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MEANS FOR HANDLING AND SHIPPING SHEET METAL

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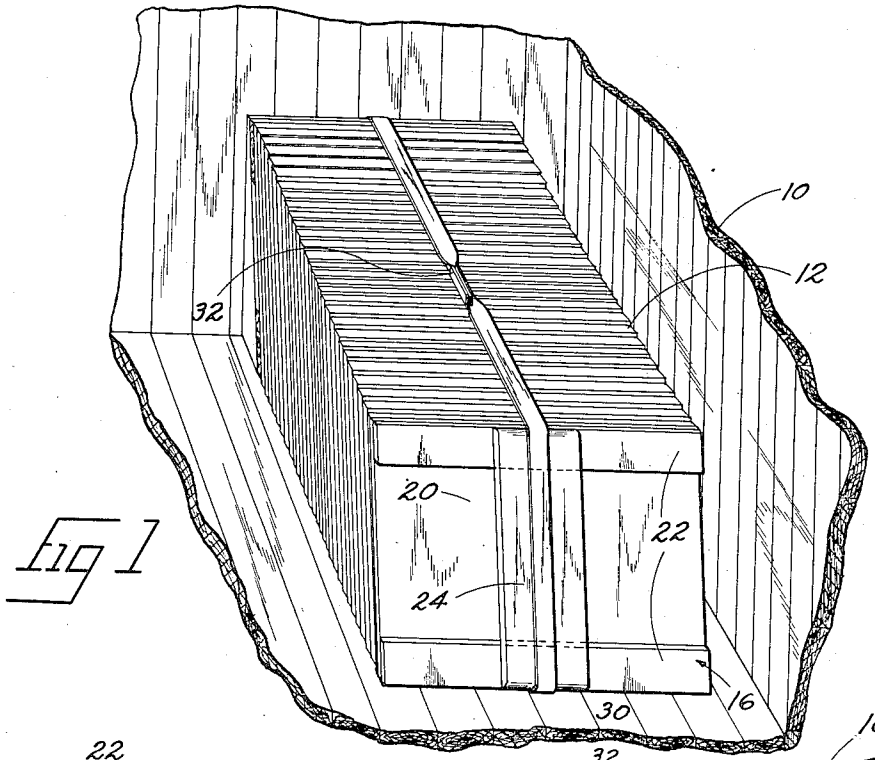


Fig 1

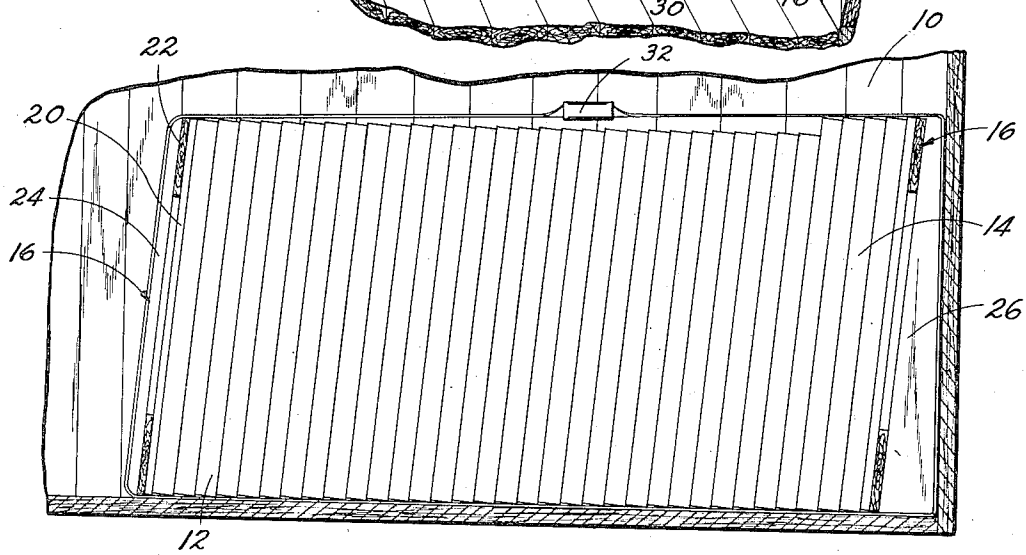


Fig 2

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MEANS FOR HANDLING AND SHIPPING SHEET METAL

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4 Claims. (Cl. 206—60)

This invention relates to means for handling and shipping flat material and more particularly is concerned with packing lacquer plate or other surfaced or polished sheet metal and for securing the same during shipment.

