A. L. HASTINGS.

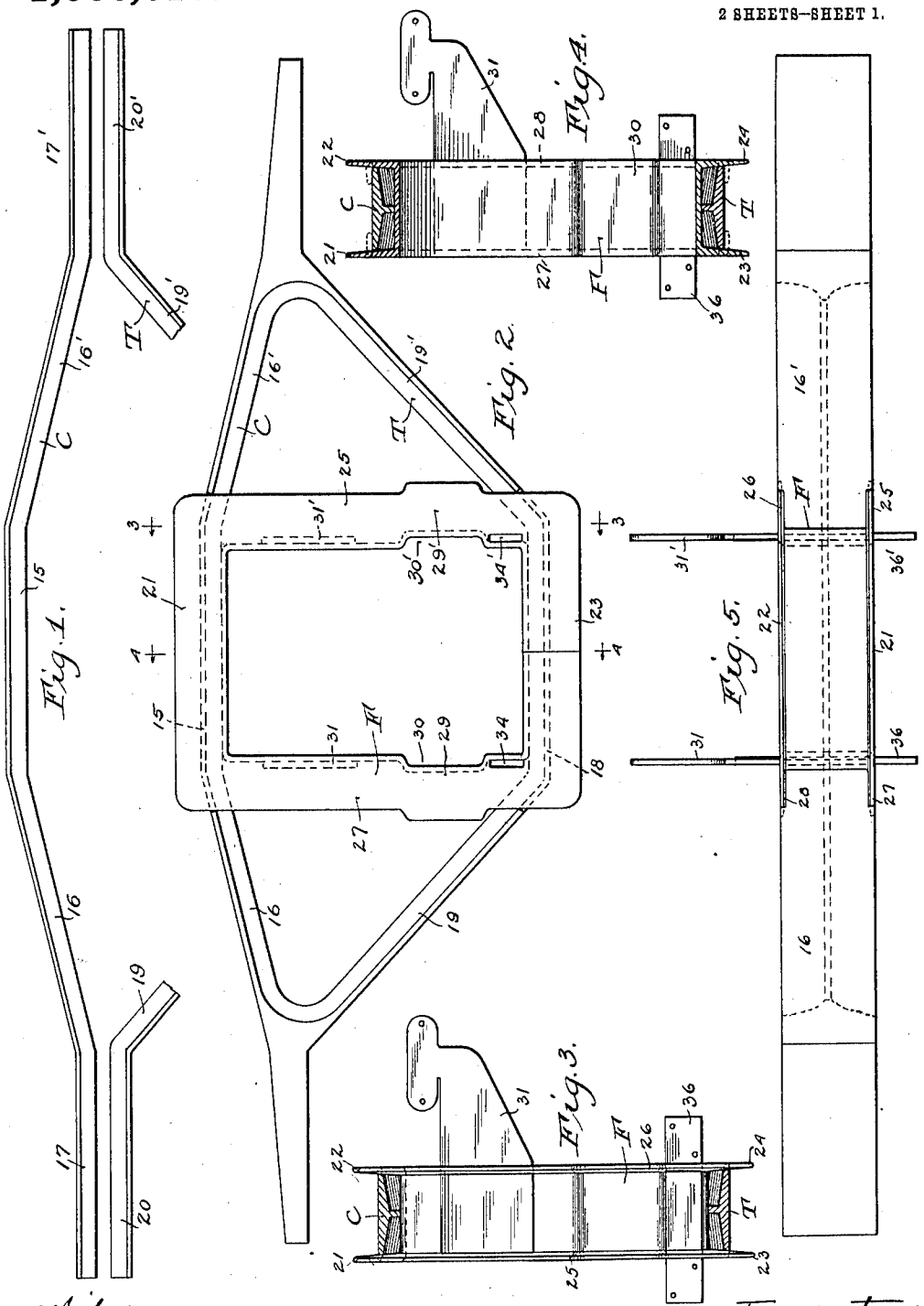
RAILWAY TRUCK SIDE FRAME.

APPLICATION FILED FEB. 10, 1912.

1,066,610.

Patented July 8, 1913.

