Aug. 28, 1928. 1,682,539

B. J. SANFORD

SHIPPING APPARATUS

Filed June 30, 1926 2 Sheets-Sheet 1

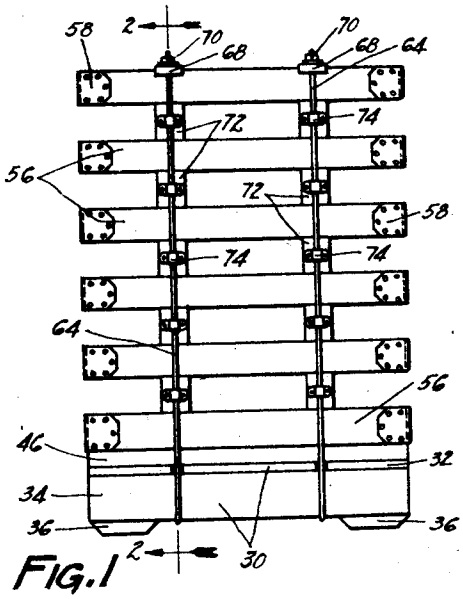


FIG. 1

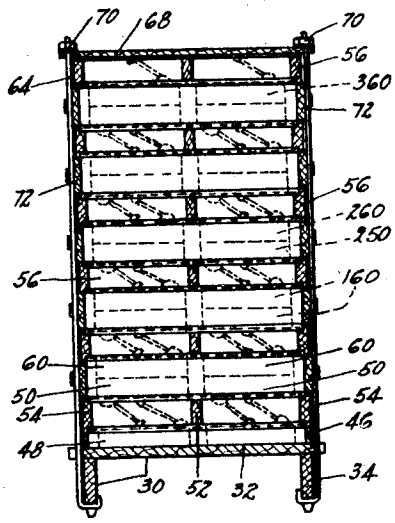


FIG. 2

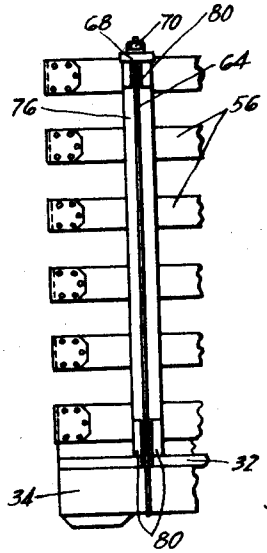


FIG. 3

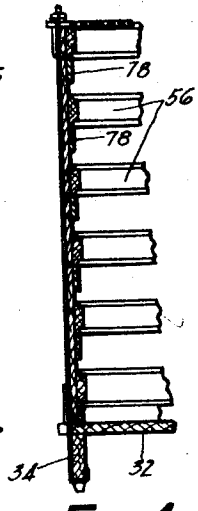


FIG. 4

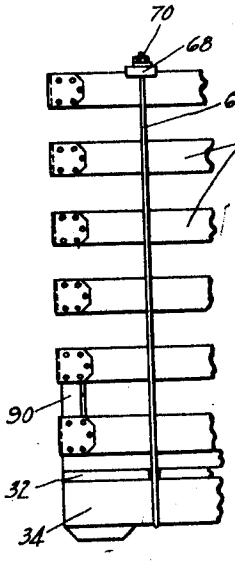


FIG. 5

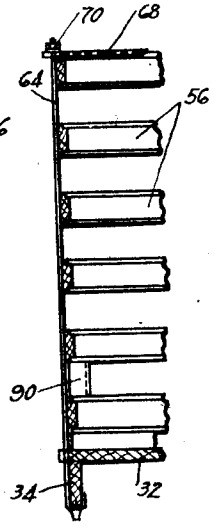


FIG. 6

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SHIPPING APPARATUS

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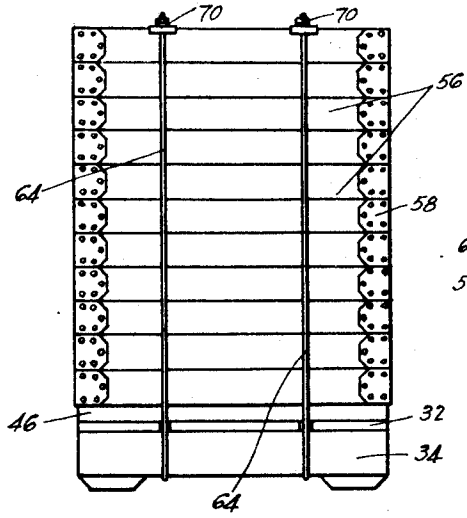


