July 31, 1923.

1,463,512

W. W. LEACH

CRATE

Filed April 20, 1921

2 Sheets-Sheet 1

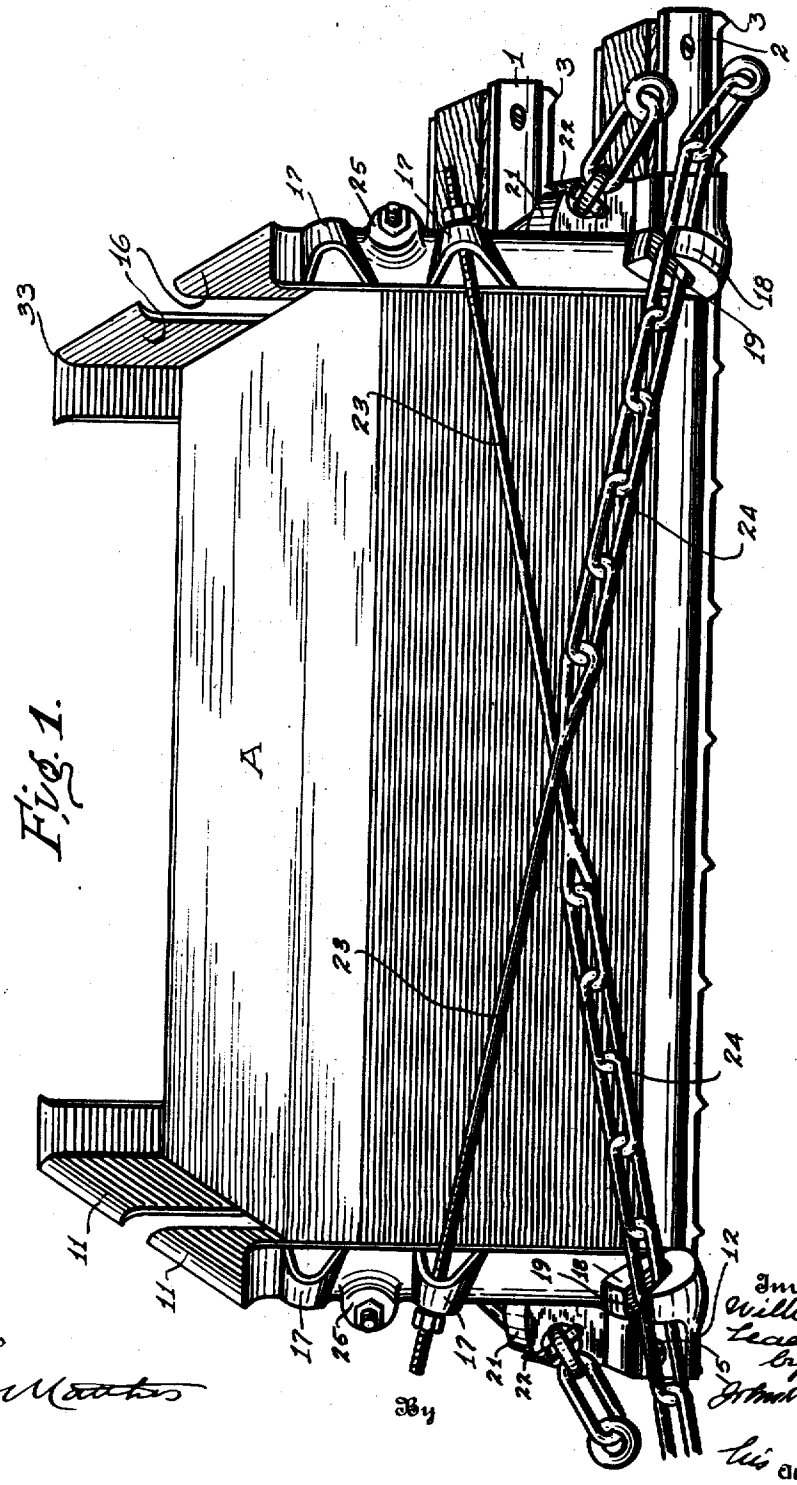


Fig. 1.