2 SHEETS—SHEET 1.



Witnesses:
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COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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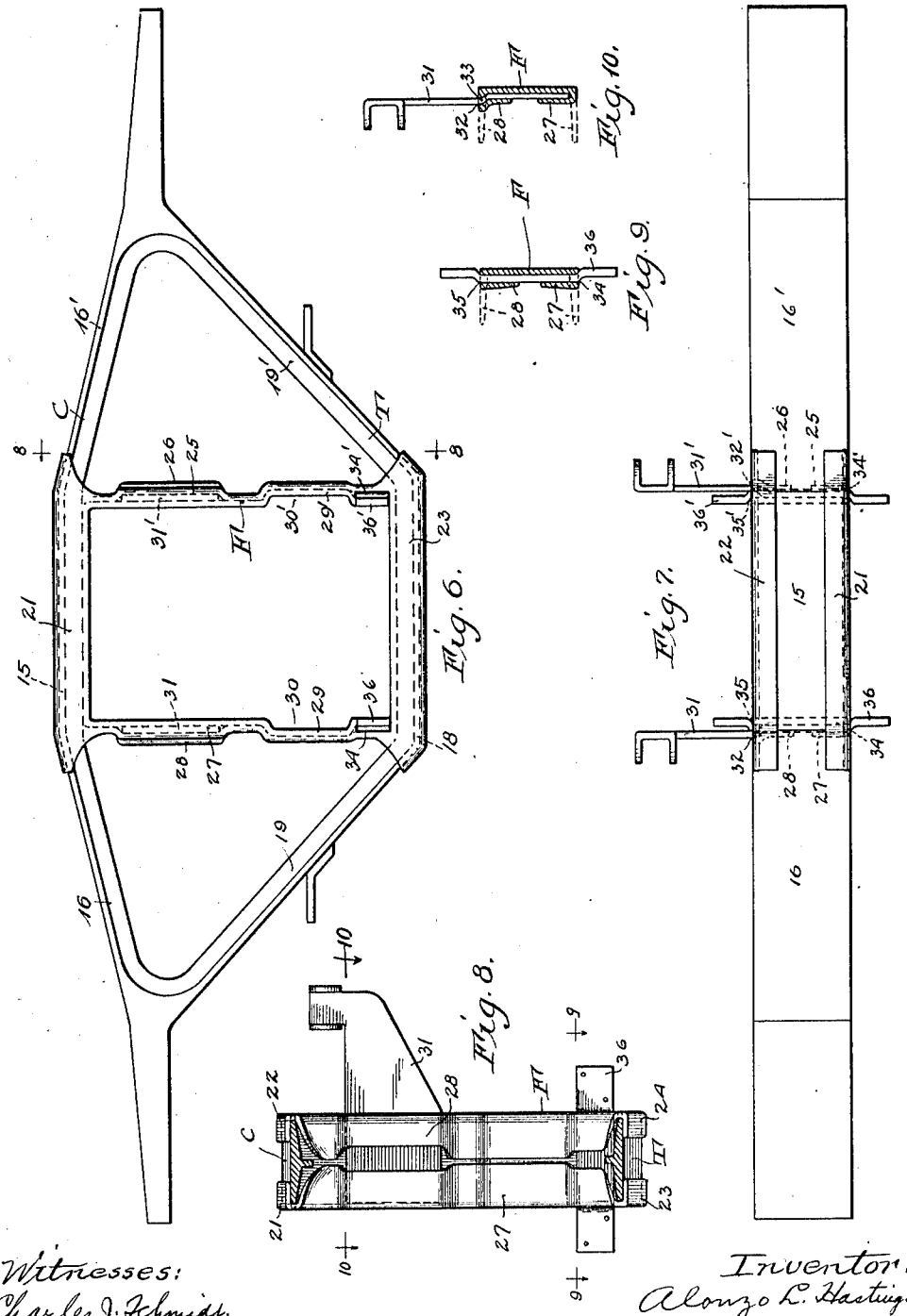
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UNITED STATES PATENT OFFICE.

ALONZO L. HASTINGS, OF CHICAGO, ILLINOIS.

RAILWAY-TRUCK SIDE FRAME.

1,066,610. Specification of Letters Patent. Patented July 8, 1913.

Application filed February 10, 1912. Serial No. 676,505.

To all whom it may concern:

Be it known that I, ALONZO L. HASTINGS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway-Truck Side Frames, of which the following is a specification.

My invention relates to railway truck side frames and refers particularly to that class of side frames built up of structural forms.

