

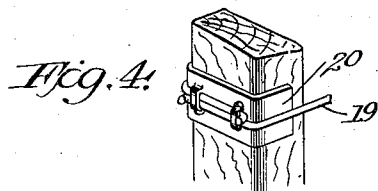
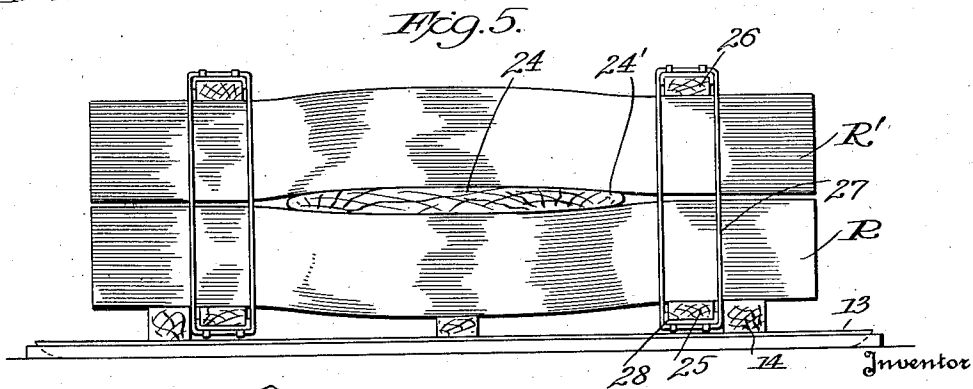
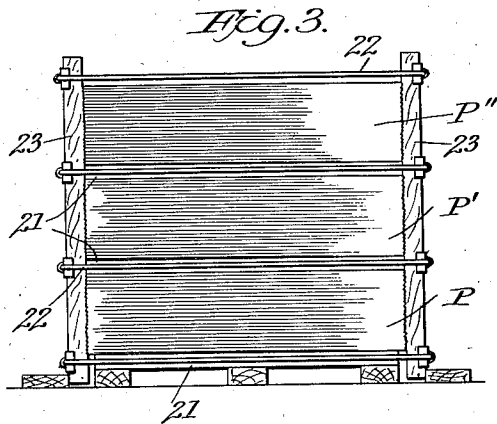
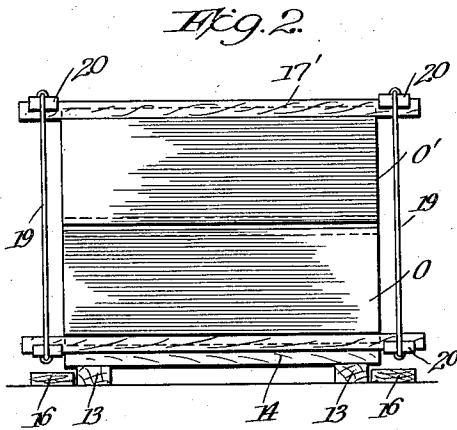
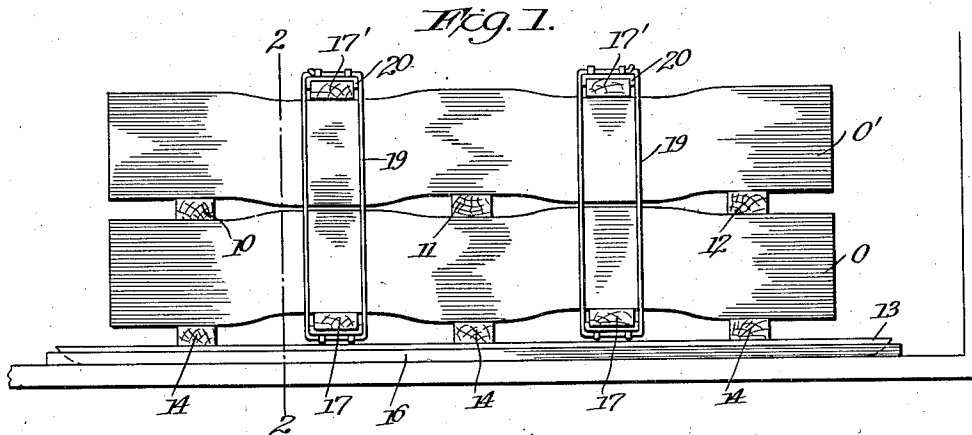
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R. T. ROMINE

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METHOD FOR SHIPPING METAL

Original Filed Jan. 23, 1930



Inventor
Robert T. Romine.

