July 24, 1928. 1,678,443

R. V. PROCTOR ET AL

PALLET

Filed Dec. 29, 1924

Fig. 1.

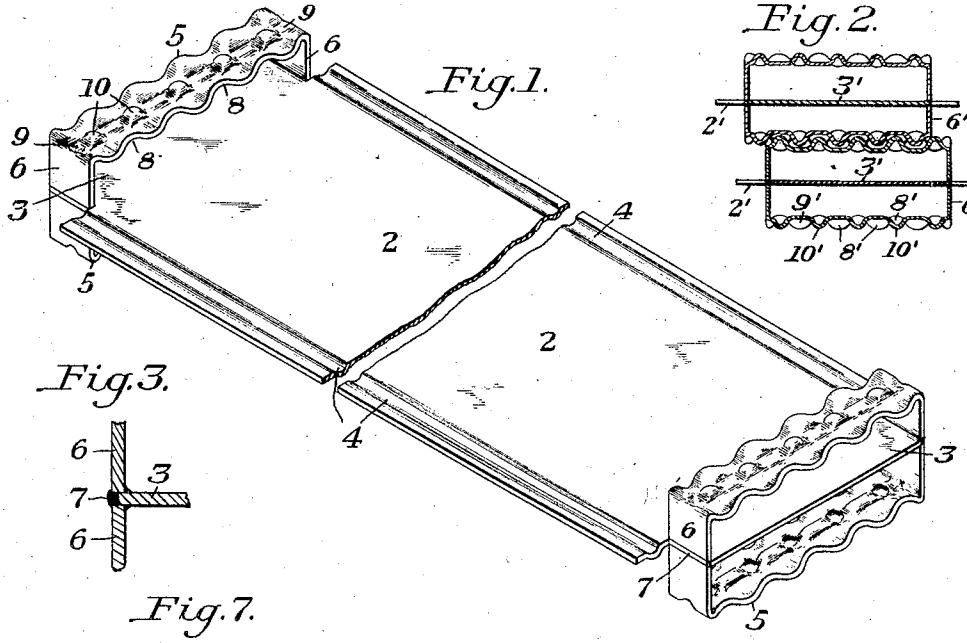


Fig. 2.

Fig. 3.

Fig. 7.

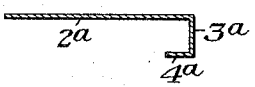


Fig. 8.

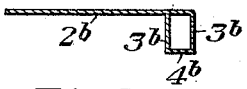


Fig. 9.

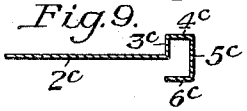


Fig. 10.

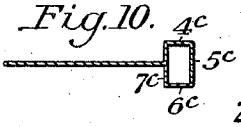


Fig. 11.

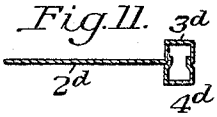


Fig. 12.

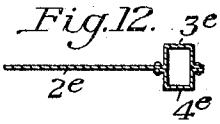


Fig. 13.

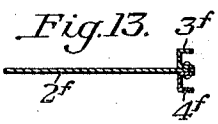


Fig. 4.

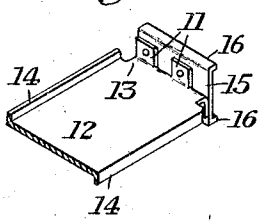


Fig. 5.

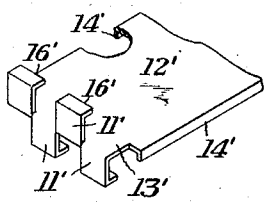


Fig. 6.

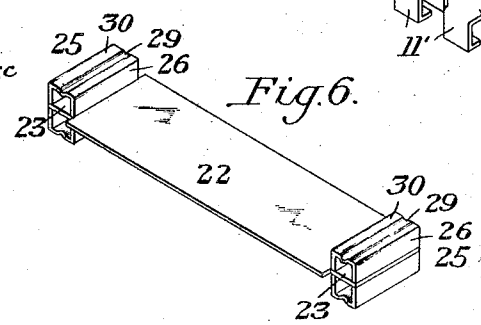
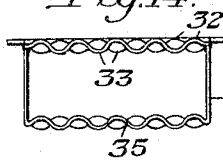


Fig. 14.



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their attys

Patented July 24, 1928. 1,678,443

UNITED STATES PATENT OFFICE.

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PALLET.

Application filed December 29, 1924. Serial No. 758,538.

The present invention relates broadly to pallets of the type used in the molding machine art, and more particularly to a pallet of the character utilized for forming so-called concrete bricks, although the utility of the invention is not limited in this respect.

