Feb. 20, 1968 N. M. SWETNAM 3,369,676

ANCHORING DEVICE

Filed Oct. 22, 1965

Fig. 1

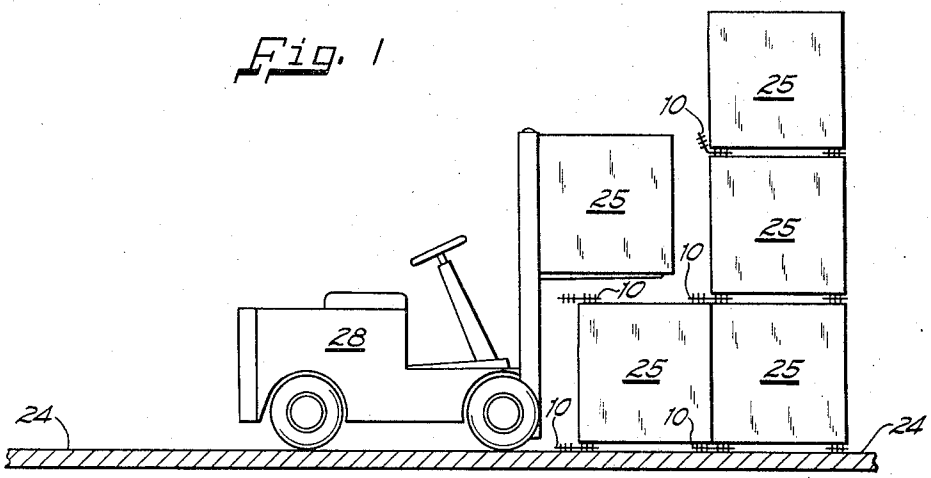


Fig. 2

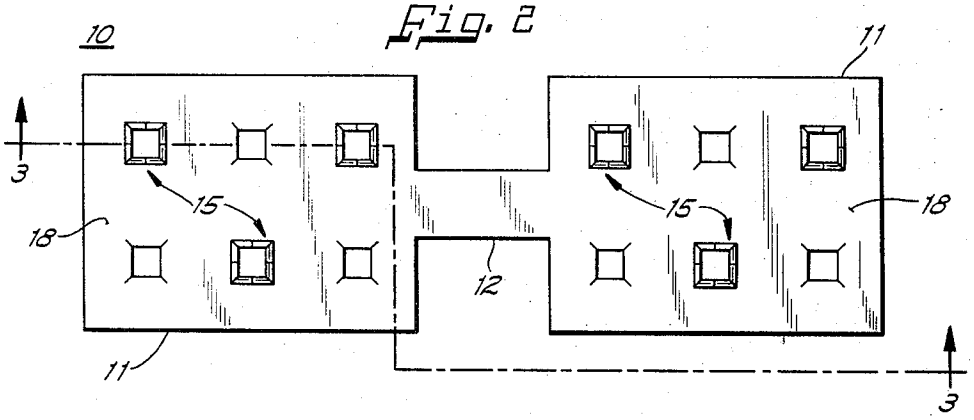
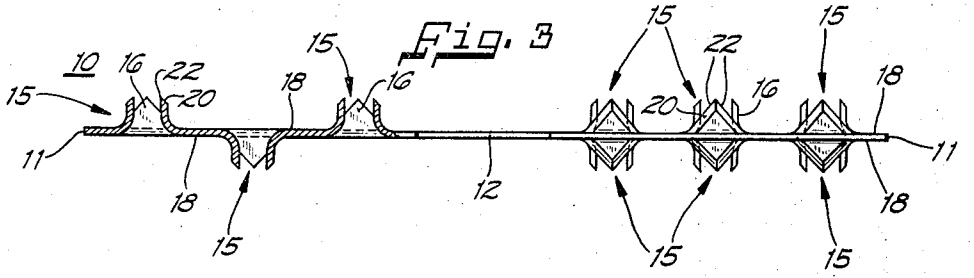


Fig. 3



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ANCHORING DEVICE

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ABSTRACT OF THE DISCLOSURE

An integral anchoring member comprising a pair of plate portions formed of sheet metal and having a plurality of integral claws extending from each major surface and an interconnecting portion of reduced width with respect to said plate portions for normally maintaining the plate portions in a generally common plane and being bendable without separation.