Witnesses

Inventor
William W. Leach
by
Attorney

By

July 31, 1923.

W. W. LEACH

1,463,512

CRATE

Filed April 20, 1921

2 Sheets-Sheet 2

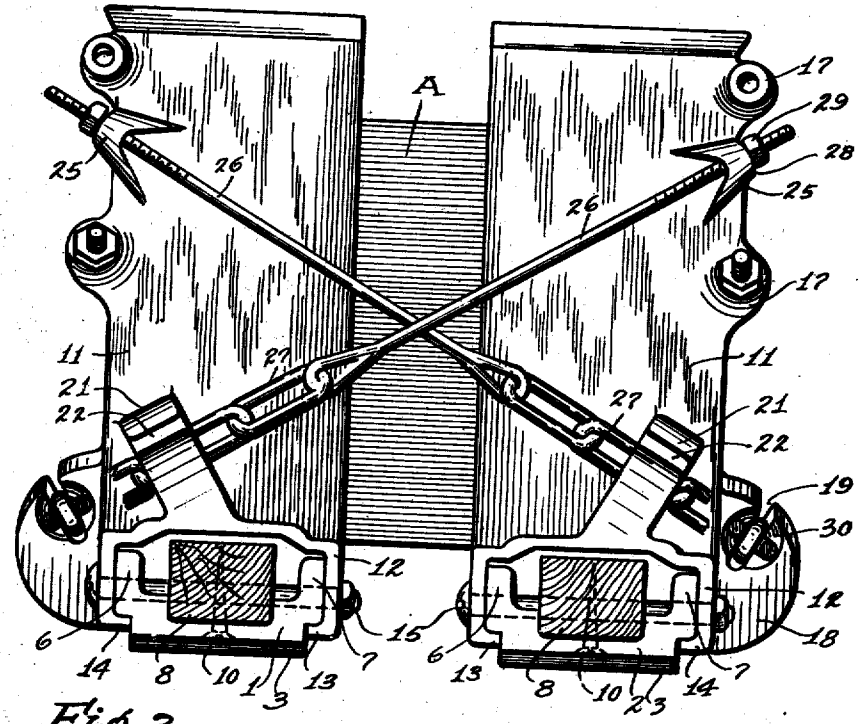


Fig. 2.

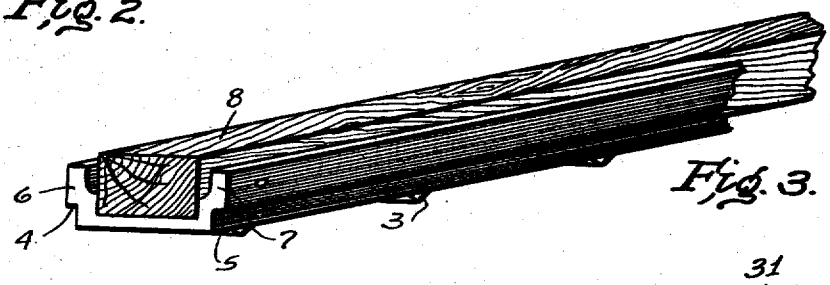


Fig. 3.

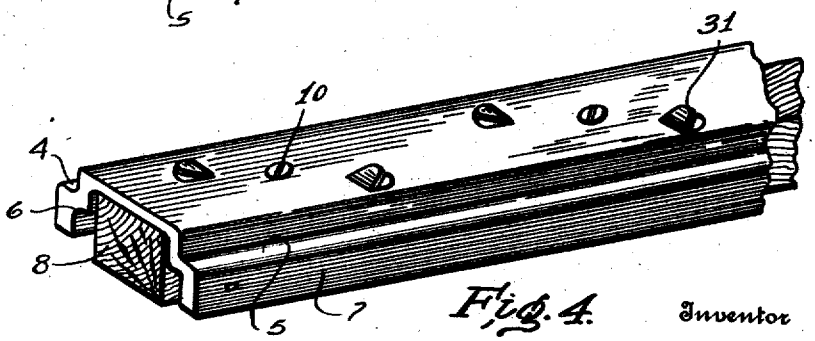


Fig. 4.