By *Carlson Bryant Dyer & Carlson*
Attorneys

UNITED STATES PATENT OFFICE

ROBERT T. ROMINE, OF MOUNT CLEMENS, MICHIGAN, ASSIGNOR TO MATERIAL HANDLING, INC., OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE

METHOD FOR SHIPPING METAL

Original application filed January 23, 1930, Serial No. 422,845. Divided and this application filed December 31, 1931. Serial No. 584,243.

This invention relates to the loading and shipping or transporting of material, such as sheet, strip or bar metal on railway cars or other carriers.

The present application is a division of my copending application, Serial No. 422,845, filed January 23, 1930.

An object of the invention is to provide a method and apparatus for loading or packing the metal, such as sheet, strip or bar steel, on the floor of a freight car or carrier for transportation in relatively heavy units and in such manner as to prevent or resist such relative shifting movement of the constituent parts of the packs or bundles as would result in damage to the freight car, damage to the material, and render difficult and expensive the removal or unloading of the metal at destination.

A further object of the invention is to provide a new and efficient method, as well as an apparatus for carrying out the method, for shipping sheet, strip or bar metal in packs whereby resistance to the relative sliding or shifting movement of the parts of the pack during transit is obtained through the medium of friction material causing a binding or frictional action on the parts within the pack, or within the cross-sectional area thereof.

In my issued Patent 1,745,057, granted January 28, 1930, and more particularly in Figures 7 and 8 thereof, I disclose a method of shipping sheet metal in which the pack is divided into sub-units spaced vertically by interposed members of relatively softer material, such as wood.

The present invention is an improvement upon the method of the aforesaid patent. I have found that by suitably spacing the friction members, when the sheets or strips are arranged flatwise, and even when they are arranged edgewise, and causing the pack to become distorted so that portions thereof enter the areas at opposite sides of the spacing member or members, it is possible to increase the frictional engagement and more effectively resist relative movement of the constituent parts of the pack.

If several spacing members are employed,

it is necessary that they be suitably spaced to permit the parts to enter the intervening space under their own weight or under external pressure which may be applied, for example, by suitable binding means encircling the pack. It is not necessary, of course, that several spacing members be utilized, since a single member dividing the pack into sub-units may be employed in such a way that the weight of the pack or pressure applied, at opposite sides thereof, will cause the sheets or strips to be deflected in such a way that the spacer will, by its frictional engagement with the sheets or strips, prevent movement of the constituent parts of the pack due to the distortion of the units at opposite sides of the spacing element or elements.

In the drawings:

Figure 1 is a side elevational view of a modified form.

Figure 2 is a vertical sectional view on substantially the line 2—2 of Figure 1.

Figure 3 is an end elevation showing still another form.

Figure 4 is a detail perspective, and

Figure 5 is a view similar to Figure 1, showing a single spacing member of slightly different form of that employed in Figure 1.

Referring to Figures 1 and 2, the stack is divided into a lower sub-unit O and an upper sub-unit O'. These units are spaced by one or more wooden strips 10, 11 and 12, as will be observed. The entire stack is mounted upon a skid or pallet consisting of longitudinal riding or skid members 13, two being shown in the present instance. These skid members are preferably connected by means of a series of transverse wood strips 14 forming spaces for receiving the lower wire binding elements hereinafter described. The pack is guided in its shifting movement longitudinally of the car by means of guides 16 which are preferably nailed to the car floor.

The spacing means, such as strips 10, 11 and 12, one or more of which may be utilized, serve to divide the pack into vertically spaced sub-units, and provide areas which the sub-units may be caused to enter, thereby increas-

ing the friction engagements of the sheets with the spacing material.

Relative movement between the pack and pallet may be prevented in any suitable manner. Lower transverse members 17, which are secured to the pack may be utilized for this purpose, and may be arranged close to the transverse members of the pallet, if desired. Obviously, the pack may be tightened to the pallet by other means to prevent sliding or tilting movement.

Although the spacing members 10, 11 and 12 are of rectangular cross section, it will be understood that these members may be of any desired shape. For example, their surfaces may be curved to prevent indentation or scratching of the sheets as they are distorted around the spacing members, as shown for example in Figure 5.

