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N. W. EUREY

2,850,203

FALSE MOVABLE BOTTOM FOR BOBBIN TRUCKS

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2 Sheets-Sheet 1

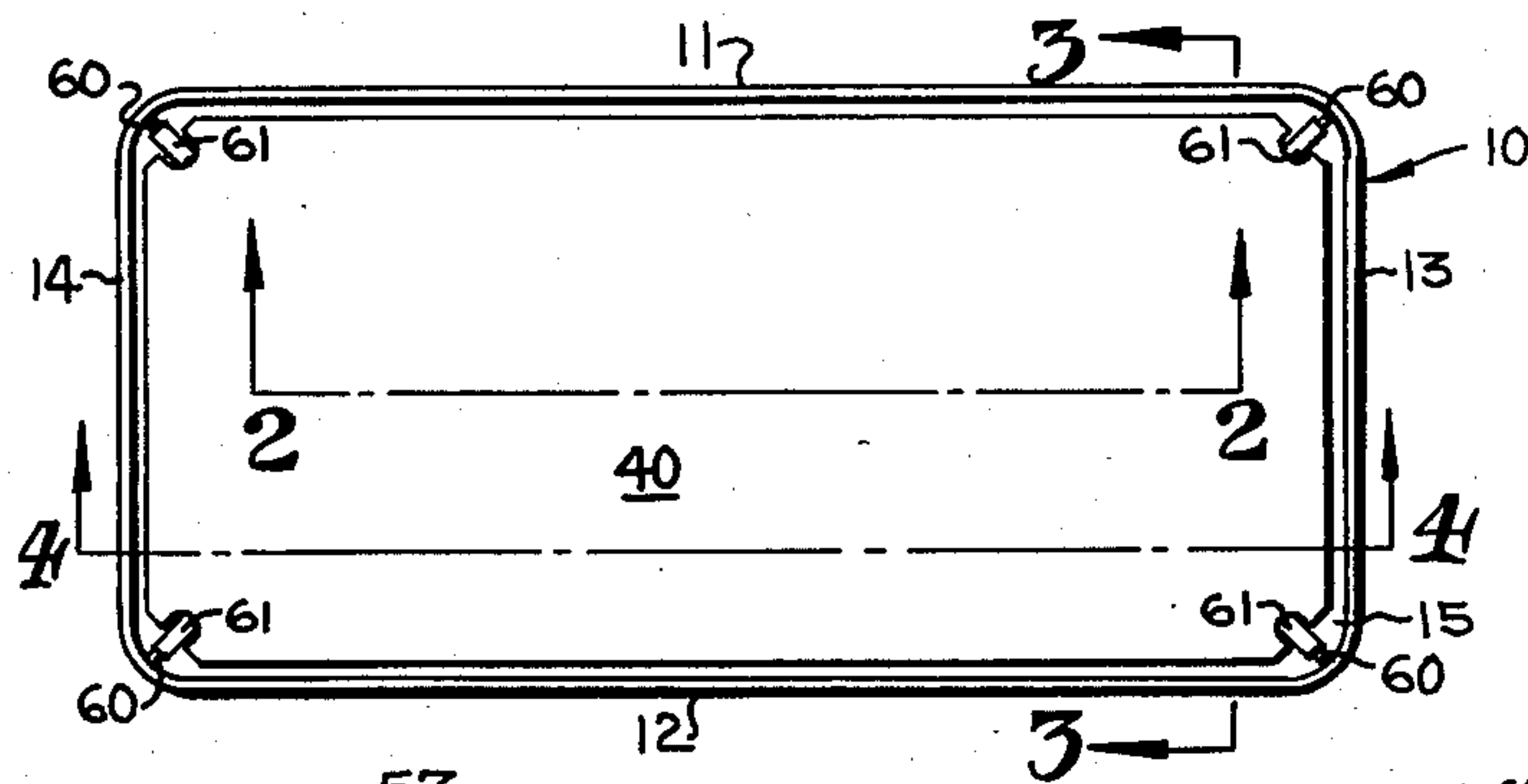


FIG-1

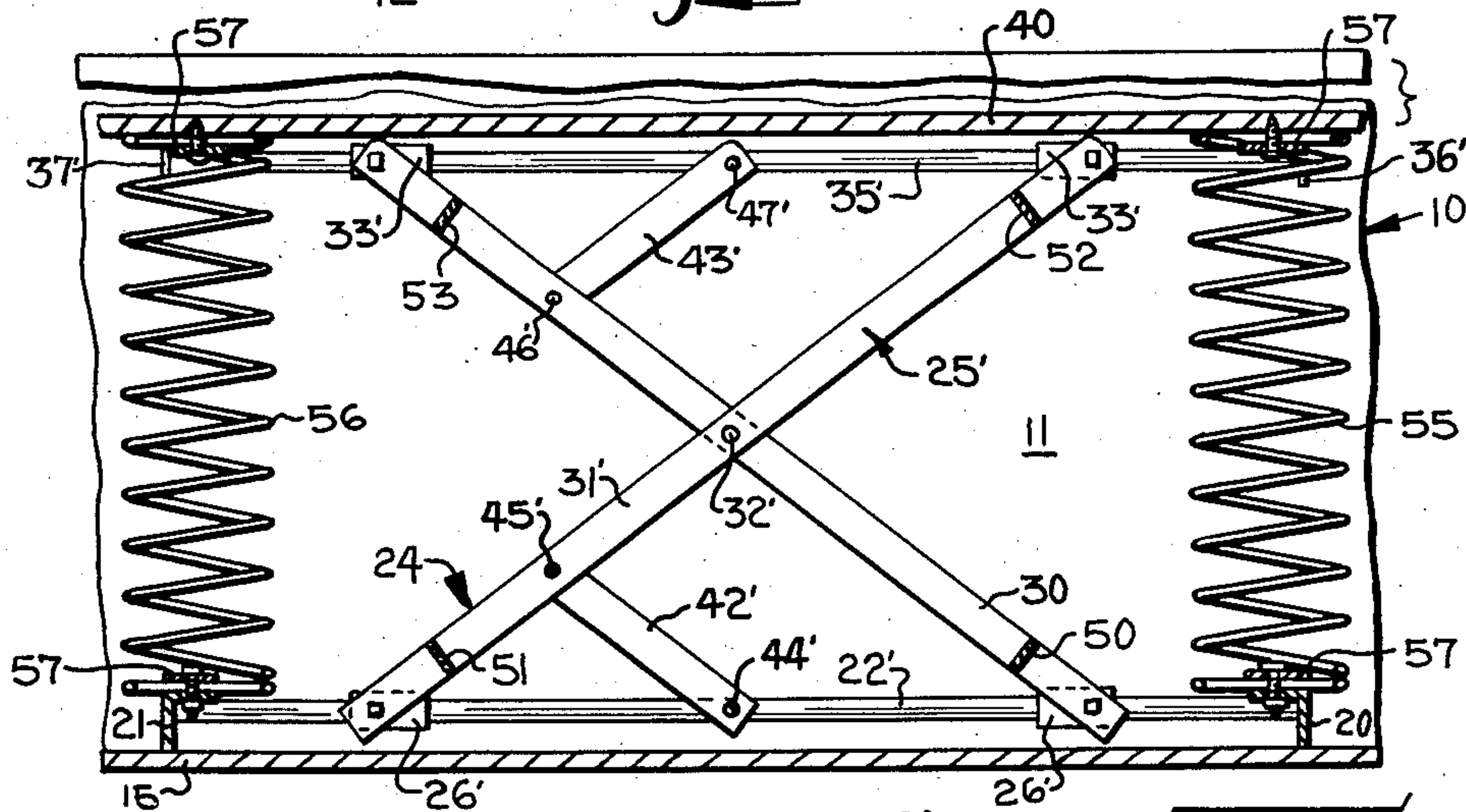


FIG-2

