Nov. 26, 1929. R. J. McKEE 1,736,795

TRANSPORTING DEVICE

Filed Sept. 24, 1924 2 Sheets-Sheet 1

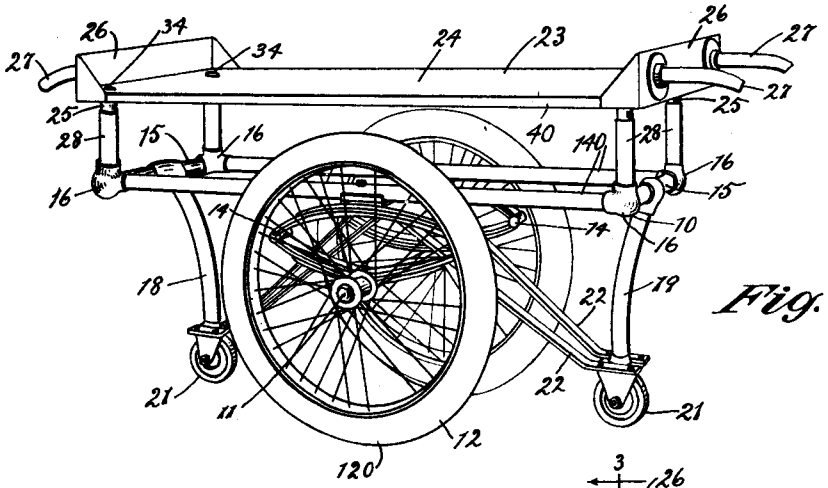


Fig. 1.

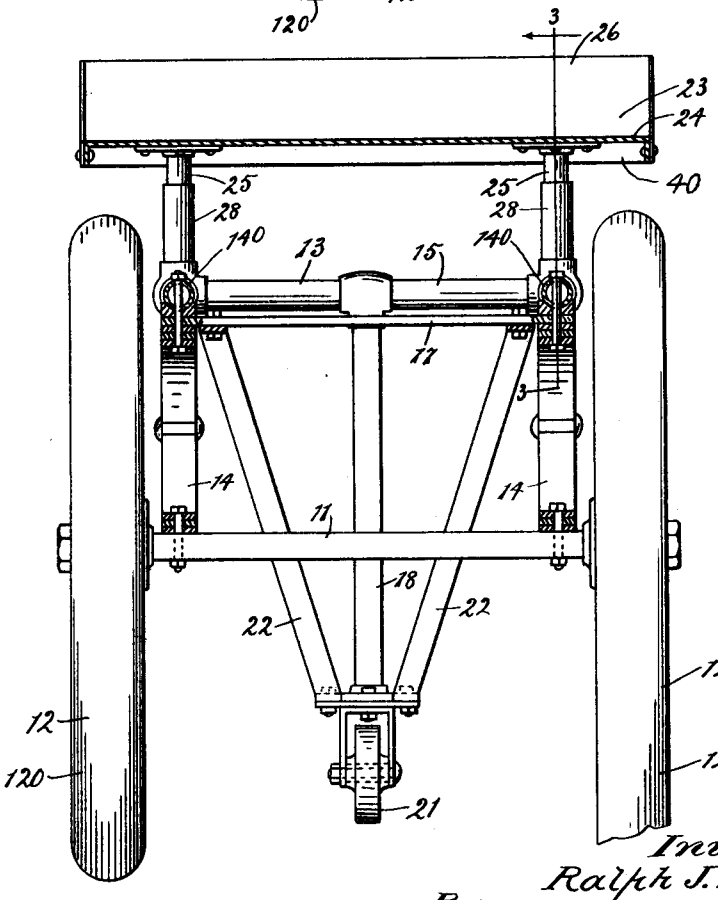


Fig. 2.