Among the important objects of the invention are to provide improved construction and arrangement; to provide improved method and procedure for uniting various parts and structures into a complete side frame structure; to provide such construction and arrangement that the various parts for the complete structure can be readily worked into forms; to provide such construction and arrangement that the various formed up parts can be finally intimately secured together by means of a single die structure and a single operation thereof; to provide such construction and arrangement that the parts can be readily secured together by spot welding; and in general to provide a more simple and more efficient process or procedure for producing the structure.

The various features of my invention can be clearly understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevational view of upper and lower chord members in embryo form, the chord being broken away, Fig. 2 is a side elevational view showing the chord members secured together and a spring plank and bolster mechanism supporting frame in embryo form held between the chord members, Fig. 3 is a sectional view taken on plane 3—3, Fig. 2, Fig. 4 is a sectional view taken on plane 4—4, Fig. 2, Fig. 5 is a top view of the structure shown in Fig. 2, Fig. 6 is a side elevational view like Fig. 2, but showing the spring plank and bolster mechanism supporting frame in final form, Fig. 7 is a top view of the structure in Fig. 6, Fig. 8 is a sectional view taken on plane 8—8, Fig. 6, Fig. 9 is a sectional view taken on plane 9—9, Fig. 8, and Fig. 10 is a sectional view taken on plane 10—10, Fig. 8.

The procedure in constructing improved side frames is as follows: Two lengths of beam of suitable cross-section are first bent to form the upper and lower respectively compression and tension chords C and T of the frame. Any form of beam can be used, but on account of their lightness and strength beams of T-section are preferred. The length for the upper chord is bent to provide a central horizontal section 15, intermediate downwardly inclined sections 16 and 16′, and the end horizontal sections 17 and 17′. The beam for the lower chord is bent to provide the central horizontal section 18, the intermediate upwardly inclined sections 19 and 19′ and the end horizontal sections 20 and 20′.

To form the inclosing frame for the spring plank and bolster mechanisms a length of channel beam is bent into the rectangular frame F with the flanges thereof extending outwardly. This frame is then applied between the upper and lower cord structures C and T, the horizontal section 15 of the upper cord then resting against the frame F between the upper flanges 21 and 22 thereof, and the horizontal section 18 of the lower cord rests against the bottom web of the frame F and between the flanges 23 and 24, the outer ends 17 and 20, and 17′ and 20′ of the chords then abutting. These abutting ends are now heated and worked and welded securely together so that the frame F is securely clamped between the chords the ends being shortened during working and thereby thickened so that the finished structure has ends of substantially rectangular form as shown in Fig. 2. The middle part of the structure is now sufficiently heated for die operation and is then inserted between die members and the flanges 21 and 22 and 23 and 24 projecting beyond the chord sections 15 and 18 are deflected over and against the outer faces of these sections, and during the same operation the flanges 25, 26 and 27, 28 of the side members of the frame F are bent over against their supporting webs. After the die treatment the frame F and the chords can be further secured together by spot welding, and likewise the flanges 25, 26 and 27, 28 can be spot welded to their supporting webs, so that strong and rigid vertical supporting walls result for accommodating the spring plank and bolster mechanism.

As illustrated in Fig. 5, the edges of the flanges of sections 15 and 18 of the upper and lower chords are preferably cut away

a distance corresponding to the thickness of the flanges of the frame F, so that when these flanges are turned over the frame F will be securely locked against longitudinal displacement on the chords and the structure will also present a more finished appearance. The length of the upper and lower walls of the frame F is preferably sufficiently greater than the lengths of the sections 15 and 18 respectively, so that during the die process the ends of the upper and lower webs of the frame F will be drawn against the outer faces of the inclined sections 16, 16′ and 19, 19′ as the upper and lower ends of the flanges 25, 26 and 27, 28 are drawn inwardly against their supporting webs, the bends between the horizontal and inclined sections of the chords being thus securely pocketed and clamped at the corners of the frame F. A very rigid structure thus results from ordinary stock material, and no bolts, rivets or other extraneous fastening members are necessary. The structure has also great strength, yet is very light.