Witnesses

J. D. Matthews

Inventor

William W. Leach

By

by

Dewey & Co

their Attorney

Patented July 31, 1923. 1,463,512

UNITED STATES PATENT OFFICE.

WILLIAM W. LEACH, OF MANSFIELD, OHIO.

CRATE.

Application filed April 20, 1921. Serial No. 463,787.

To all whom it may concern:

Be it known that I, WILLIAM W. LEACH, a citizen of the United States of America, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Crates, of which the following is a specification.

This invention relates to crates and is especially adapted for shipping piles or packs of polished and oiled sheet metal. The conventional manner of crating, shipping and transporting sheet metal is to pile a plurality of metal sheets closely and compactly together arranged in two packs at each end of a car or the like and adjacent to each side thereof. The ends of the sheets toward the door of the car are preferably raised to run at an incline toward the end of the car. Each pack of sheets is supported above the floor of the car. The ends of the sheets at or adjacent to the door of the car are blocked or held in place by a frame work which is arranged and constructed, so as to prevent the sheets from sliding or shifting on each other toward the door of the car. The other ends of the sheets are prevented from sliding in the other direction by the ends of the car.

A frame-work is interposed between both packs or piles of sheet metal at each end of the car to prevent sidewise movement of the sheets upon each other, due to the vibration, jarring of the car, bumping against other cars, switching or kicking in a car when cut from another. The sheets frequently because of the fact that they are polished and oiled shift or move upon each other, thereby mutilating and bending the edges of the sheets, scratching the surfaces thereof and at times in transporting same they are thrust against the sides or ends of the car wrecking and demolishing the sides or ends of the car by the impact of the sheets against the car. It is often therefore necessary for the consignee to return the sheets to the consignor on account of the damage done to the sheets in transporting.

It will be readily apparent that considerable labor and material is wasted in packing and blocking the piles of sheets in the car to prevent same from moving with respect to each other or sliding or shifting upon each other thereby scratching the surfaces thereof (or otherwise damaging same) if there happens to be débris between the sheets in the pile.

The primary object of the present invention is to provide a crate into which a pile of sheets can be packed (for transportation) of the same or different sizes which is provided with supporting members, clamping standards, and means of surrounding and connecting the clamping standards with a series of adjustable criss-cross clamping braces which are adapted to be adjusted sidewise or endwise independently of each other forcing the corners of the clamping standards against the sides and ends of the pile of sheets thereby securely holding, maintaining and clamping the pile of sheets in the crate and preventing the sheets from moving on or with respect to each other.

Another object is to provide means which is associated with the supporting means of the crate to prevent the crate from moving from a pre-determined position.

A further object is to provide means of constructing a crate that is adapted to be packed with metal sheets or the like consisting of two different sizes and widths of sheets.

A further object is to provide a crate for shipping and transporting a plurality of oiled and polished sheet metal in piles with means of readily and conveniently disassembling the crate when the shipment has reached its destination (or the consignee) to permit the crate to be returned to the consignor to be used again by the consignor for shipping other piles of metal sheets to the same or another destination or consignor.

These and other objects are attained in the construction shown in the accompanying drawings in which:—

Fig. 1, is a side elevation in perspective showing the assembled crate and a pile of sheets clamped within the crate.

Fig. 2, is an end view of Fig. 1, showing in section strips of wood attached to the supporting means.

Fig. 3, is a broken detail view of the preferred form of supporting means showing the strips extending above the flanges of the channel bar supporting means with V shaped cleats formed thereon for the pur-

pose penetrating the floor of the car to resist movement of the crate from its pre-determined position as placed in the car.

Fig. 4, is a modified form of Fig. 3, showing a series of lips pressed from the web of the channel bar supporting means, to prevent movement or slippage of the crate.

In the accompanying drawings reference numerals 1 and 2 represent channel shaped supporting members having V shaped cleats 3 formed on the web portions thereof. The flanges 6 and 7 are provided with shouldered portions 4 and 5.