For insuring the proper distortion of the sheets, binding means utilizing the lower transverse members 17 may be employed. These transverse members cooperate with upper transverse members 17', and the same are tied together by means of ties 19, which may extend over plates 20 acting as bearing pieces between the wire and wood strips to prevent the wire from cutting into the latter. Before the ends of the wires are tied, the same may be drawn taut to deform or distort both the upper and lower groups of sheets, as shown in Figure 1.

I prefer to form the sub-units or sections of such width or number of sheets and to so arrange the spacing members that the weight of the sheets will cause the same to sag or become deflected or distorted and thus assist the binding means.

Referring to Figures 3 and 4, the invention is shown as applied to a stack in which the sheets or strips are of uniform width and the stack is divided into three sub-units. The stack 5 comprises a lower section P, an intermediate section P', and a top section or sub-unit P''. The several sections or sub-units are spaced by transversely extending pieces 21 of relatively softer material. Only one piece is shown in Figure 3, although it will be understood that a plurality of pieces are interposed at each horizontal line of division, as in Figures 1 and 2. Wire binders 22 extend across the pack between the sub-units and connect wooden uprights 23 which are drawn tightly into engagement with the edges of the sheets by means of the binders so that the sheet edges remain embedded therein, both at the time the pack is bound and during transit. In this form, the weight of the several sub-units is utilized to cause distortion and sagging into the areas between the spacer members 21, although external pressure for this purpose may be employed, if desired.

Referring to Figure 5, the pack consists of a plurality of units, in the present in-

stance two, designated, respectively, as R and R' spaced vertically and separated by a spacer strip 24, which in function corresponds to the spacer strips illustrated in Figure 1. The strip 24, however, is devoid of sharp corners or edges, and from its wide central portion tapers gradually on its opposite sides to relatively narrow edges 24'. In this form, the spacing means is disposed at substantially the center of the stack, and the two units are carried into the horizontal plane of the spacer means by a binder which encircles the stack.

In this form of the invention, as in Figure 1, the binder makes use of lower horizontal strips 25, which are disposed adjacent the end transverse pieces of the pallet, the parts of which are designated by the same reference numerals as in Figures 1 and 2. As will be understood, these transverse strips 25 prevent sliding movement of the stack relative to the pallet, and obviously the corresponding members in Figure 1 may be similarly located closely to the transverse pieces of the pallet. The encircling binding means includes upper transverse bars 26, and the upper and lower bars are drawn toward one another by means of tie-wires 27 which overlie at the transverse pieces protecting clips 28 corresponding to the protecting clip shown in Figure 4.

It will be understood that the tying means serves to distort the units into the plane of the element 24 at opposite sides of the latter, and thereby increase the frictional engagement of the sheets with one another and with the spacer unit. This tying means may be applied to the stack either before the same is positioned upon the pallet or thereafter.

Obviously, the invention is not limited to details of construction described, and the method may be modified without departing from the invention to the extent indicated by the following claims.

I claim:

1. The hereindescribed method of shipping sheet, strip or bar metal in relatively heavy unit packs on a freight car floor, which consists in forming a stack having the parts superimposed one upon another, disposing between adjacent superimposed sheets relatively softer material, such as wood, binding the pack as a unit, distorting the same to obtain increased frictional engagement with said material, and then positioning the pack with the parts arranged flatwise upon the car floor whereby said sheets are held against substantial shifting movement due to their frictional engagement with said material.

2. The hereindescribed method of shipping sheet, bar or strip metal in relatively heavy unit packs on a freight car floor which consists in arranging the material with constituent parts of the pack one upon another on a freight car floor, interposing between

adjacent superimposed parts pieces of relatively softer material, such as wood, in spaced relation and binding and positioning the pack so as to distort the same between said pieces whereby to increase the frictional engagement of the parts with said pieces whereby said sheets are held against substantial shifting movement due to their frictional engagement with said material.

3. A unit pack of sheet, bar or strip metal having the parts arranged flatwise one upon another and having the parts divided into a plurality of sections by interposed relatively softer material, such as wood, said material being arranged in pieces horizontally spaced so as to permit the pack to sag therebetween, and binding means encircling the pack whereby the sheets constituting the sections are held against substantial shifting movement due to their positive frictional engagement with said material.