This invention relates to anti-skid devices and more particularly to an anti-skid structure to prevent relative sliding movement between tiers and between rows of units in a shipment.

When goods subject to mechanical damage during transit are loaded for shipment it is necessary to prevent relative shifting of the component parts of the load with respect to one another.

The device of the present invention provides not only for the prevention of relative sliding movement between adjoining tiers of the load but also between adjoining rows within the load while not interfering with the handling of material during placement of containers, crates, pallets or similar articles as the load in being prepared. In the applicant's structure the pair of anti-skid plate members each having integral claws projecting from both major surfaces are joined by a bendable or articulated portion. As a load is prepared the anti-skid devices are positioned between units of vertically adjoining tiers with one plate of each device disposed between vertically adjacent units within one row and the other plate extending to be subsequently disposed between vertically adjacent units in the next adjoining row. As the load is built up row by row, the cartons, crates or pallets are placed on the skid plates joined to those of the next preceding row with the plate which will be disposed between the unit being loaded and that in the tier immediately above being bent upwardly away from interference with the unit being moved into position and set on the tier below. Thus the plate elements with integral claw portions prevent slippage between vertically adjoining tiers and the bendable or articulated portion interconnecting the plates resist movement between horizontally adjoining rows while the ability of the adjoining portion to be bent prevents the device from interfering with the material handling procedures as the load is being prepared in a truck or freight car.

It is an object of this invention to provide an improved anti-skid device that will prevent relative movement between adjoining tiers of stacked articles in a load and simultaneously interlock adjoining rows to one another to prevent relative movement therebetween.

It is a further object of this invention to provide an anti-skid device which interlocks the component parts of a load to prevent relative movement between the component parts thereof and further does not interfere with material handling procedures as the load is being prepared.

Brief description of the drawings

FIGURE 1 illustrates units of cargo being loaded utilizing the anti-skid and interlocking device of the present invention;

FIGURE 2 is a plan view of the anti-skid anchoring device of this invention; and

FIGURE 3 is a view taken along line 3—3 of FIGURE 4.

Description of the preferred embodiment

Referring to FIGURES 2 and 3 the anti-skid anchoring device **10** of the illustrated embodiment is formed by being blanked as a single piece from sheet metal to form a pair of plate members **11** interconnected by a narrow neck portion **12**. Each plate member **11** has a series of claws **15** fabricated as an integral part thereof by piercing the plate **11** along intersecting diagonal lines and flanging the projections thus formed generally perpendicular to the remainder of the plate to provide four pointed triangular projections **16** at each location. In the illustrated device each plate **11** has six such pierced and flanged locations with the triangular projections **16** extending alternately upwardly and downwardly to provide a series of pointed claw elements at three triangularly spaced locations projecting from each major surface **18** of each plate **11**. To make the triangular projections **16** more effective the margins **20** are ground to form sharpened intersecting edges **22**.

Interconnecting the plate members **11** is a neck portion **12** of reduced width to permit bending during preparation of the load while affording sufficient material to sustain a substantial tensil load during transit.

FIGURE 1 shows the skid plates being used with the surface **24** representing the floor of a truck or freight car that is being loaded commencing at an end wall. The shipment is prepared by stacking rows sequentially away from the end wall. The units **25** are representative of cartons, crates or palletized goods which are stacked in tiers to form the load. With many types of shipments if the component portions of the load shift causing adjoining units to strike one another the goods are damaged. It is therefore necessary to interlock vertically stacked units **25** with those horizontally adjoining to cause the composite load to act as a single unit without relative movement between individual units or articles composing the load and thus avoid such damage.

