

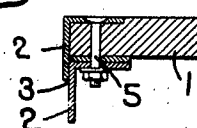
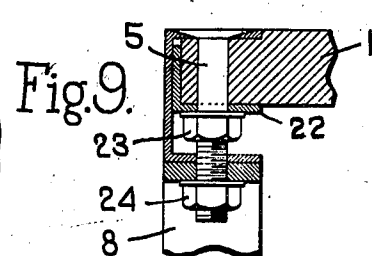
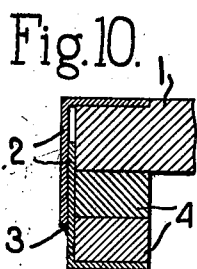
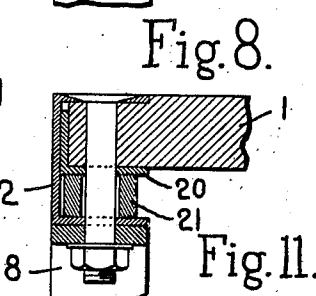
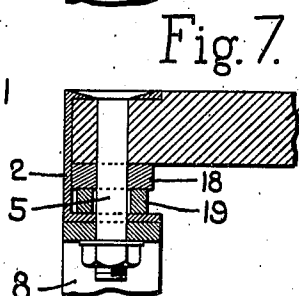
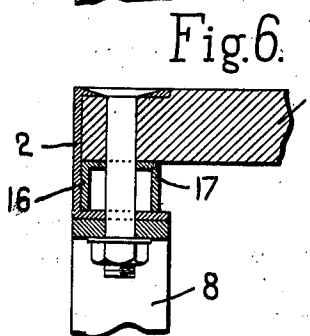
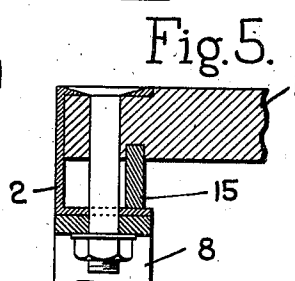
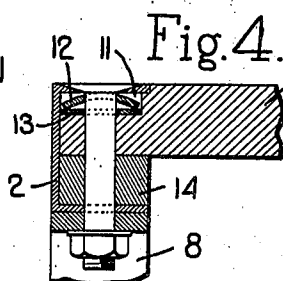
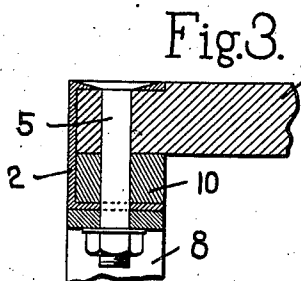
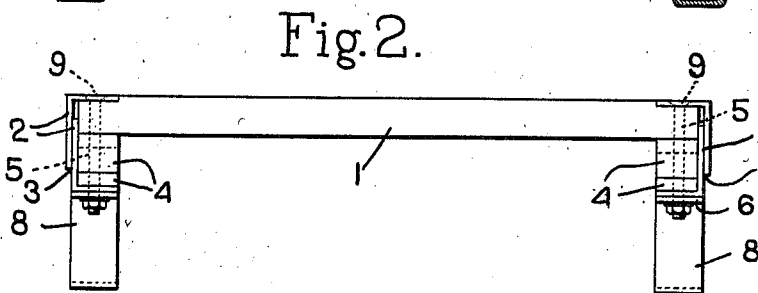
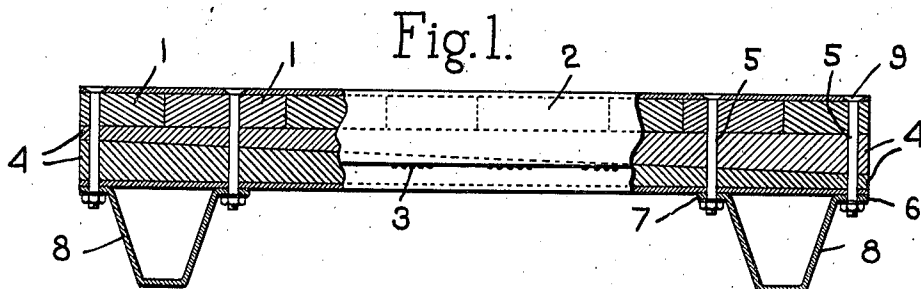
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F. J. SHEPARD, JR. ET AL

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PLATFORM

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Inventors:
 Frederick J. Shepard Jr.
 Daniel E. Hennessy
 Nathaniel Warshaw
 by *Heard Smith & Tennant.*
 Attys.