At the present time it is customary in the manufacture of so-called concrete bricks using cement, slag and sand, to form the bricks a plurality, usually seven, at a time. Such bricks are ordinarily formed on a wooden pallet about four feet in length and having strips nailed transversely across the ends thereof. In actual practice it has been found that wooden pallets warp quite badly, due to the absorption of moisture under the operating conditions to which they are exposed and the subsequent drying out. After the tamping pressure used in forming the bricks, which pressure may be as high as 2500 pounds, is relieved from a warped pallet, the pallet immediately tends to return to its warped condition, which results in cracking all of the articles supported thereon. Furthermore, the steam used in drying the bricks softens the pallets, and objectionable cracks frequently form therein, such cracks making it impossible to produce perfect articles. The average life of a wooden pallet of the type now commonly used is about six months.

In accordance with the present practice, the pallets carrying the formed articles are placed in side by side and in superimposed relation on a truck, by means of which they may be transferred to the drying kiln. With wooden pallets it is not uncommon for an individual pallet or for a row of pallets to slip either laterally or longitudinally, thereby ruining a plurality of the formed bricks. It is desirable, while such pallets are supported on a truck, that spaces be provided between adjacent pallets to permit uniform circulation of air or steam thereabout.

The present invention has for certain of its objects the provision of a metallic pallet adapted to bodily replace the wooden pallets now in use and provided with legs so arranged that they will serve to center the pallets with respect to the molds, and that they will support the pallets in the desired spaced relation when on a truck. In accordance with the preferred embodiment of the invention, the pallets are so constructed that they are reversible side for side, thereby enabling any warpage which may occur to be quickly eliminated, and also reversible end for end, whereby the entire pallet may be subjected to uniform operating conditions. It is also desirable in many cases to form the supporting legs of such contour that the legs on one pallet will interlock with the legs on the adjacent pallets to prevent relative movement, and also to provide the desired circulation spaces therebetween.

We are aware that it has heretofore been proposed, as shown, for example, in Bentley Patent No. 817,689 of April 10, 1906, to provide a metallic body having legs secured at each end thereof on one side of the body of the pallet, the legs being secured in position by rivets, which rivets are utilized in the subsequent positioning of the pallets. Such pallets, however, have not been reversible side for side, and the flattening of the rivets or distortion of the openings will prevent the desired inter-engagement of adjacent pallets.

By the present invention, an entirely different type of supporting leg is utilized and a different method of securing the desired inter-engagement between adjacent pallets is contemplated.

In the accompanying drawings there are shown, for purposes of illustration only, certain preferred embodiments of the present invention, it being understood that the drawings do not define the limits of our invention, as changes in the construction and operation therein disclosed may be made without departing either from the spirit of the invention or the scope of our broader claims.

In the drawings:—

Figure 1 is a perspective view, partly broken away, of one form of pallet constructed in accordance with the present invention;

Figure 2 is a transverse sectional view, on a smaller scale, through a pair of pallets of slightly modified construction from that shown in Figure 1, the pallets being in superimposed relationship;

Figure 3 is a detail sectional view, on an

enlarged scale, illustrating one method of attaching the supporting legs;

Figure 4 is a perspective view of one end of a pallet illustrating another embodiment thereof;

Figure 5 is a view similar to Figure 4, partly broken away, and illustrating still another embodiment of the invention;

Figure 6 is a perspective view illustrating another embodiment of the invention;

Figures 7 to 13 are detail longitudinal sectional views illustrating still further embodiments in accordance with the present invention, and

Figure 14 is an end elevation showing still another form of the invention.

In accordance with the preferred embodiment of our invention, we propose welding the legs in position or forming the legs by struck up portions from the main body of the pallet, although it will be obvious that riveting can be employed, if desired. Throughout the specification and claims, we have used the expression "integral" to define either legs welded in position whereby structurally they constitute an integral part of the pallet, or to define legs which are actually formed by displacing parts of the body of the pallet. The expression, however, is exclusive of constructions in which the legs are riveted or bolted in position.

In the embodiment of the invention illustrated in Figure 1, the main body portion 2 of the pallet is formed of suitable sheet metal and provided with end portions 3 of reduced width. The body portion is reinforced by longitudinally extending ribs or grooves 4 terminating short of the reduced end portions, whereby the end portions throughout the entire cross section of the pallet lie in a common plane. To opposite sides of each of the end portions are secured U-shaped legs 5 having down turned ends 6 which are preferably abutted against opposite sides of the end portions 3, as illustrated in detail in Figure 3, and then welded in position. As a matter of operating convenience, the overall length of the supporting legs is preferably slightly greater than the width of the reduced end portions, whereby the down turned ends 6 project slightly beyond the sides of the end portions to provide a channel or groove 7 facilitating welding.