In the past it has been customary to box lacquer plate or other surface treated sheet metal in individual packages containing a comparatively small number of sheets. The packages are ordinarily made up from corrugated card board or light thin wood and the boxes are then stacked in the transporting vehicle being retained in position with the aid of wooden bulkheads nailed to the supporting vehicle so as to form retaining stalls or bins. However due to the weight of the metal packaged considerable damage to the sheet metal has been caused by the same breaking through the retaining bulkheads during shipment as occasioned by jars and shocks received in transit. By the prior practices it has also been necessary to employ skilled carpenters in fabricating the retaining bulkheads and these bulkheads in themselves add considerably to the initial packaging and shipping cost.

It has also been proposed to ship sheet metal by providing heavy metal frames in which the metal is stacked with a clamping device on the frames for securing the metal sheets tightly in position. These metal frames have not proven practical although a number of patents have been granted thereon with a considerable effort being expended to commercialize the same. They are expensive and it is necessary for the buyer to return the frames to the shipper which further adds to the shipping cost. The frames moreover tend to break through the bottom, sides and ends of the transporting vehicle and have for this reason also been found to be objectionable.

By the present invention the foregoing and other difficulties of prior practices have been avoided and overcome by the provision of an improved method and means for packaging, binding and shipping sheet metal particularly such as lacquer plate or other highly finished or surface-treated metal sheets.

It is an object of the present invention to provide means for packaging and shipping lacquer plate or the like which means are relatively inexpensive and efficient and which can be readily applied by an ordinary workman with a minimum of time and effort.

Another object of the invention is to provide a method and means for handling and transporting surface-treated sheet metal in which the metal when packaged is free to move upon the floor of the transporting vehicle so that stresses on the packaged material and on the vehicle are reduced to a minimum when the vehicle is subjected to shocks and jars en route.

Another object of the invention is to provide means for packaging lacquer plate or the like which means are adapted to package and ship plate of slightly varying sizes in the same package unit.

Another object of the invention is to support the sheet material during shipment by means which substantially prevent tipping or other undesirable movement of the sheets.

Another object of the invention is to scientifically design a composite package formed of a plurality of individual bundles with the weight, number and expense of the binding means being cut to a minimum.

The foregoing and other objects of the invention are achieved by the means and in the manner illustrated in the accompanying drawing wherein:

Fig. 1 is a perspective view illustrating a package unit positioned in a transporting vehicle.

Fig. 2 is a side elevation of the package unit illustrated in Fig. 1.

While the invention is adapted to be used to package, handle and ship substantially any material which can be contained in individual boxes or packages which are comparatively flat, it is particularly designed for the handling and transporting of metallic sheets such as lacquer plate which have been surface-treated and which must be accordingly handled with great care in order to prevent marring or damaging the surface. Therefore, the invention has been illustrated and will be described as relating to the packaging and shipping of lacquer plate which ordinarily comes in gauges up to ¼" thick and in sizes from 10" to 48" wide and from 12" to 60" long.

Referring to the drawing the numeral 10 indicates generally the transporting vehicle which may take the form of any kind of railroad car, preferably a box car, or the vehicle may be a truck, boat or the like as will be understood. Positioned in the vehicle 10 are a plurality of individual packages 12 each of which comprises a comparatively small number of the lacquer plates or sheets bound up or contained in an individual box or cover formed of corrugated card board, thin wood or other suitable material. The packages 12 may be of somewhat different size as best illustrated in Fig. 2 in which the numeral 14 indicates the larger size packages.

The individual packages 12 and 14 are bound up into a single unit through the agency of H-shaped headers indicated generally at 16 and which comprise a buffer plate 20 backed and strengthened by cross battens 22 and a vertical batten 24. The headers 16 are preferably made of wood with the bulkhead plate 20 usually being formed of one inch thick stock while the battens 22 and 24 may be of 2 x 4's, 2 x 6's, 1 x 4's, or the like.