UNITED STATES PATENT OFFICE.

FREDERICK J. SHEPARD, JR., OF AUBURNDALE, NATHANIEL WARSHAW, OF MATTA-
PAN, AND DANIEL E. HENNESSY, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNORS TO
LEWIS-SHEPARD COMPANY, OF WATERTOWN, MASSACHUSETTS, A CORPORATION
OF MASSACHUSETTS.

PLATFORM.

Application filed November 17, 1926. Serial No. 148,912.

This invention relates to improvements in platforms, particularly of the type which are transported from place to place by elevating trucks and the object thereof is to provide a platform of simple construction and of great rigidity and in which floor members of different thicknesses can be employed with the same side frames.

A further object of the invention is to provide a platform of the character described with channel bar side frames.

A further object of the invention is to provide a platform of the character described with channel bar side frames which are fabricated in such a manner that any desired depth of channel bar may be readily obtained.

A further object of the invention is to provide a platform of the character described having channel bar side frames which embrace the ends of the floor members and in which spacing and re-enforcing members are introduced between the lower flange of the channels and the under face of the platform members, bolts preferably being provided to clamp the flanges of the channel bars tightly upon the floor members and the spacing and re-enforcing members.

By virtue of the present invention the channel bar side members may be of any desired depth to enclose the ends of the floor members. It is well known that the strength of channels increases in proportion to the depth of the channel. By providing channels having greater depth than the thickness of the floor members much greater rigidity is obtained than in constructions in which the channels are of the exact depth necessary to fit the ends of the floor members. Furthermore, the re-enforcing members, or the re-enforcing members and spacing members, greatly supplement the rigidity of the frame construction.

A further object of the invention is to provide a platform of the character described in which the parts can be readily assembled and broken parts easily replaced.

Other objects and features of the invention will more fully appear from the following description and the accompanying drawings and will be particularly pointed out in the claims.

In the drawings:

Fig. 1 is a view, partially in side elevation, of a preferred embodiment of the invention, portions being broken away and shown in section to illustrate the relation of the flanges of the channel bar, the floor members and the spacing and re-enforcing members;

Fig. 2 is an end view of the platform illustrated in Fig. 1;

Fig. 3 is a detail sectional view showing an integral rolled channel bar of usual construction embracing the end of the floor members with a single spacing and re-enforcing member between the lower face of the floor member and the lower flange of the channel and also illustrating the manner in which the same are clamped together and to a leg of the platform;

Fig. 4 is a similar detail sectional view showing a spring washer and metal seat therefor located in a countersink in the end of the floor member and acting yieldably to press the platform member against the spacing member;

Figure 5 is a detail sectional view showing a re-enforcing member or shim located adjacent the free edge of the lower flange of the channel bar and seated at its upper edge in a recess in the floor member;

Fig. 6 is a similar detail sectional view showing a construction in which the spacing and re-enforcing member comprises an inverted channel bar seated upon the lower flange of the channel side bar;

Fig. 7 is a similar view illustrating a metal re-enforcing plate or bar with a spacing collar therebeneath surrounding the clamping bolt;

Fig. 8 is a similar detail view illustrating an angle bar re-enforcing member embracing the lower edge of the ends of the floor members with a collar intermediate of the lower flange of said angle bar and the lower flange of the channel;

Fig. 9 is a similar detail sectional view illustrating a different manner of clamping the floor members upon the upper flange of the girder in which an angle bar is held firmly against the under face of the floor by a nut upon a bolt which passes through both flanges of the channel and the leg;

Fig. 10 is a detail view illustrating in cross section the channel bar formed by two angle

bars having their vertical flanges overlapping and welded together as illustrated in Figs. 1 and 2; and,

Fig. 11 is a detail view showing a different manner in which the angle bars can be assembled and welded together to form a channel bar side frame.

The invention as illustrated in the drawings comprises a platform having a floor, which may be a single plate, but preferably is formed of a series of juxtaposed units 1, such as wooden planks, the ends of which are embraced by channel bars 2 which desirably are of considerably greater depth than the thickness of the floor members. Suitable re-enforcing members, such as shims, of wood, metal, or other suitable material, are interposed between one of the flanges of the channel bar, (preferably the lower), and the adjacent face of the floor members. Bolts, extending through the flanges of the channel bar, the floor and the interposed re-enforcing and spacing members, serve to clamp these parts together to form a very rigid construction.