FIG. 10

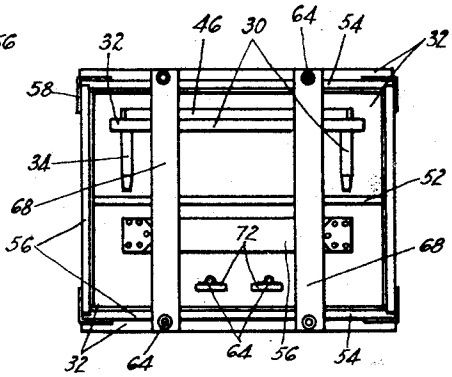


FIG. 11

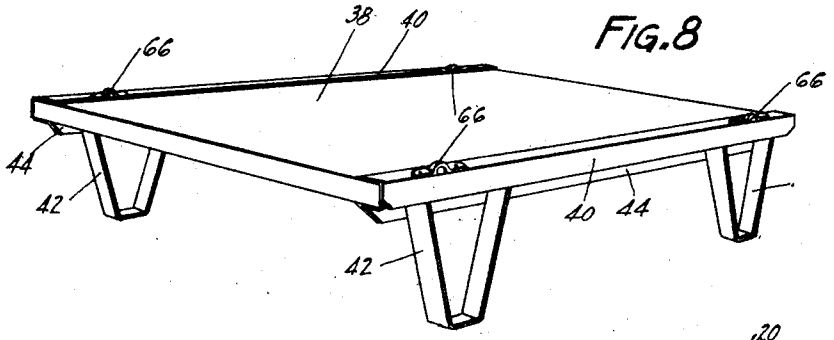


FIG. 8

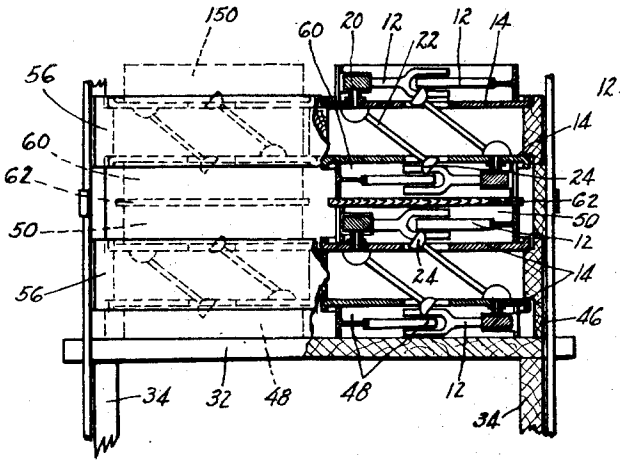


FIG. 7

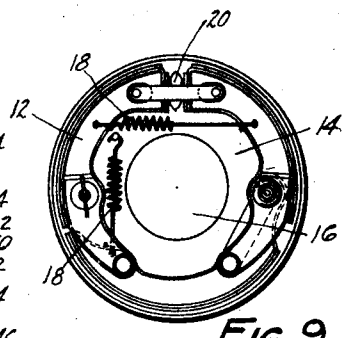


FIG. 9

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Patented Aug. 28, 1928. 1,682,539

UNITED STATES PATENT OFFICE.

BERT J. SANFORD, OF SOUTH BEND, INDIANA, ASSIGNOR TO BENDIX BRAKE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SHIPPING APPARATUS.

Application filed June 30, 1926. Serial No. 119,732.

This invention relates to the shipment of assembled automobile brakes and is illustrated as embodied in an apparatus or crate for the shipment of assembled units of brake shoes and cooperating parts mounted on the brake backing plates, and in which the brake-operating shafts project from the backing plates. An object of the invention is to arrange the apparatus so that the parts of the crate may be added in separate sub-units as the brakes are taken off the assembly line and placed in position, so that it is not necessary to handle the brakes again prior to shipment. Various features of novelty relate to the construction of the crates and sub-units to permit this method of operation and to the means for fastening the sub-units and the brakes together as an assembled package capable of being transported bodily into a freight car for shipment. Other features of novelty relate to the arrangement of parts of the crate and of the brakes with respect to their sub-units of the crates so that the brake-operating shafts may be telescoped into the empty central portion of the adjacent brakes, thus providing a very compact package in which each of the brakes serves as a protective housing for one of the operating shafts of one of the other brakes.