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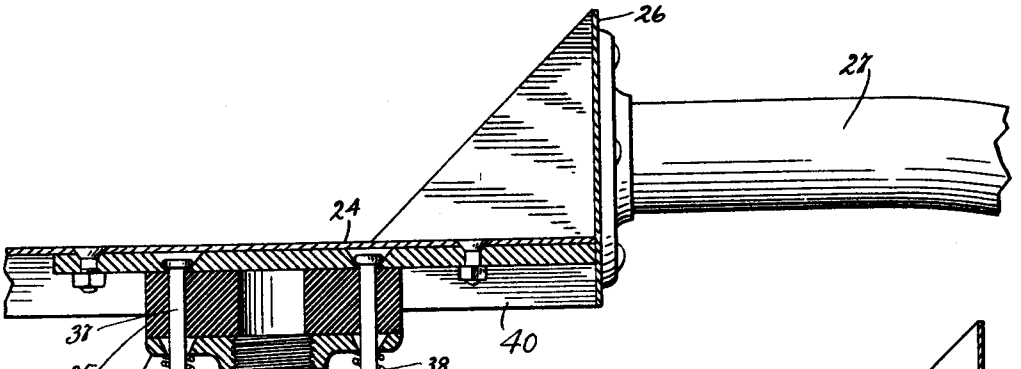


Fig. 4.

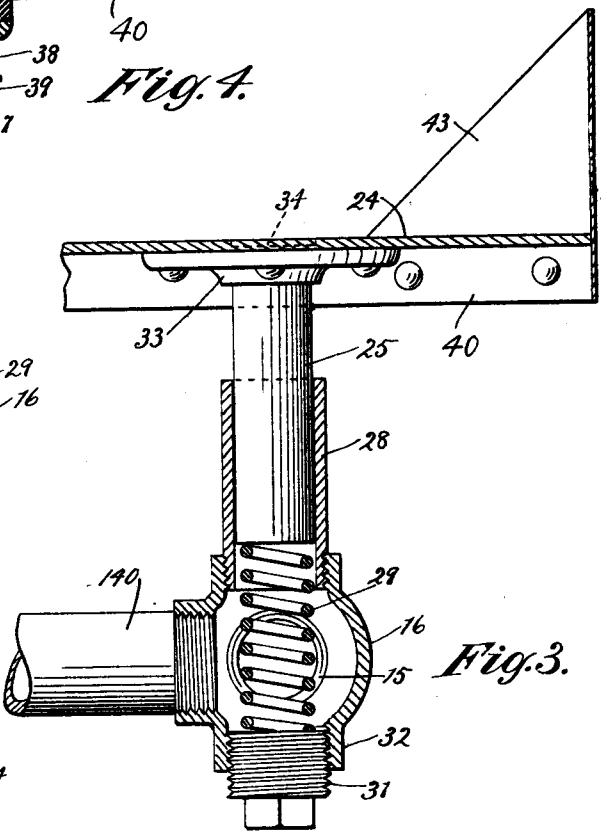


Fig. 3.

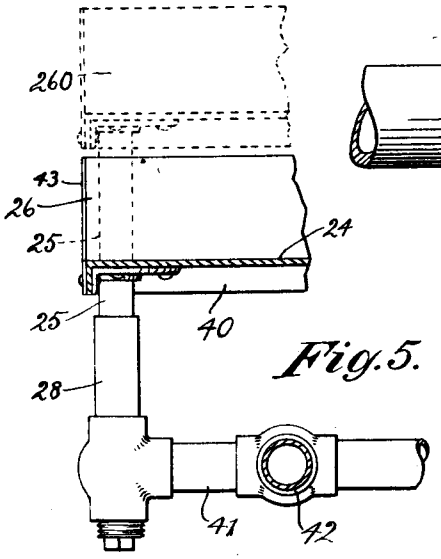


Fig. 5.

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UNITED STATES PATENT OFFICE

RALPH J. McKEE, OF CHICAGO, ILLINOIS, ASSIGNOR TO CHICAGO MANUFACTURING & DISTRIBUTING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

TRANSPORTING DEVICE

Application filed September 24, 1924. Serial No. 739,550.

This invention relates to transporting devices and more particularly to that type that is manually operated.

One of the objects of the invention is the provision of a new and improved conveyance that is adapted to afford the same relative resiliency for light as well as for heavy loads.

Another object of the invention is the provision of a new and improved conveyance and providing the same with two sets of springs, together with means for successively limiting the compression of the two sets of springs.