Positioned at one end of the unit is a wedge block 26 which may or may not take the place of the vertical batten 24. The block 26 is preferably placed between the end of the packages 12 and 14 and the vehicle wall and serves as a rest against which the packages may be stacked while the unit is being assembled and can if desired be removed after assembly. The wedge block 26 may also be left in place to function as a rest or support after the unit has been assembled and during the transit of the unit.

The packages 12 and 14 and the headers 16 are secured together through the agency of flexible binding means which preferably take the form of a flat high tension steel strap 30 which extends around the stacked packages in the manner illustrated in the drawing to include or not include the wedge blocks 26 as is best suited for the particular shipping problem. The steel strap 30 is tightened and locked as at 32 at the top of the unit. This tightening and locking operation is accomplished by any of the usual tightening and locking tools now on the market. The single longitudinal strap 30 will in practically all circumstances function to securely bind the packages into a unit. Under certain conditions, however, it may be desirable to employ a plurality of longitudinal binding means in which case a plurality of vertical battens 24 would of course be employed.

The assembled unit is left free to move or shift on the floor of the transporting vehicle, as will be understood, whereby excessive stresses on the lacquer plate will be avoided. The unit may be assembled upon longitudinally extending skids if this is found necessary or desirable to obtain a free sliding movement upon the vehicle floor. The invention likewise contemplates stacking the packages in a vertical position which will dispense with a necessity for the wedge block 26. Again wedge blocks may be employed at the other end of the unit so that the packages are tipped in the opposite direction and if desired the packages may be tipped at a greater angle than that illustrated. Oppositely turned wedge blocks may be used simultaneously at opposite ends of the unit if this is desirable. As stated above under certain good shipping conditions the wedge blocks are merely employed to stack the packages on and after the unit is bound up the blocks (not bound in this case) can be removed and the unit will stay in the tilted position during shipment.

It is within the concept of the invention to simplify the individual packaging of the lacquer plate and to depart from the comparatively expensive individual boxes described above. This may be accomplished by merely employing a paper or like wrap for each bundle of plate with tissue paper or the like being employed between the sheets. The individually paper wrapped packages are then secured into a unit in substantially the same manner as that described above. The whole unit may be covered with protecting paper or other means as is found desirable under the particular shipping circumstances incurred.

By the present invention a simplified, commercially-practical, means has been provided for handling and shipping sheet metal or the like. There is no necessity to return any of the shipping means to the sender. The packaging and shipping operation is accomplished with a minimum of effort and by unskilled workmen with a minimum of equipment.

While, in accordance with the patent statutes, one embodiment of the invention has been illustrated and described in detail, it will be appreciated that the scope of the invention is not limited thereto or thereby but is defined in the appended claims.

What I claim is:

1. A shipping unit comprising a plurality of bundles of surface-treated metal sheets, each of the bundles of sheets being enclosed in protective material to form a package, said packages being stacked in a row on edge against the inclined surface of a wedge block and supported thereby in an inclined position, headers at the ends of the stacked packages and tensioned flexible binding means longitudinally surrounding the packages, wedge block, and headers and securing the same into a composite unit adapted to have free sliding movement on a vehicle during transit.

2. In combination, a transporting vehicle, a plurality of bundles of metal sheets, each of the bundles of sheets being enclosed in protective material to form a package, said packages being stacked on edge in the vehicle against a wedge block serving to hold the packages in an inclined position, headers at the ends of the stacked packages and flexible binding means longitudinally surrounding the packages, wedge block, and headers and securing the same into a composite unit.

3. Means for shipping lacquer plate comprising a plurality of boxes individually packaging the plate, an inclined rest against which the boxes of plate are stacked on edge in inclined position, a flat high tension steel band surrounding the boxes and inclined rest and means for securing the band in said position while under high tension.

4. A shipping unit comprising an end block having an inclined face, a plurality of separate packages each containing a plurality of surface coated metal sheets, each package being disposed in a row on edge and inclined in conformity to the said inclined face of the end block, a header at the end of the row remote from the end block and a flexible tensioned binder encircling the row of packages, the header at one end and end block at the other end and holding the several packages, header and end block in a compressed unit.

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