Other features of the invention relate to assembling two of the crates or shipping apparatus in a single unit for return shipment empty after use, and to other novel combinations of parts and desirable particular constructions which will be apparent from the following description of the illustrative embodiments shown in the accompanying drawings, in which:

Figure 1 is a side elevation of a complete shipping apparatus or crate, the brakes being omitted the better to show the relation of the parts;

Figure 2 is a section through the apparatus on the line 2—2 of Figure 1 with the brakes shown in position in dotted lines;

Figure 3 is a partial side elevation of a modification, the Figure corresponding to the left-hand portion of Figure 1;

Figure 4 is a vertical section corresponding to the left-hand portion of Figure 2 but showing a modification of Figure 3;

Figure 5 is a view corresponding to Figure 3 but showing in partial side elevation a third modification;

Figure 6 is a view corresponding to Figure 4 but showing in vertical section the modification of Figure 5;

Figure 7 is a view on a larger scale than Figures 1–6 and showing an end elevation of the lower part of the apparatus of Figure 1, with the brakes shown in dotted lines on the left-hand part of the figure and broken away at the right to show the brakes in vertical section to illustrate the telescoping of each brake shaft into the empty center of the adjacent brake;

Figure 8 is a perspective showing a somewhat different base for the apparatus than that shown in Figures 1–6;

Figure 9 is an elevation of the assembled brake looking toward the shoes;

Figure 10 is a side elevation of two of the crates assembled into a single package for return shipment; and

Figure 11 is a top plan view of the package shown in Figure 10.

The shipping apparatus forming the subject-matter of the present invention is intended for use in transportation in railroad freight cars or the like of assembled brakes or brake units of the general type shown in Figure 9, each of which includes a plurality of brake shoes 12 mounted on a backing plate 14 having a circular opening 16 at its center, the shoes being provided with the usual return springs 18 and with a cam or other operating means 20. As best appears in Figure 7, the cams are universally jointed to operating shafts 22 projecting from the backing plate and having suitable universal supports 24 to be mounted on the chassis frame of the automobile opposite the brake. The particular brake illustrated is a three-shoe Bendix brake fully described in Patent No. 1,567,716, granted Bendix Brake Company December 29, 1925, on an application filed by A. Y. Dodge. While this brake has been selected as illustrative of brake assemblies which are shipped in large quantities, it is not the intention to limit the scope of the invention to the shipment of this particular brake.

Each of the apparatuses or crates preferably includes a base 30 shown as including a floor 32 secured across side skids or runners 34 shown with projections 36 on their lower edges to provide clearance beneath the lower edges in the central part of the crate. If desired, a base of the sort shown in Figure 8 may be used, in which

a floor 38 bound along its edges by channel irons 40 is supported on suitable metal legs 42. The base shown in Figure 8 is designed to have such a height above the floor as to permit the insertion of an electric lift truck at its end and is provided with a downwardly projecting flange 44 along each side and here shown as an integral extension of the side channel 40 so that it just permits the insertion of a hand lift truck from the side.

Whichever base is used, I prefer to surround its top with a retaining ledge 46 permanently fastened to it, and which serves to retain the lowest tier of brake assemblies in the arrangement here illustrated. This lowest tier consists of six assemblies 48 resting shoe side down on the floor 32 with their operating shafts projecting upwardly and inclined to the central part of the brake to telescope into the empty central part of the next uppermost brake assembly. (See Figure 7.) In this particular arrangement there are three brake assemblies looking at the crate in side elevation and two looking at it in end elevation, making a total of six for the tier.

The next higher tier 50 of brake assemblies is arranged shoe side up, with the operating shafts projecting down into the openings 16 of the backing plates of the brakes of the lower tier 48, the tier 50 of brake assemblies resting on a central crosspiece 52 and the rabbeted sides 54 of a separator unit 56, one of which is shown in top plan view in Figure 11 and which are illustrated as having metal-bound corners 58 to give additional strength and rigidity. The separator 56 supporting the tier 50 of brake assemblies also has its sides rabbeted to seat over the edges of the backing plates 14 of the lowermost brakes 48. Immediately above the tier 50 of the brakes is a third tier 60 arranged shoe side down like the tier 48, and either resting directly on the shoes of the brakes of the tier 50, or on card-board separators or the like 62 interposed between the brakes. The operating shafts of the brakes of the tier 60 project upwardly again through the space defined by the next separator 56 into the empty central portions of the next tier 150, the brakes of which are arranged shoe side up like the brakes of the tier 50. Another tier of brakes 160 (Figure 2) is arranged shoe side down on the brakes of the tier 150, there being then another separator 56 and succeeding tiers 250 and 260 and so on, as high as may be desired. I prefer to have the top-most tier 360 arranged with its operating shafts projecting upwardly so that the shoes are protected by the backing plates, the operating shafts being protected by the uppermost separator 56.