In the application of the supporting members the web portions are placed in the car adjacent to the floor leaving the flanges 6 and 7 extending upwardly. Strips of wood or the like 8 are fitted between the flanges 6 and 7 leaving the upper surfaces non-metallic for supporting the pile of sheets. The strips are fastened to the webs of the channel bar supporting members by wood screws 10. Standards 11—11 having longitudinal sleeve members 12 are fitted to the supporting members extending over the top and on each side thereof. The free ends of the socket members are inturned at 13 and 14 to slidably fit into the shouldered portions 4 and 5 of the supporting members. The standards 11—11 are securely held stationary at one end of the supporting members by bolts 15.

Similar auxiliary standards 16—16 are slidably fitted to the supporting members in opposed relation to the stationary standards 11—11. The auxiliary slidable standards are formed and constructed exactly the same as the stationary standards. The sides of the standards 16—16 are provided with one or more tapered lug portions 17—17 having apertures formed in the centers thereof.

The lugs 17—17 are preferably located adjacent to the upper portion of the standards. The sides of the standards are also provided with enlarged angularly related lug portions 18—18 having open slots 19—19 formed therein. The ends of the standards are also provided with enlarged angularly related lug portions 21—21 having open slots 22—22 formed therein.

The crate as described comprises two separate units, each consisting of a supporting member and two standards one movable the other stationary.

The clamping mechanism for connecting the standards of each unit together for the complete crate will now be described. The supporting members 1 and 2 are used in association with the stationary clamping standards 11—11 which are secured to the supporting members as described and the movable clamping standards 16—16 which are mounted upon the supporting members in opposed relation to the stationary standards. When it is desired to pile the sheets, as shown at A in the crate, the supporting members 1 and 2 are placed in the car parallel to each other and spaced an appropriate distance apart from each other to correspond with the width of the sheets it is desired to transport.

The construction of the clamping mechanism is as follows:—

Eye-bolts 23—23 having a series of links 24—24 attached thereto pass through apertures in the tapered lugs 17—17 and one unit of each series links 24—24 which are connected thereto is fitted to the slots 19—19 leaving the ends of the next adjacent and succeeding links toward the bottom of the standard abutting against the countersunk portions of the lugs 18—18 in right angular relation to the links fitted within the slots 19—19 of the lugs 18—18. Similar eye-bolts and links comprising a chain are connected to the standards on the opposite side of the crate in a similar manner.

It will be noted that the duplicate clamping means are arranged and connected to the opposed standards in criss-cross relation on each side of the crate relative to the pile of sheets and also at the ends thereof.

Tapered lugs 25—25 are provided on the ends of the clamping standards with central apertures formed therein. The lugs 25—25 are preferably located between the lugs 17—17 formed on the sides of the clamping standards. The threaded ends of the eye-bolts 26—26 engage the apertures formed in the lugs 25—25.

A series of links 27—27 are attached to the eye-bolts 26—26 and one of each series of links 27—27 fits within each open slot 22—22 formed in the lugs 21—21 and the next succeeding lower link abuts against the countersunk portion of lugs 21—21 at right angles to the links 27—27 which are fitted within the slots 22—22.

It will be noted that the threaded ends of each eye-bolt is connected to one of the clamping standards and also one of the links of each chain is connected to the other standard in a criss-cross relation along each side and at each end of the crate.

The adjustable clamping mechanism comprising the parts 26—26 and 27—27 provide means of compressing binding and clamping the sheets in a sidewise direction and in combination with the parts 23—23 and 24—24 which are arranged on the sides securely clamp and bind the sheets at the corners endwise, thereby maintaining the pile of sheets in place and preventing the sheets from becoming damaged by sliding upon or away from each other, due to shocks incident to the strain, vibration, jar, switching, impact or bumping of the cars against each other in transporting the piles of sheets. The cleats 13 or lips 31 prevent the assembled crate from shifting in the car from

its proper position. The lips or cleats are adapted to penetrate into the floor of the car to resist any tendency of the crate to shift or move in the car when the car is subjected to the stress and strain incident to transporting the piles of sheets in the car from one terminal to another.

The upper edges 33—33 of all of the standards are inclined in opposed relation to each other to permit the sheets to be guided easily and conveniently between the clamping standards when the crate is being packed.