When the side frames are utilized in the truck a spring plank will engage at its ends at the lower part of the frame F and between the side walls thereof, and the truck bolster will extend at its ends into the frames F of the opposite side frames, and the side grooves usually provided therefor will receive the side walls of the frame F. In order that the truck bolster can be inserted into the frame into engagement with the upper ends of the side walls thereof the lower ends of these side walls are deflected outwardly, as indicated at 29 and 29′, Fig. 2. These deflections are preferably formed in the frame F during formation thereof, and such deflections provide the opposed grooves 30 and 30′ into which the ends of the truck bolster are first inserted and the bolster then raised so that its side grooves will receive the upper ends of the side walls of the frame F, as is well understood in the art. It is also customary to provide brake hanger brackets on the side frames. In my construction such brake hanger brackets are accommodated in the following manner: The bases of the brake hanger brackets 31, 31′ are inserted through slots 32, 32′ formed in the flanges of the vertical walls of frame F. As shown, the flanges 26 and 28 are thus provided with slots, the brake hanger bracket ends extending horizontally through these slots and abutting against the bases of the opposite flanges 25 and 27 and against the webs between the flanges. The brake hanger brackets when thus inserted are preferably in their embryo blank form, so that their outer ends may extend through suitable openings provided in the die members, so that the operation of the die members in deflecting over the flanges of the frame F will not be interfered with. After the die operation the flanges will be securely clamped against the brake hanger blank bases, as shown in Figs. 8 and 10, and to insure greater strength and rigidity spot welding may be resorted to. After the die operation the outer ends of the brake hanger blanks are deflected and bent into the final form shown in Figs. 8 and 10.

In order that the brake hanger brackets may not interfere with the free engagement of the truck bolster with the frame F, each brake hanger blank is given a sharp reverse bend 33 where it enters its slot 32 or 32′, and the slot is cut through the flange at a distance from its supporting web so that the inner end of the brake hanger blank will abut against the web, but the outer end will be at a sufficient distance away from the inner face of the web as to be clear of the truck bolster. Means are also provided for locking the spring plank against the base of frame F and between the side walls thereof. The opposite flanges of the respective side walls of frame F have near their lower ends slots 34, 35 and 34′, 35′ respectively. Through slots 34 and 35 a flat bar 36 is inserted, and through the slots 34′, 35′ a similar bar 36′ is inserted. These bars extend a distance beyond each side of the frame F and abut against the webs of the respective flanges, and in order to have the outer ends of the bars flush with the inner faces of the side walls of frame F and flush with the sides of the spring plank between said walls the outer ends of the bars are deflected inwardly, as clearly shown in Figs. 7 and 9. The projecting ends of the bars then extend through suitable openings in the die members, and when the die members are brought together the respective flanges are securely clamped against and about the middle sections of the bars, and further strength is added by spot welding. When the spring plank is inserted between the side frames the outer ends of the bars are spot welded to the spring plank sides or bolted or riveted thereto. Thus a single die structure and a single operation thereof suffices to assemble the various parts and secure them together. The cords C and T are applied to the frame F and the brake hanger bracket blanks and the spring plank supporting bars are inserted in their respective slots and then the built up structure is treated between the die members, during which die operation the flanges of frame F are securely drawn and clamped about the chords C and T and about the brake hanger blanks and spring plank supporting bars. A simple auxiliary operation will serve to form up the outer ends of the brake hanger blanks. The opposite ends of the chords C and T may be secured together, preferably by welding after the

chords have been applied about the frame F. These chord ends need not, however, be connected together at this time, but, for example, could be connected together during the operation of securing journal box structures thereto. The resulting side structure is extremely rigid and strong, yet is very light, and its construction is very simple and inexpensive, as ordinary stock beams and material can be utilized, and only a single simple die structure is necessary for final intimate assembling of the various parts.

I do not of course desire to be limited to the precise construction, arrangement and procedure described, as changes and modifications are of course possible which would still come within the scope of the invention, and

I therefore claim the following:

1. The process of constructing a side frame for railway trucks, which consists in bending a rectangular frame from a length of channel beam with the flanges extending outwardly, applying an upper chord member between the flanges on the top wall of the frame and applying a lower chord member between the flanges on the lower wall of the frame, securing together the respective ends of the upper and lower chord members, and deflecting the flanges on the upper and lower walls of the frame against the adjacent walls of said upper and lower chord members.

2. The process of constructing a side frame for railway trucks, which consists in bending a rectangular frame from a length of channel beam with the flanges extending outwardly, applying an upper chord member between the flanges on the top wall of the frame and applying a lower chord member between the flanges on the lower wall of the frame, securing together the respective ends of the upper and lower chord members, deflecting the flanges on the upper and lower walls of the frame against the adjacent walls of said upper and lower chord members, and deflecting the flanges of the side walls of said frame against the backs of the channel webs adjacent said flanges.