4. The hereindescribed method of shipping sheet, bar or strip metal in relatively heavy unit packs on a freight car floor which consists in arranging the parts flatwise one upon another, dividing the pack into sub-units or sections by interposing pieces of relatively softer material between adjacent parts so that the latter have their horizontal surfaces in engagement with said material, said pieces being arranged to permit the pack to distort in vertical planes to increase the frictional engagement with said material and prevent shifting thereof.

5. The hereindescribed method of shipping sheet, bar or strip metal in relatively heavy unit packs on a freight car floor which consists in arranging the parts flatwise one upon another, dividing the pack into sub-units or sections by interposing pieces of relatively softer material between adjacent parts so that the latter have their horizontal surfaces in engagement with said material, permitting the pack to distort in vertical planes to increase the frictional engagement with said material, and binding the pack so as to provide a frictional engagement between the surfaces of the sheets and relatively softer material to resist shifting of the sheets.

6. The hereindescribed method of shipping sheet, bar or strip metal in relatively heavy unit packs on a freight car floor which consists in arranging the parts flatwise one upon another, dividing the pack into sub-units or sections by interposing pieces of relatively softer material between adjacent parts so that the latter have their horizontal surfaces in engagement with said material, permitting the pack to distort in vertical planes to increase the frictional engagement with said material, and binding the pack so as to exert pressure upon the parts and increase the frictional engagement with said material to resist shifting of the sheets.

7. The hereindescribed method of shipping sheet, bar or strip metal in relatively heavy unit packs on a freight car floor which consists in arranging the parts flatwise one upon another, dividing the pack into sub-units or sections by interposing pieces of relatively softer material between adjacent parts so that the latter have their horizontal surfaces in engagement with said material, permitting the pack to distort in vertical planes to increase the frictional engagement with said material, and binding the pack so as to exert pressure upon the parts and increase the frictional engagement with said material and the distortion of the pack to resist substantial shifting of the sheets.

8. The hereindescribed method of shipping sheet, or strip metal in relatively heavy unit packs on a freight car floor, which consists in arranging the sheets flatwise one upon another on the car floor, inserting between groups thereof pieces of relatively softer material, such as wood, horizontally spaced apart so as to provide areas into which the sheets may sag and increase frictional engagement, and binding the sheets into a unit pack to resist shifting movement of the sheets.

9. A unit shipping pack of sheet, bar or strip metal comprising constituent parts arranged one upon another, spacing members of relatively softer material disposed between the parts and dividing the pack into a plurality of sub-units, said parts being vertically spaced so as to provide areas into which the parts sag, and binding means encircling the pack whereby said sheets are held against substantial shifting movement due to their frictional engagement with said material.

10. A unit shipping pack of sheet, bar or strip metal comprising constituent parts arranged one upon another, spacing means of relatively softer material disposed between the parts and dividing the pack into a plurality of sub-units, said means providing areas into which the parts sag, and binding means encircling the pack and extending therethrough between the constituent parts.

11. The hereindescribed method of shipping sheet or strip metal in relatively heavy packs on a freight car floor which consists in dividing the pack into sub-units by inserting relatively softer material between the facing sheets, binding the pack, and supporting the same on the freight car floor with the sheets distorted around said material whereby the sheets are held against shifting movement relative to one another.

12. The hereindescribed method of shipping sheet, strip or bar metal in relatively heavy unit packs on a freight car floor which consists in forming a stack, disposing between adjacent facing sheets one or more pieces of relatively softer material whereby to provide areas into which the sheets may be de-

flected, binding the pack so as to deflect the sheets around said member or members and supporting the stack as a unit on the car floor whereby said sheets are held against substantial movement due to their frictional engagement with said material.

13. The hereindescribed method of shipping sheet or strip metal in relatively heavy unit packs on a freight car floor which consists in forming a stack, disposing between adjacent facing sheets one or more spacing members of relatively softer material, such as wood, exerting pressure on the pack at the sides of said member or members to deflect the sheets into the spacing areas formed thereby, and supporting the pack as a unit on the freight car floor whereby said sheets are distorted and relative shifting movement between the sheets is resisted.

20 In testimony whereof I affix my signature.
ROBERT T. ROMINE.

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