In the construction illustrated in Figs. 1 and 2, and in detail in Fig. 10, the channel bar side members 2 are constructed of angle bars having their vertical flanges overlapped and secured together by lines or spots of welding. Electric welding desirably is employed, although autogenous welding may be used.

By virtue of this construction channels of any desired size may be fabricated either to fit closely upon the ends of the floor members, or preferably of considerably greater depth than the thickness of the floor members in order to increase the rigidity of the construction. Where channel bars of relatively great depth are employed they can be constructed of relatively thin material, particularly when re-enforced by rigid bars or by shims fitting closely between the under faces of the floor members and the lower walls of the channels.

In the construction shown in Fig. 1 the re-enforcing and spacing members are in the form of shims 4 which are in the form of oppositely complementary tapered beams or bars which fit closely between the lower flanges of the channels and the under faces of the floor members and extend throughout the length of the channels. These shims desirably are of wood and when in place may be driven lengthwise from one or both ends until the floor is clamped firmly against the lower faces of the upper flanges of the channel bars. Bolts 5, extending through the flanges of the channel bars, the floor and the shims, serve to hold the shims firmly against endwise movement, and also provide additional means for clamping the members together as the channel bars will yield to the strain imposed upon the flanges when the nuts upon the bolts are set up. Any shrinkage which may take place in the floor or in the shims, if made of wood, can be taken up by setting up

the nuts on the bolts and a rigid platform structure maintained.

Certain of the bolts, such as those nearest the ends of the channel bars, may extend through flanges 6 and 7 of U-shaped metallic legs 8 thereby fastening the legs firmly in place against the lower flanges of the channel bars.

Desirably the heads 9 of the bolts are provided with bevelled under faces adapted to fit in complementary countersinks in the upper flanges of the channel bars so that the heads will not project above the surface thereof. The floor members may be rabbeted at their ends in such a manner that the upper surfaces of the channels will be flush with the surface of the floor.

Various other forms of re-enforcing and spacing devices may be employed. Fig. 3 illustrates in detail an embodiment of the invention in which the side members are of usual form of rolled channel bars and in which the spacing member 10 is a single bar of wood, or other suitable material, extending throughout the length of the channel bar and interposed between the lower face of the floor and the lower flange of the channel bar. In this construction the channel bar may be relatively light because of its depth and its resilience will permit proper clamping of the floor and spacing members between the flanges of the channels when the nuts on the bolts 5 are set up.

In the modified construction illustrated in Fig. 4 the ends of the floor members are provided with countersink 11 around the bolt holes and spring washers 12 are placed upon the bolts to engage the under face of the upper flange. Flat washers 13, resting upon the bottoms of the countersinks, prevent the spring washers from digging into the floor. In this construction, as in that shown in Fig. 3, a single re-enforcing and spacing member, such as a shim 14 may be interposed between the lower face of the floor and the lower flange.

In the construction illustrated in Fig. 5 a narrow spacing member or shim 15 is placed between the free edge of the lower flange and the floor. When such a spacing member is used the floor members desirably are provided with a groove to receive the upper edge of the shim and thereby prevent its displacement. In this construction the re-enforcing member or shim may be an iron plate or bar of suitable thickness, or for relatively light duty a board or plank may be employed.

In the construction illustrated in Fig. 6 the re-enforcing member or shim is in the form of a channel bar, the vertical flanges 16 of which are located closely adjacent to or in contact with the web of the channel bar, while the web engages the under face of the floor and the other flange 17 of the channel rests upon the free edge portion of the lower

flange of the channel bar side member. This construction is particularly adapted for heavy duty platforms.

In Fig. 7 a plurality of re-enforcing and spacing members are used comprising a bar or plate 18 of metal, or suitable material, which engages the under face of the floor with collars 19 surrounding the bolts 5 and of a suitable thickness to fill the space between the lower face of the bar or plate 18 and the upper face of the lower flange of the channel bar.

In Fig. 8 the re-enforcing and spacing members comprise an angle bar 20 which embraces the lower faces and ends of the floor members and a collar 21 surrounding the bolt filling the space between the angle bar and the lower flange of the channel bar.

In the construction illustrated in Fig. 9 an angle bar 22 embraces the lower face and edge of the floor members and is clamped against the floor by a nut 23 upon the bolt 5. In this construction the shank of the bolt is threaded a sufficient distance from the end thereof to accommodate the nut 23. Another nut 24 engages the lower flange and also serves to clamp the flanges 6 and 7 of the leg upon the lower flange of the channel bars above described.