The entire assembly is fastened detachably but firmly together by means such as tension rods 64 having hooks at their lower ends to engage underneath the side skids 34 or to engage in hooks 66 of the type shown in Figure 8, and which pass at their upper ends through openings in cross-boards 68, the upper ends being threaded to receive fastening nuts or the like 70. By this means the entire package is firmly fastened together, after it has been built up at the end of the assembly line by successive additions of tiers of brakes and of separators 56, so that without further handling of the brakes the complete packages may be trucked into the freight cars for shipment.

When the brakes are comparatively heavy or where it is desired to protect the finish of several of the parts, I may interpose blocks 72 between the successive separators 60 to take the weight of the parts, the blocks preferably having straps 74 sleeved on the rods 64. An alternative construction is shown in Figures 3 and 4 in which vertical boards 76 having projections 78 on their inner faces to project between the separators 56 are interposed between the rods 64 and the separators. The boards 76 may have pairs of blocks 80 on their outer faces to embrace the rods 64 to prevent any shifting of the parts. In the arrangement of Figures 5 and 6 there is no spacing means interposed between the successive separators 56.

In returning the empty crates, two of them may be combined in one package as shown in Figures 10 and 11, the rods 64 being long enough to hold all but one of the separators 56, and the odd separator 56 and the two extra rods 64 with their blocks 72 being dropped into one side of the package, the second base 30 being dropped into the other side. This permits the loading of enough of the crates in a car to make a minimum weight for a carload lot.

As shown in Figures 5 and 6, instead of using the blocks 72 on rods 64 to take the weight of the brake assemblies, I may use blocks 90 inserted between the corners of successive separators 56.

While several illustrative embodiments of the invention have been described in detail, it is not my intention to limit its scope to these particular embodiments or otherwise than by the terms of the appended claims.

I claim:

1. Apparatus for shipping brake assemblies, each of which assemblies includes a backing plate having an operating device projecting from one side and a set of shoes on its other side, the apparatus comprising, in combination with the brake assemblies, a base arranged to support the lowermost tier of brake assemblies shoe side down, a plurality of separators each arranged to support two tiers of brake assemblies the lower tier of which is shoe side up with the back-

ing plates resting on the separator and the upper tier of which is shoe side down and rests on the lower tier, and means for detachably securing the base and the separators and the brake assemblies together.

2. Apparatus for shipping brake assemblies, comprising, in combination with the brake assemblies having central openings and laterally-projecting brake-control devices, a plurality of separators arranged to support successive tiers of brake assemblies with the control devices of one tier projecting into the central openings of the next tier, and means for detachably securing the separators and the brake assemblies together.

3. Apparatus for shipping brake assemblies, comprising, in combination with the brake assemblies each including friction means mounted on a backing plate projecting beyond said means, a base arranged directly to support the lowermost tier of brake assemblies, a plurality of separators each arranged to support brake assemblies by engaging the projecting portions of the backing plates, and means for detachably securing the base and the separators and the brake assemblies together, together with means projecting between the separators and transmitting the load to the base independently of the brake assemblies.

4. Apparatus for shipping brake assemblies, comprising, in combination with the brake assemblies, a base arranged to support the lowermost tier of brake assemblies, a plurality of separators each arranged to support two tiers of superposed brake assemblies, and rods engaging the opposite ends of the built-up assembled shipment and holding it together, together with blocks carried by the rods and projecting between the separators and transmitting the load to the base independently of the brake assemblies.

5. A separator for apparatus for shipping brake assemblies comprising sides rabbeted along both upper and lower inside edges to fit over and confine against sidewise movement a lower tier of brake assemblies and to support and confine against sidewise movement an upper tier of brake assemblies, and having a cross piece of thickness equal to the space between the upper and lower rabbeted portions of the sides.

6. A shipment of brake assemblies comprising a base, alternating series of separators and tiers of brake assemblies, each assembly including a set of brake shoes and a backing plate carrying the shoes and projecting outwardly beyond the shoes, and the separators being rabbeted to form shoulders engaging the backing plates beyond said shoes, and means detachably holding said series to the base.

7. A shipping assembly for brakes, each of which brakes consists of a backing-plate having friction means mounted on one side thereof, and which assembly comprises superposed layers each of which comprises a separator and a set of brakes resting backing-plate side down on the separator, and another set of brakes resting backing-plate side up on the first set of brakes and with their backing-plates facing toward the next higher separator.

In testimony whereof, I have hereunto signed my name.

BERT J. SANFORD.