The supporting members 1 and 2 can be made of any length or width desired to accommodate different sizes and widths of sheets. It will also be noted that the portions of the clamping standards forming the corners thereof can be made any size desired. The nuts 29—29 provide for the adjustment of the clamping standards and clamping function of the clamping mechanism.

If it is desired to crate and ship sheet metal of different lengths and widths in the same crate, the clamping members can be adjusted to receive the largest size and blocks of wood or the like can be fitted at the ends or sides to equal the difference in the sizes of the sheets packed in the crate. The clamping standards are made rights and lefts to provide corners in opposed relation to each other.

It is not intended to limit the present invention to a means or method for packing and shipping sheet metal as it is obvious that it can be used for shipping and transporting material of different kinds, forms and shapes without deviating from principle involved in the present invention.

I claim:

1. In a crate, separate supporting members, standards having corners provided thereon rigidly secured to the supporting members, standards having corners provided thereon slidably mounted on the supporting members, and means to adjust the movable standards lengthwise on the supporting members.

2. In a crate, separate supporting members, standards having corners provided thereon rigidly secured to the supporting members, standards having corners provided thereon slidably mounted on the supporting members, means to adjust the movable standards lengthwise on the supporting members, and means to adjust the standards sidewise with respect to each other.

3. In a crate for shipping sheet metal, separate and independently movable means to support a pack of sheets, adjustable clamping means for clamping the corners of the sheets which are mounted on the supporting means and adapted to be forced to exert a frictional clamping pressure upon the sides and ends of the sheets at the corners thereof.

4. In a crate for shipping sheet metal, separate and independently movable means to support a pack of sheets, adjustable clamping means for clamping the corners of the sheets which are mounted on the supporting means and adapted to be forced to exert a frictional clamping pressure upon the sides and ends of the sheets at the corner thereof, and means provided on the bottom of the supporting means to prevent slippage of the crate as described.

5. In a crate, means to support a pile of sheets consisting of two separate upturned channel bar members having strips of wood attached to the web portion between the flanges having lip surfaces and extending above the flanges, standards mounted upon the supporting means, and adjustable clamping means surrounding said standards which are adapted to be adjusted to move the standards sidewise and lengthwise in contact with the sheets as described.

6. A crate for sheet metal comprising a supporting member in combination with a movable and a non-movable corner standard which standards are mounted on the supporting member and clamping means connected to said standards, as described.

7. A standard for sheet metal crates having a horizontal shouldered sleeve member, angular members forming corners provided thereon, lugs formed thereon at right angles to each other and clamping means connected to said lugs for the purpose described.

8. In a shipping crate for sheet metal, the combination of supporting members adapted to be spaced apart in parallel relation to each other, stationary and slidable clamping standards mounted thereon, and an adjustable clamping mechanism connected to the clamping standard and adapted to force the clamping standards in frictional contact with the sides and ends of a pile of sheet metal as described.

9. In a shipping crate for sheet metal, supporting members provided with shouldered portions, non-metallic strips fitted to said members, clamping standards provided with horizontal apertures adapted to fit the supporting members, lugs formed on the clamping standards at right angles to each other, and a clamping mechanism connected to said lugs whereby the clamping standards are moved sidewise and endwise for clamping the sheets in the crate, as and for the purpose described.

10. In a shipping crate, supporting members, stationary and movable clamping standards mounted thereon, and means to draw the standards sidewise and endwise for clamping purposes as and for the purpose described.

11. In a shipping crate, supporting means

consisting of two separate parts adapted to be spaced apart in different parallel relations to each other, stationary and movable clamping standards having corners formed thereon, mounted on the supporting means, lugs formed on the clamping standards, adjustable clamping braces secured to the lugs in criss-cross relation to each other and adapted to draw the corners of the standards in contact with the ends and sides of a pile of sheet metal as described.

12. In a shipping crate, separate and independently movable means to support a pile of sheet metal, means to provide an adjustable sheet receptacle which is mounted on said supporting means, and means to clamp the adjustable receptacle against the ends and sides of a pile of sheet metal as and for the purpose described.

13. In a crate, supporting members composed of channel bars having non-metallic strips secured between the flanges thereof, movable and non-movable clamping standards fitted to said supporting members and means to draw said clamping standards endwise and sidewise to frictionally contact with a pile of sheet metal to securely clamp the sheets for the purpose intended.

