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J. A. KILBANE ET AL

3,001,266

BRIDGING PLATE AND METHOD OF MAKING THE SAME

Filed July 1, 1960

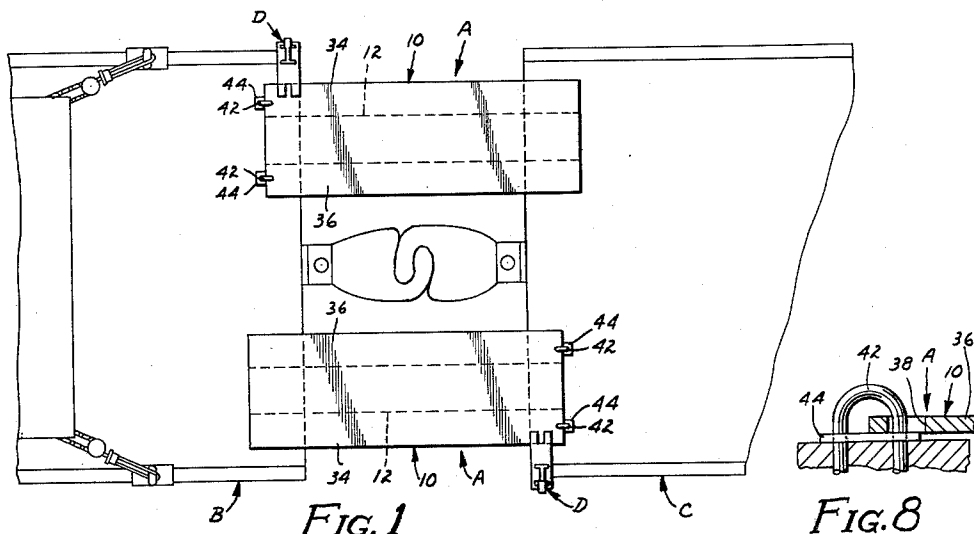


FIG. 1

FIG. 8

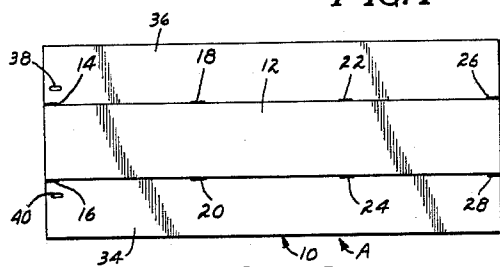


FIG. 2

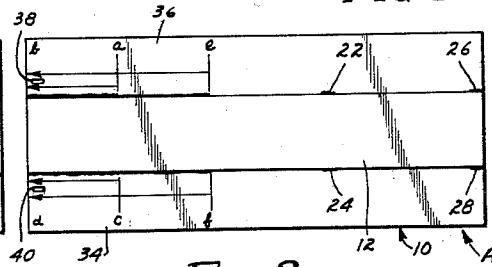


FIG. 3

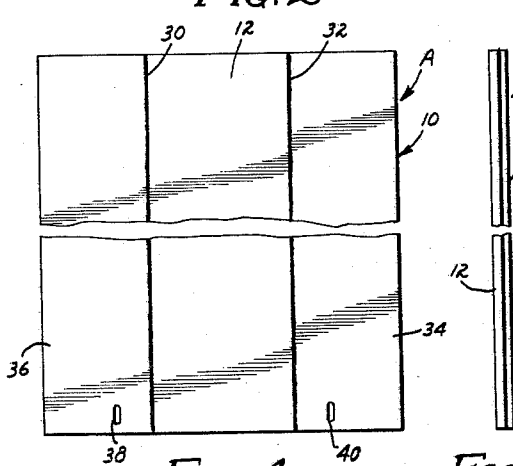


FIG. 4

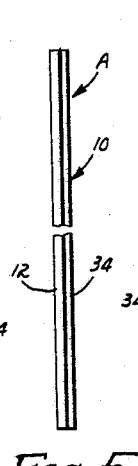


FIG. 5

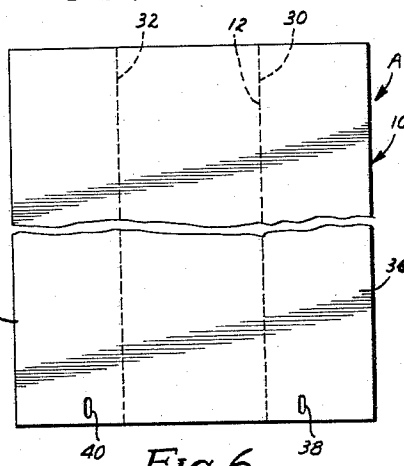


FIG. 6

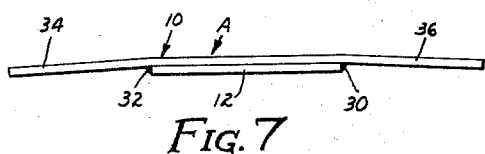


FIG. 7

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3,001,266 BRIDGING PLATE AND METHOD OF MAKING THE SAME

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4 Claims. (Cl. 29—155)

The invention relates broadly to means for moving mobile units from one railroad flat car to another and, more particularly, to the plates used to bridge the space between the ends of the coupled flat cars whereby a unit on one flat car may be moved to an adjacent flat car.

In recent years, the demand for some sort of bridging between railroad flat cars has increased, particularly with the advent of the semitrailer and its movement by railroad flat car. At present, such bridging is done by plates made of steel, but this provides a plate which has a weight too great for one man to handle. Placing of present day plates for use and storing requires two men to do the job. To merely replace these iron plates with aluminum plates of sufficient thickness to carry the load is not the answer, for it has been found such a plate would also be too heavy for one man, and, in addition, the cost would be greater than that of the present iron plate and make the same prohibitive.

It is, therefore, an object of the invention to provide a bridging plate of aluminum having a construction which gives the rigidity needed, but with a minimum of weight and material.

It shall not be attempted here to set forth and indicate all of the various objects and advantages incident to the invention, but other objects and advantages will be referred to in or else will become apparent from that which follows.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings, showing by way of example a preferred embodiment of the inventive idea wherein like numerals refer to like parts throughout.

In the drawings forming part of this application:

FIGURE 1 is a top plan view of two of the bridging plates in operative position on two coupled flat cars, only a portion of the end of each flat car being shown.

FIGURE 2 is a bottom plan view of the primary plate portion with the secondary reinforcing plate portion tacked in position as part of the method of making the plate.

FIGURE 3 is a bottom plan view of the construction shown in FIGURE 2 in a further advanced stage in the method of construction.

FIGURE 4 is a bottom plan view of the plate finished according to the method.

FIGURE 5 is a longitudinal, side, elevational view of the plate.

FIGURE 6 is a top plan view of the plate.

FIGURE 7 is an enlarged end edge view of the plate.

FIGURE 8 is a partial sectional view of the connecting U-bolt and a portion of the bridging plate.

Referring to the drawings in detail, my bridging plate A includes the primary flat plate portion 10 which is generally of one-half inch, flat aluminum stock in rectangular form approximately thirty inches by fifty-four inches. Also included is the secondary reinforcing plate portion 12 which is generally of one-half, flat, aluminum stock in rectangular form approximately twelve inches by fifty-four inches.

The secondary plate portion 12 is placed on the under surface of the primary plate portion 10 substantially centrally and longitudinally thereof as illustrated particularly in FIGURE 2. In this position, the plate portion 12 is "tacked" to the plate portion 10 by small, spaced,

tack welds, as at 14-28, FIGURE 2. The tack welds 14-28 are alternately and progressively made from one end to the other. With the plate portion 12 in the position shown in FIGURE 2 as the first step in the formation of the complete plate A, the plate portion 12 is then further secured to the primary plate portion, as the second step. This is done by making a back step weld from a to b and then alternating to the opposite edge of the plate 12 and making a back step weld from c to d. Then alternating to the first mentioned side of plate portion 12 and making the back step weld from e to b and then making a back step weld from f to d. By back step welding in segments as outlined above the complete weld is made at 30 along one edge of the secondary plate and a complete weld at 32 along the opposite edge. In welding the edges as outlined above the result is a double pass fillet weld along the entire length of each completed weld 30 and 32.