The horizontally extending surfaces of the supporting legs are roughened, knurled, corrugated, embossed or checkered, in known manner, to provide means for interlocking adjacent pallets and preventing relative movement therebetween. A convenient form of interlock may be provided by forming the legs with transversely extending corrugations 8 interrupted by a longitudinally extending groove or channel 9, which in turn has spaced struck up bosses 10. With this construction, as illustrated, for example, in Figure 2, the corrugations 8 inter-engage to prevent relative lateral movement of superimposed pallets, while the bosses 10 on one pallet interfit with the depressions formed by the groove 9 on the other pallet to prevent relative longitudinal movement. In Figure 2 the parts corresponding to the parts shown in Figure 1 are designated by the same reference characters having a prime affixed thereto.

The form of the invention illustrated in Figure 2 differs from that shown in Figure 1, in that the body portion 2′ of the pallet is not provided with longitudinally extending reinforcing means, but throughout its entire length and width lies in the plane of the end portions 3′. This permits the pallet to be reversed either end for end or side for side when utilized with a common support as frequently provided in a block or brick forming machine. The form illustrated in Figure 1, if reversed side for side, will require a support having its side portions shaped to cooperate with the reinforcing means 4. With such a support, however, it will be apparent that this form of pallet is capable of being doubly reversed as pointed out in connection with the construction of Figure 2.

With either form of the invention, the legs 5 preferably have an overall length less than the width of the main body portion of the pallet, whereby they may be utilized for centering the pallet, as well understood in the art. By providing flat end portions 3′ or 3′, this centering operation is facilitated as the mold may descend over the end portions and rest flatly on the pallet.

In Figure 4 the pallet 12 is illustrated as having reduced end portions 13 having struck out portions 11, the struck out portions preferably being staggered, whereby alternate portions extend in opposite directions. These portions 11 are adapted to have secured thereto a leg 15 which may conveniently be in the form of a channel having its flanges 16 extending either inwardly or outwardly. It will be understood that the flanges may be suitably formed, for example, as pointed out in connection with Figures 1 and 2, whereby interlocking of adjacent pallets may be obtained. In this form of the invention, the body of the pallet 12 is illustrated as having oppositely disposed reinforcing flanges 14, whereby with a pallet support of predetermined construction, the pallet may be reversed either end for end or side for side.

The modified pallet illustrated in Figure 5 comprises a body portion 12′ having a reduced end portion 13′ and having longitudinally extending reinforcing flanges 14′. These flanges may be constructed as illustrated in Figure 4, or may both be disposed

in the same direction as illustrated more particularly in Figure 5. The struck out portions 11′, preferably staggered, as described in connection with Figure 4, may be formed either with inwardly or outwardly disposed flanges 16′, whereby the use of separate legs is obviated. It will be understood that with this construction also, the contacting surfaces of the legs may be shaped to facilitate inter-engagement and prevent relative movement between adjacent pallets.

Figures 1, 4 and 5 are illustrative of certain forms of longitudinally extending reinforcing means which may advantageously be used with certain types of machines. It will be understood, however, that the specific shape of the reinforcing edges may be varied as required, for example, by rolling, ribbing or otherwise flanging.

In Figure 6 the body portion 22 of the pallet is shown as having reduced end portions 23 to which are welded or otherwise secured U-shaped legs 25 having down turned sides 26, as distinguished from the down turned ends 6 of Figure 1. These legs may be shaped as before described, or may merely be formed with longitudinally extending intermediate grooves 29, the grooves in each instance being of a width sufficient to receive the projections 30, whereby lengthwise movement of superimposed pallets is prevented. It will be obvious that the pallet illustrated in Figure 6 is doubly reversible, even when used with a support of standard construction.

In Figure 7 the body portion 2^a of the pallet is shown as having end portions 3^a turned at substantially right angles to the body portion and provided with projecting flanges 4^a adapted to form cooperating supports between adjacent pallets. In this construction it will be obvious that the pallet, while reversible end for end, is not reversible side for side, as the legs extend only in one direction.

In Figure 8 the body 2^b has turned ends 3^b, supporting flanges 4^b and inturned portions 5^b adapted to abut against one side of the pallet.