Other objects of the invention are the provision of a new and improved transporting conveyance that is light and simple in construction, cheap to manufacture, readily assembled, one in which the tray or body portion may be readily removed, is efficient in operation, easily manipulated, and one that is not likely to become broken or get out of order.

Other and further objects and advantages of the invention will appear from the following description taken in connection with the accompanying drawings, in which

Fig. 1 is a perspective view of the device;

Fig. 2 is a vertical section of the device shown in Fig. 1;

Fig. 3 is a section on line 3—3 of Fig. 2, with parts broken away;

Fig. 4 is a similar section, illustrating a modified form of the device, with parts broken away; and

Fig. 5 is a vertical section of a modified form of the device.

On the drawing the reference character 10 designates the chassis of the carriage or conveyance which comprises an axle 11 having the wheels 12 thereon.

While this device is adapted for various kinds of work, it is especially designed for transporting frangible objects, such as sand cores in foundry work, from one part of a foundry to another.

In transporting cores from the core room to the molders' floor in foundries, it is necessary that the conveyance be so constructed that the cores be handled with the minimum amount of jolting or agitation in order not to injure the same in the course of their transportation. For this reason the wheels 12 may be, and preferably are, provided with rubber tires 120 in the usual manner. The chassis frame 13 is supported by suitable resilient members, as the elliptic springs 14, from the axle 11.

The chassis frame 13 may be of any approved construction, that shown in Figs. 1 to 3 is rectangular in form having the side bars or members 140, and end bars or members 15. For convenience in assembly the frame 13 may be formed from tubes connected together by the joints 16. The side members may be secured at their central portion to the springs 14, as shown in Fig. 2. The springs are held in spaced relation by a spacing member, as the bar 17.

Suitable means are provided for preventing tilting of the chassis frame beyond a predetermined angle. Any suitable means may be provided for this purpose. As shown, legs 18 and 19 are secured to the end members 15 of the frame and depend therefrom. The lower ends of the legs 18 and 19 may, if desired, be provided with wheels or rollers 21, so arranged that when the chassis frame is horizontal and without any load thereon the rollers or wheels will be spaced from the floor or other support for the vehicle. Braces 22, connected to the bar 17 and to the lower end of the legs 18, 19, are provided for rigidly holding the said legs in position. By connecting the legs 18, 19, to the chassis frame, they will assist in supporting the load if the same exceeds a given maximum.

A table or tray 23 is suitably supported on the chassis frame 13. The table or tray 23 may be of any approved construction. That shown on the drawing comprises a base or bed portion 24, provided with standards or supports 25 at each of its four corners. The base or bed portion may be, and preferably is, provided with depending reinforcing flanges 40 and with upwardly extending end members 26, to which handle bars 27 are rigidly secured, see Figs. 1 and 4.

Sand cores, or other frangible objects it is desired to transport, are of various sizes and weights, consequently the load on the

vehicle will vary considerably. It is desirable that whether the loads be heavy or light they shall be supported by the same relative amount of resiliency, consequently it is necessary to provide special means for supporting light loads, whereas the heavier loads may be supported directly from the springs 14. Any suitable means may be provided for this purpose. As shown, the chassis frame is provided with upwardly extending sockets or sleeves 28, which are adapted to telescopically receive the supports 25 of the tray or table 23. The sleeves 28 are provided with resilient means, such as the coil springs 29, for engaging the lower ends of said supports. The lower ends of the springs 29 are adapted to engage adjustable plugs 31, secured in the bosses 32 of the joints 16. The tension of the springs 29 may be varied by screwing or unscrewing the plugs 31.

The parts are so arranged that the springs 29 will resiliently support a given weight, but when this weight is exceeded the shoulders 33 at the basis of the supports 25 will engage the upper ends of the sleeves 28, thereby relieving the springs 29 from further compression, whereby the heavier loads will not be affected by the springs 29 but will be resiliently supported by the springs 14. The springs 14 are of such resiliency that they will not be materially affected by the lighter loads. In other words, the parts are so constructed and arranged that the lighter loads will be carried principally by the springs 29, and the heavier loads will depend for their resilient support on the springs 14.