The alternation of the back step welds outlined above is preferred, but the same may be changed in the order and placement as long as there is progressive alternation.

As a result of the steps outlined above, the longitudinal areas of the plate portion 10 between the outer edges of the plates 10 and 12 are progressively welded and warped along their entire length at the edges of the plate 12 to form the longitudinal deflected portions 34 and 36 which give rigidity to the plate. In addition, there is no warping of the plate A generally because of my process and the same remains relatively flat except for the deflected portions 34 and 36 which give the plate A an arched formation in transverse cross section.

Further provided at one end of the plate A are the spaced, elongated slots 38 and 40. The numeral 42 designates a U-bolt to which is attached a small plate 44 which rests on the bed of the flat car B or C, the U-bolt being secured to the flat car bed. The U-bolt is positioned through the slot of the plate A whereby the plate may be pivoted upwardly to substantially a vertical position and engaged with the post such as D when not in use. The plate may also be flopped over and stored upon the surface of the flat car when space allows.

It will be noted that a single plate A is connected to the end of the flat car adjacent one corner thereof with a second plate connected to the opposite end adjacent the corner obliquely disposed to the first mentioned corner whereby a plate of each of two connected flat cars may be placed in parallel relation for bridging between the cars, as shown in FIGURE 1.

It will be seen that I have disclosed a bridging plate and the method of making the same which, due to its construction, allows a relatively light weight fabrication, but which gives sufficient strength and rigidity.

The invention is not to be understood as restricted to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. The method of making a bridging plate having deflected longitudinal portions consisting in forming a primary plate portion and forming a secondary plate portion of a width less than the primary plate portion, then positioning said secondary plate portion on the primary plate portion and securing the same thereto by spaced tack welds along the longitudinal edges of said secondary plate, then forming spaced weld sections of relatively short lengths alternately and progressively along the longitudinal edges of said secondary plate portion to form a continuous weld on both edges of said secondary plate portion, the formation of said continuous welds causing portions of the primary plate portion extending longitudinally thereof and outwardly from the

continuous welds to deflect and provide a bridging plate which is arched transversely.

2. The method of making a bridging plate consisting in forming a flat primary plate portion and a secondary flat plate portion of a width less than the primary plate portion, then securing said secondary plate portion to said primary plate portion substantially centrally thereof by welding the secondary plate at its longitudinal edges to the primary plate progressively by relatively short sections of spaced welds alternated with relation to the edges of the secondary plate portion and the ends thereof.

3. The method of making a bridging plate consisting in forming a flat primary plate portion and forming a secondary flat plate portion of a width less than the primary plate portion, then securing the secondary plate portion to the primary plate portion substantially centrally and longitudinally thereof by means of spaced tack welds, then forming a first short section of weld along the longitudinal edge of the secondary plate portion, then forming a second short section of weld along the longitudinal edge of the secondary plate portion opposite to the first mentioned weld section and substantially coextensive therewith, then forming a third short weld portion along the longitudinal edge of the secondary plate portion extending from the first short weld section, then forming further short weld sections in the manner outlined until a continuous weld is formed on both longitudinal edges of said secondary

plate portion, the formation of the continuous welds causing portions of the primary plate portion extending longitudinally thereof and outwardly from the continuous welds to deflect and provide a bridging plate which is arched transversely.

4. The method of making a bridging plate having deflected longitudinal portions consisting in forming a primary plate portion and forming a secondary plate portion of a width less than the primary plate portion, then positioning said secondary plate portion on the primary plate portion and securing the same thereon, then forming spaced weld sections of relatively short lengths alternately and progressively along the longitudinal edges of said secondary plate portion to form a continuous weld on both edges of said secondary plate portion, the formation of said continuous welds causing portions of the primary plate portion extending longitudinally thereof and outwardly from the continuous welds to deflect and produce a bridging plate which is arched transversely.

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