surrounding, and parallel with the adjacent side of, such apparatus, a channel in the floor for the rail more distant from the apparatus, said rail being secured to the bottom of said channel, the wall of the channel nearer the apparatus being inclined, an angle iron brace having the edges of its flanges respectively contacting the top and bottom of said rail and one of its walls seated upon said inclined wall and an anchor having a detachable sliding engagement with the far side of said more distant rail and slidably seated on the top of the nearer rail.

2. Anchorage for automotive frame straightening apparatus comprising a pair of parallel rails secured in the floor surrounding, and parallel with the adjacent side of, such apparatus, a substantially triangular anchor adapted to slidably rest upon said rails and to engage the rail more distant from said apparatus upon the side thereof more distant from the apparatus, the side of said anchor more distant from the apparatus rising substantially vertically and a member adjustable along said vertical side and adapted to engage-

ment by means for connecting the anchor with an automotive frame positioned for straightening by said apparatus.

3. Anchorage for automotive frame straightening apparatus comprising a pair of parallel rails secured in the floor surrounding, and parallel with the adjacent side of, such apparatus, a substantially triangular anchor adapted to slidably rest upon said rails and to engage the rail more distant from said apparatus upon the side thereof more distant from the apparatus, the frame of said anchor being formed of material which is T-shaped in section with the web of T projecting inwardly of said frame, the flanges of the T being substantially widened at and adjacent their points of contact with said rails whereby to form elongated seats for said anchor on said rails.

4. Anchorage for automotive frame straightening apparatus comprising a pair of parallel rails secured in the floor surrounding, and parallel with the adjacent side of, such apparatus, a substantially triangular anchor adapted to slidably rest

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upon said rails and to engage the rail more distant from said apparatus upon the side thereof more distant from the apparatus, the frame of said anchor being formed of material which is T-shaped in section with the web of the T projecting inwardly of said frame, the webs of said T members being extended across said frame at selected points to form cross braces for said frame.

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