While all of these illustrative embodiments of the invention show the legs as being secured to the lower flanges of the channel bar by the bolts 5, it is obvious that the legs may be secured to the lower flange of the channel bars above described.

It is found very convenient to construct the channel bar side members of angle bars in the manner above described and as illustrated in detail in Fig. 10 for the reason that channels having any desirable depth may be readily produced of greater depth and lighter material than standard rolled channels and still of sufficient strength for the purpose. While it is usually desirable to form the channels by overlapping the vertical flanges of the angle bars, as illustrated in Figs. 1, 2 and 10, the channels may be formed by placing the angle bars in a sort of nested position, that is to say, with the vertical flanges extending in the same direction as illustrated in Fig. 11 and welding the vertical flanges together by lines or spots of welding 3. Such a construction may be conveniently employed where a relatively thin floor is used, such as a metal floor, as the horizontal flanges of the angle bars can then be brought more nearly together than would be possible in the construction illustrated in Fig. 10. It is to be understood, however, that channel bars formed in this manner are of great strength and that any desirable depth of channel may be formed within reasonable limits of the width of the angle bars used.

It will be obvious from the above description that platforms formed of channel bars,

whether rolled channel bars or fabricated channel bars, are of exceedingly rigid construction because of the width of the channels. By virtue of this construction any desired thickness of floor members can be employed as may be required either from the width of the platform or the kind of duty to which the platform is to be subjected. The construction is such that any looseness may be readily taken up by tightening up the bolts 5, thereby enabling the rigidity of the platform to be maintained. Broken or defective parts can also be readily replaced. By reason of such adjustment and replacement the life of the platform can be prolonged indefinitely.

It will be obvious that the particular embodiments of the invention disclosed herein are illustrative and not restrictive and that various other changes in form, construction and arrangement of parts may be made within the spirit and scope of the following claims.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. A portable platform comprising a floor and side frames each comprising metal channels of greater width than the thickness of the floor embracing opposite ends of said floor, bolts extending through the flanges of said channels and said floor, and re-enforcing means located between the floor and the lower flanges of said channels operable by said bolts to clamp said floor firmly against the under faces of the upper flanges of the channels.

2. A portable platform comprising a floor, channel bars embracing opposite ends of said floor, of greater width than the thickness of said floor, a plurality of shims between the floor and the lower flanges of the respective channel bars and bolts extending through the flanges of said channel bars, nuts on said bolts operable when set up to clamp the platform and shims tightly between the flanges of the respective channel bars.

3. A portable platform comprising a floor, channel bars embracing the opposite edges of said floor of greater width than the thickness of said floor, oppositely tapered shims superimposed upon the lower flanges of said channel bars and fitting between the said lower flanges and under face of the platform and bolts passing through said flanges, floor and shims operable to clamp the same firmly together.

4. A portable platform comprising a plurality of juxtaposed wooden units, channel bars of greater width than the thickness of said floor units embracing the respective ends of said units, oppositely tapered wooden shims superimposed upon the lower flanges of the respective channel bars and extending through the length thereof driven in tightly between the lower flanges of the channel bars and the lower faces of said floor units, and

bolts extending through registering holes in said flanges, floor units and shims operable to clamp the same firmly together.

5 5. A portable platform comprising a floor, upper angle bars embracing the upper edges of the sides of said floor, reinforcing means extending longitudinally of and engaging the lower face of the floor adjacent to said edges, lower angle bars having their horizontal
10 flanges engaging the under faces of said reinforcing means and means clamping together said angle bars with the floor and reinforcing members therebetween.

15 6. A portable platform comprising a floor formed of a series of transverse juxtaposed units, angle bars embracing the upper edges of the ends of said units, reinforcing members extending longitudinally of and underlying said angle bars and the end portions of
20 said floor units, a metallic member engaging the under faces of said reinforcing members, and means clamping together said angle bars

and said underlying metallic member with the floor units and the reinforcing members therebetween. 25

7. A portable platform comprising a floor formed of a series of transverse juxtaposed units, angle bars embracing the upper edges of the ends of said units, reinforcing members extending longitudinally of and underlying
30 said angle bars and the end portions of said floor units, a metallic member engaging the under faces of said reinforcing members, legs having flanges engaging and underlying said metallic member, and bolts extending through
35 said angle bars, floor units, reinforcing members and the flanges of said legs clamping the same rigidly together.

In testimony whereof, we have signed our names to this specification.

FREDERICK J. SHEPARD, JR.
NATHANIEL WARSHAW.
DANIEL E. HENNESSY.