In Figure 9 there is shown a pallet constructed in such manner as to be doubly reversible, the body portion 2^c having an upturned end 3^c turned outwardly to provide a supporting flange 4^c, and thence downwardly to provide a vertically extending portion 5^c and inwardly to form another supporting surface 6^c. The pallet illustrated in Figure 10 is similar to the pallet shown in Figure 9, with the exception that it is provided with a further extending portion 7^c adapted to abut against the body of the pallet and further strengthen the supporting leg.

In Figure 11 the body 2^d of the pallet is formed with a transversely extending channel 3^d which is adapted to have welded in cooperative relation thereto a second channel 4^d, thereby forming oppositely disposed projecting legs, rendering the pallet doubly reversible.

In Figure 12 the channel 3^e is shown as having a second channel 4^e riveted in cooperative relation thereto.

The pallet shown in Figure 13 has oppositely extending transversely disposed channels 3^f and 4^f secured to opposite sides thereof, the flanges of the channels extending either inwardly or outwardly as desired.

It will be understood that with all of the forms of the invention illustrated in Figures 7 to 13, both inclusive, the end portions of the pallets may be and preferably are of less width than the main body portions, whereby to obtain the advantages of centering before pointed out.

In Figure 14 there is illustrated another modification in which the pallet 31 has reduced end portions 32, these end portions having depressions and projections 33, similar to those illustrated, for example, in Figures 1 and 2. A signal leg 34, having a corresponding surface 35, may be suitably secured to the pallet. In this manner the surface on the leg will directly engage the end portion of an adjacent pallet, to hold the pallets against relative movement. It will be understood that where but one leg is utilized, it will have to have a height substantially twice that of the legs shown in Figures 1 and 2.

By reason of the interlocking of adjacent pallets, by initially assembling the pallets in offset relation, as in Figure 2, air spaces may be provided between adjacent pallets permitting free circulation of air therebetween during drying.

Certain advantages of the present invention arise from the provision of a pallet having integral supporting legs, while other advantages arise from the provision of oppositely extending legs adapted to permit double reversibility of the pallet.

Still further advantages arise from the provision of a pallet having end portions of reduced width in combination with supporting legs, and from the provision of end portions which lie in a common plane throughout their entire cross section, or constructed to directly cooperate with the supporting leg of an adjacent pallet.

We claim:

1. As an article of manufacture, a pallet comprising a body portion having end portions of reduced width, and at least one supporting leg for each end portion, substantially as described.

2. As an article of manufacture, a pallet comprising a body portion having end portions of reduced width, and oppositely projecting supporting legs at opposite sides of

said end portions, substantially as described.

3. As an article of manufacture, a pallet comprising a body portion having end portions of reduced width, and at least one supporting leg for each end portion, said end portions lying in a common plane throughout the entire cross section thereof, substantially as described.

4. As an article of manufacture, a pallet having portions of its supporting surfaces disposed out of the main plane thereof in different directions to provide a plurality of similar interlocking means adjacent each end of the pallet, said means permitting stacking with adjacent pallets offset laterally, substantially as described.

5. As an article of manufacture, a pallet having portions of its supporting surfaces disposed out of the main plane thereof in different directions to provide a plurality of similar interlocking means adjacent each end of the pallet, said means permitting stacking with adjacent pallets offset longitudinally, substantially as described.

6. As an article of manufacture, a pallet having portions of its supporting surfaces disposed out of the main plane thereof in different directions to provide a plurality of similar interlocking means adjacent each end of the pallet, said means permitting stacking with adjacent pallets offset both laterally and longitudinally, substantially as described.

7. As an article of manufacture, a pallet having a body formed of a sheet of metal with its end portions reduced in width, and having legs connected to said portions of reduced width, the legs being also of less width than the pallet.

8. As an article of manufacture, a pallet having a body formed of a sheet of metal with its end portions reduced in width, and having legs connected to said portions of reduced width, the legs being U shaped in cross section and being upstanding from the plane of the body.

9. As an article of manufacture, a pallet having a body formed of a sheet of metal with its end portions reduced in width, and having legs connected to said portions of reduced width, the legs being also of less width than the pallet, the longitudinal edges of the metal sheet forming the body extending at a material angle to the plane of the body so as to reinforce the same.

In testimony whereof we have hereunto set our hand.

ROBERT V. PROCTOR.
HARRY M. SCHAAB.

CERTIFICATE OF CORRECTION.

Patent No. 1,678,443. Granted July 24, 1928, to

ROBERT V. PROCTOR ET AL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 91, for the word "signal" read "single"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of August, A. D. 1928.

M. J. Moore,
Acting Commissioner of Patents.

(Seal)