The anti-skid plate members **11** are placed beneath the articles or units **25** of each tier with the joined plate members being disposed between adjoining tiers in adjacent rows. By so positioning the anti-skid devices **10** the integral claw portions **15** engage containers above and below to resist horizontal relative movement between tiers and the interconnecting portions **12** interlock the adjoining rows.

When the load is being prepared by stacking successive rows of articles as seen in FIGURE 1 the anti-skid devices **10** which will join the next row or the row being stacked to the preceding row each have one plate member **11** projecting from such preceding row which normally presents an end that would abut against containers being positioned in the row being stacked to prevent proper positioning of the articles being placed as the load is formed. When preparing a load using the device **10** of the present invention, each plate member **11** projecting from an already stacked row, except those between the lowermost container and the floor is bent upward so that the containers may be placed in position without interference. Each article or unit **25** may then be moved horizontally into position above the underlying article of the

tier below and lowered into position on the anti-skid plate members **11** overlying the preceding tier as indicated in FIGURE 1 by use of the fork truck **28**. As each tier of the row is placed in position the anti-skid devices at the top of the tier adjoining the preceding row are turned down to the normal horizontal position preparatory to the placement of the next tier. By stacking the load in this manner the anti-skid devices serve both to interlock vertically adjoining and horizontally adjoining containers or crates and secure the components of the load together as a unit without interfering with the material handling operations as the shipment is being prepared.

It will be appreciated that the structure could be modified such as by using pins pointed at each end which extend through apertures in the plate member portions and are welded to the plate. Also the plate members could be connected by a strap spot-welded at its ends to the plate members or a hinge or other articulated joining portion could be used. However one of the considerations for making the device most useful is to minimize the cost so that the device is practical for one time use to avoid the necessity of re-use with the attendent re-claiming, storage, handling and return shipment. Accordingly, the single piece, simply formed structure of the illustrated embodiment has been found to be the most useful mode of practicing the invention. In the one piece structure of the illustrated embodiment the size of plate member **11** and the thickness of the sheet metal material may be varied to meet individual needs, but the thickness should not normally exceed 16 gauge to allow for the necessary bending during use.

It will accordingly be apparent that while a specific embodiment of the instant invention has been shown and described it is to be understood that variations may be made without departing from the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. An integral anti-skid device for interlocking vertically and horizontally adjoining elements of a load comprising a pair of substantially co-planar plate members; a plurality of upstanding integral claws extending from each major surface of each plate member and an interconnecting member for joining said plate members and being of reduced width relative to said plate members, said interconnecting member being bendable without separating.

2. In combination with a load of articles having horizontally adjoining rows and vertically stacked tiers, a device for interlocking adjoining articles against relative movement comprising a pair of plate portions substantially horizontally disposed between vertically adjoining articles in horizontally adjoining rows adjacent the interface between adjacent rows; a plurality of integral claws projecting from each major surface of each plate portion engaging the adjoining surfaces of articles above and below each plate member and an interconnecting portion for joining said plate portions and having a reduced width relative to said plate portions and being bendable without separating whereby relative motion is resisted between adjacent articles in vertically adjoining tiers and horizontally adjoining rows.

3. An anchoring device comprising a pair of plate members formed of sheet metal with portions of the material of each of said plate members turned generally perpendicular to the plane of said plate to form integral claws projecting from each of the major surfaces of said plate members and an interconnecting member for joining said plate members and having a reduced width relative to said plate members for being bendable without separating.

4. The anchoring device of claim **3** wherein said plate members and said bendable element are formed of a single piece of sheet metal and said claws are formed by diagonally piercing and flanging portions of said plate members to provide a plurality of pointed projections.

5. An anchoring device comprising a pair of plate portions each having a plurality of integral claws extending generally perpendicular from each major surface thereof and an interconnecting portion of reduced width relative to said plate portions, said interconnecting portion normally maintaining said plate portions in a generally common plane and being bendable without separating.

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