The tables or trays may be removed from the chassis frame by lifting the same upwardly to disengage the supports 25 from the sockets or sleeves 28. The supports 25 are slightly longer than the height of the ends 26, whereby a series of tiers may be built up by placing one tray upon another. If desired, the trays may be provided with depressions 34 for receiving the lower ends of the supports 25 and thus prevent displacement of the same while the vehicle is being moved.

The vehicle is adapted to be moved and guided by the handles 27, which are also employed in lifting the tables from the chassis frame.

Since the supports 25 are rigidly connected to the tray 23, are parallel with each other, and are slidably mounted in the sleeves 28, the tray 23 will remain substantially parallel with the chassis frame regardless of the distribution of the weight on the tray.

In the form of the device shown in Fig. 4, rubber blocks 35 are inserted between the attaching flange 36 of the supports 25 and the under side of said tray. The attaching flanges 26 are preferably provided with conical openings for receiving the attaching bolts 37. Suitable springs 38 may be inserted between the flange 36 and nuts 39 on the lower ends of said bolts. This arrangement will permit a slight angular movement of the standards 25 relative to the tray, and will thus prevent the binding of said standards within the sleeves 28 should the load be unequally distributed on said tray.

The form of the device shown in Fig. 5 differs from that shown in Fig. 1 in that the end pieces 41 are extended outwardly beyond the side bars 42, whereby the supports or standards 25 and the sleeves or sockets 28 will be located directly beneath the corner formed by the end piece 26 and the angular side piece 43, whereby when the trays are placed one upon the other as indicated by dotted lines at 260 in Fig. 5, to form a series of trays or shelves the supports 25 of one tray will engage in the corners of the tray below, thereby preventing displacement of the trays.

It is thought from the foregoing, taken in connection with the accompanying drawings, that the construction and operation of my device will be apparent to those skilled in the art. Various changes in size, shape, proportion and details of construction may be made without departing from the spirit and scope of the appended claims.

I claim as my invention:

1. In a vehicle, the combination of a frame having upstanding hollow supports thereon, an axle, springs for supporting said frame from said axle, a tray having downwardly projecting legs thereon for removably telescopically engaging in said supports, comparatively light springs within said supports for resiliently supporting said legs when the weight on said tray does not exceed a predetermined amount, and shoulders on said legs for engaging the upper ends of said hollow supports for rigidly supporting said tray from said frame when the weight thereon exceeds said predetermined amount.

2. In a vehicle, a frame, an axle for supporting said frame, wheels for said axle, relatively stiff springs for supporting said frame above said axle, depending wheeled supports rigidly connected to said frame on opposite sides of said axle and normally extending to a plane above the lowermost points of said wheels, said wheeled supports being adapted to assist in supporting said frame when the weight thereon is excessive, a tray, supporting legs on said tray, means including comparatively light springs for resiliently supporting said tray from said frame when the load thereon does not exceed a predetermined amount, and means for rigidly supporting said tray from said frame when the weight thereon exceeds said predetermined amount.

3. A tray for transporting objects comprising a rectangular flat body member, reinforcing flanges depending from said member, upstanding end members having flanges secured to the side edges of said body portion

for reinforcing said end members, handles secured to said end members at each end of said tray and extending outwardly therefrom, and supporting legs secured to said body member and depending therefrom.

4. In a vehicle, a frame, an axle extending transversely beneath an intermediate portion of said frame, comparatively stiff springs for supporting said frame from said axle, a tray, means for detachably connecting and resiliently supporting said tray from said frame, said means comprising a plurality of socket members on said frame, a plurality of supporting standards depending from said tray and slidably and removably engaging said sockets, comparatively light springs in said sockets for engaging said standards for constituting the sole means for supporting said tray from said frame when the same is not loaded or is lightly loaded, said springs being compressible to permit said tray to be supported from said frame by said sockets when said tray is heavily loaded, and means depending from said frame and adapted to engage the wheel supporting surface only when the load on said vehicle exceeds a predetermined amount.

In testimony whereof I affix my signature.

RALPH J. McKEE.