14. In a sheet metal crate, supporting members composed of channel bars having non-metallic strips secured between the flanges thereof, movable and non-movable clamping standards fitted to said supporting members, means to draw said clamping standards endwise and sidewise to frictionally contact with a pile of sheet metal for clamping purposes and means to prevent the crate from moving from a pre-determined position in the car.

15. In a sheet metal crate, separate and independently movable supporting members, a plurality of opposed clamping standards mounted on the supporting members and means to clamp the clamping standard against the metal sheets as and for the purpose described.

16. In a crate, the combination of two parallel supporting members adapted to be spaced apart at a pre-determined distance with respect to each other, a pair of standards fixedly secured to the supporting members, another pair of standards slidably mounted on said supporting members and in alinement with a fixed pair of standards and means secured to the standards to permit the adjustment of the standard laterally.

17. In a crate, the combination of two parallel supporting members adapted to be spaced apart at a predetermined distance with respect to each other, a pair of standards fixedly secured to the supporting members, another pair of standards slidably mounted on said supporting members and in alinement with the fixed pair of standards, means secured to the standards to permit the adjustment of the standard laterally and means to permit the adjustment of the standards in a longitudinal direction.

18. In a crate adapted for receiving a pile of sheet metal of rectangular form, comprising separate and independently movable means to support said pile of sheets, and means to inclose the corners of said pile of sheets mounted upon said supporting members and means to clamp the pile of sheets in a sidewise and endwise direction.

19. In a sheet metal crate for shipping a pack of thin metal sheets, comprising separate movable means for supporting said pile of sheets, clamping means fixedly secured to said movable supporting means, clamping means slidably supported on said movable means in opposed relation to the first mentioned clamping means and adjustable clamping means positioned and connected to the sides and ends thereof to adjustably clamp and hold the clamping means against the ends and sides of the sheets at the corners of the pile of sheets, as and for the purpose described.

20. In a sheet metal crate, comprising separate and independently movable supporting means, standards mounted on said supporting means provided with corner portions which are adapted to enclose the corners of a pile of rectangular sheets of metal, adjustable means secured to the standard and adapted to move said standards in an endwise and sidewise direction for the purpose of clamping the pile of sheets therein, as and for the purpose described.

21. In a crate, a pair of parallel supporting members having cleats formed on the lower portion, runners secured to the upper portion and the supporting members, a pair of standards secured to said supporting means, another pair of standards slidably secured to said supporting means and in alinement therewith, means comprising eye bars and link chains secured to said standards in right angular relation to each other, which are adapted to move the standards in endwise and sidewise relation to the pile of sheets for clamping purposes as and for the purpose described.

22. In a crate adapted for receiving for shipment a pile of rectangular sheets of steel, a pair of parallel supporting members made of two kinds of material and adapted to be moved in sidewise relation to each other, a pair of clamping members fixedly secured to said supporting members co-operating with another pair of standards which are slidably mounted on said supporting means and means of clamping the pile of sheets in a sidewise and endwise direction at and adjacent to the corners of the rectangular sheets as and for the purpose described.

23. In a crate, the combination of horizontal supporting members having a plu-

rality of standards mounted thereon, part of said standards being movable toward the other for clamping purposes, clamping means connecting said standards in a longitudinal direction and clamping means connecting said standards in a sidewise direction, both of said clamping members being adapted to clamp a pile of sheet metal or the like, as and for the purpose described.

24. In a crate, parallel supporting members comprising a channel member having cleats formed thereon, wooden runners secured thereto, fixed standards provided with corner portions securely attached to said supporting members, movable standards slidably mounted upon said channel members and adapted to be moved to and from the fixed standards, means secured to the standards at the ends and sides thereof to adjust the standards in a sidewise and endwise direction, as and for the purpose described.

25. In a crate for packing rectangular sheets of metal, separate and independently movable means to support a pile of sheets, means to enclose the corners of said pile of sheets and adjustable means to clamp the pile of sheets at the corners thereof laterally and longitudinally, as and for the purpose described.

In testimony whereof I affix my signature.

WILLIAM W. LEACH.