3. The process of constructing a side frame for railway trucks, which consists in bending a rectangular frame from a length of channel beam and with the flanges extending outwardly, applying an upper chord member to the top wall of said frame and between the flanges thereon and applying a lower chord member to the lower wall of said frame between the flanges thereon, then bending over the flanges against the outer faces of said upper and lower chord members to securely clamp the chord members to the frame, inserting the ends of brake hanger brackets through suitable slots provided in the flanges of the side walls of said frame, and then deflecting the flanges of the side walls of the frame against said bracket ends.

4. The process of constructing a side frame for railway trucks, which consists in bending a rectangular frame from a length of channel beam and with the flanges extending outwardly, applying an upper chord member to the top wall of said frame and between the flanges thereon and applying a lower chord member to the lower wall of said frame between the flanges thereon, then bending over the flanges against the outer faces of said upper and lower chord members to securely clamp the chord members to the frame, inserting the ends of brake hanger brackets through suitable slots provided in the flanges of the side walls of said frame, inserting bars through suitable slots in the flanges of the side walls of the frame at the lower end thereof, and then bending the flanges of said side walls back against the wall webs and about said brake hanger ends and bars in said slots to thereby securely anchor the brake hanger brackets and bars to the side walls of said frame.

5. The process of constructing a side frame for railway trucks, which consists in bending a length of channel beam into a rectangular frame with the flanges extending outwardly, applying an upper chord member to the top web of the frame and between the flanges thereon and applying a lower chord member to the lower web of the frame and between the flanges thereon, securing together the ends of said chord members, providing slots in the opposite side sections of said frame and through flanges thereof, inserting the ends of brake hanger brackets into said slots and against the webs adjacent said slots, providing slots at the lower ends of said frame side sections through the flanges and adjacent the webs thereof, extending spring plank supporting bars through said slots, then bending the flanges of the frame side sections toward each other and against their supporting webs and about said brake hanger brackets and spring plank supporting bars, and bending the flanges of the upper and lower frame walls toward each other and against the adjacent faces of said upper and lower chords.

6. The process of constructing a side frame for railway trucks, which consists in bending a rectangular frame from a length of channel beam with the flanges extending outwardly, applying an upper chord member to the top wall of said frame and between the flanges thereon and applying a lower chord member to the lower wall of said frame and between the flanges thereon, securing the ends of the chords together to thereby hold the chords and frame together, heating the structure, and then placing it between die members and causing the flanges

of said frame to be bent against the frame webs thereby to inclose said chord within the flanges and webs of the upper and lower frame sections.

7. The process of constructing a side frame for railway trucks, which consists in bending a rectangular frame from a length of channel beam with the flanges extending outwardly, applying an upper chord member to the top wall of said frame and between the flanges thereon and applying a lower chord member to the lower wall of said frame and between the flanges thereon, securing the ends of the chords together to thereby hold the chords and frame together, providing slots through the flanges at the upper ends of the side sections of said frame, inserting the ends of brake hanger brackets in said slots, providing slots through the flanges at the lower ends of said frame side sections, inserting spring plank supporting bars through said slots, and then subjecting the structure to a die treatment to simultaneously deflect the various flanges toward their webs thereby to securely clamp the frame to the chords and to securely clamp the brake hanger brackets and spring plank supporting bars to the frame.

8. The process of constructing a side frame for railway trucks, which consists in bending a rectangular frame from a length of channel beam with the flanges extending outwardly applying an upper chord member between the flanges on the top wall of the frame and applying a lower chord member between the flanges on the lower wall of the frame, and deflecting the flanges on the upper and lower walls of the frame against the adjacent walls of said upper and lower chord members.

9. The process of constructing a side frame for railway trucks, comprising upper and lower chords and intermediate vertical walls which consists in inserting between the upper and lower chords a rectangular frame having outwardly extending flanges on its upper and lower walls and deflecting said flanges against the adjacent parts of said upper and lower chords.

In witness hereof, I hereunto subscribe my name this 6th day of February, A. D., 1912.

ALONZO L. HASTINGS.

Witnesses:
CHARLES J. SCHMIDT,
NELLIE B. DEARBORN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."