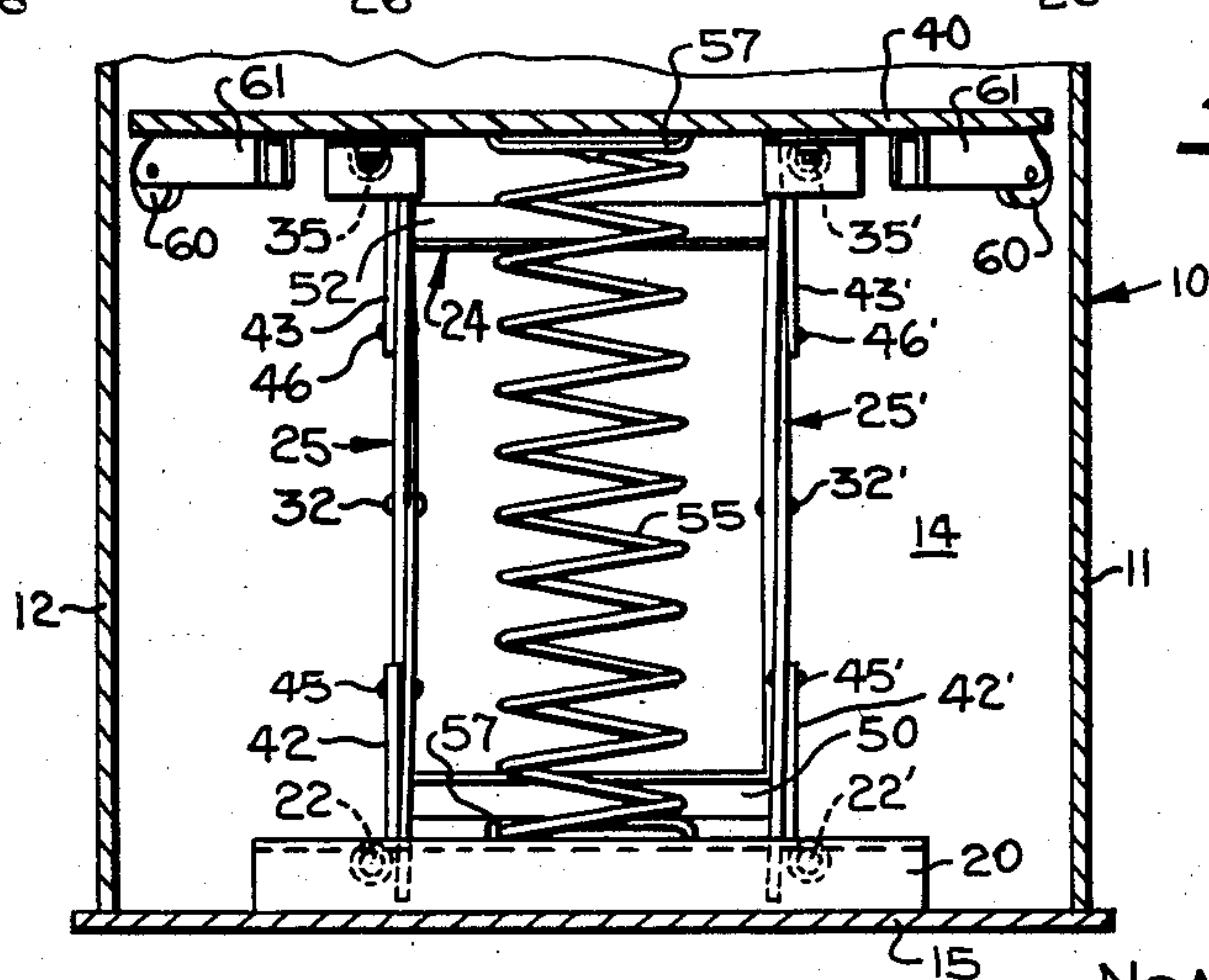


FIG-3

INVENTOR:

NOAH W. EUREY

BY

Eaton & Bell

ATTORNEYS

Sept. 2, 1958

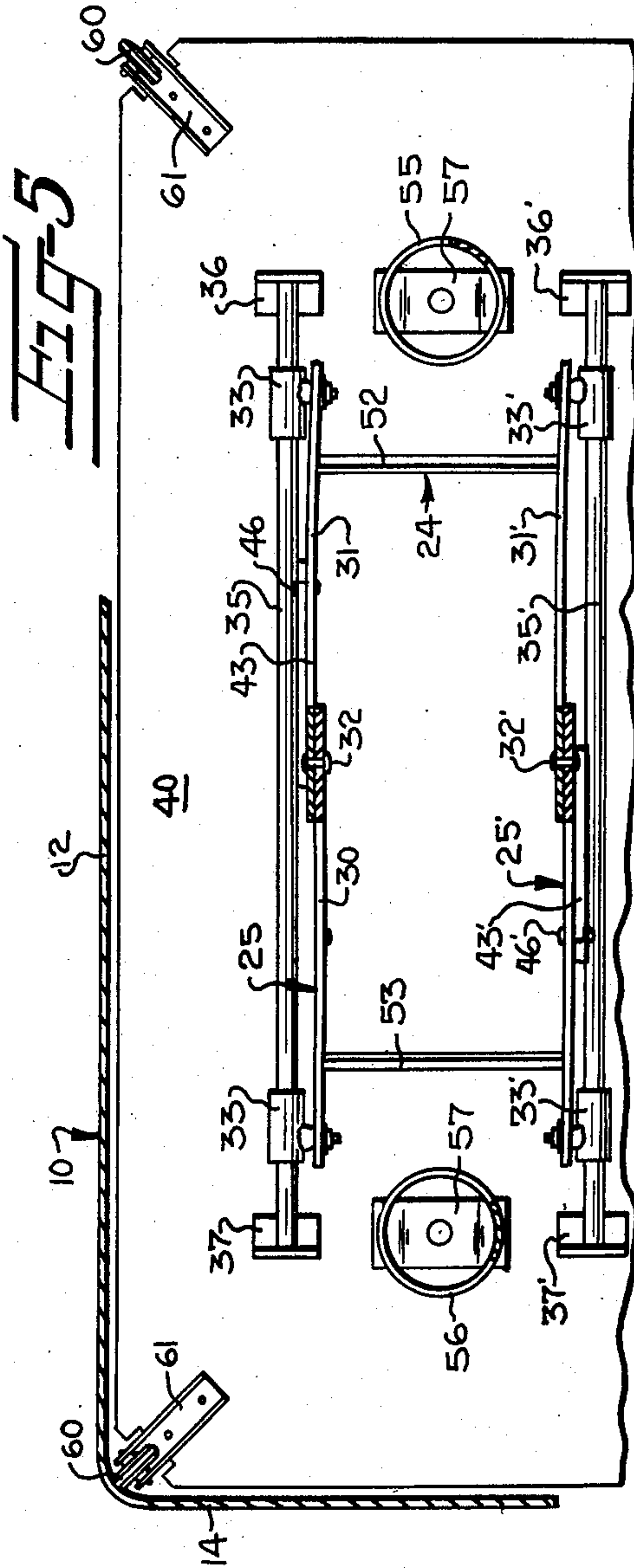
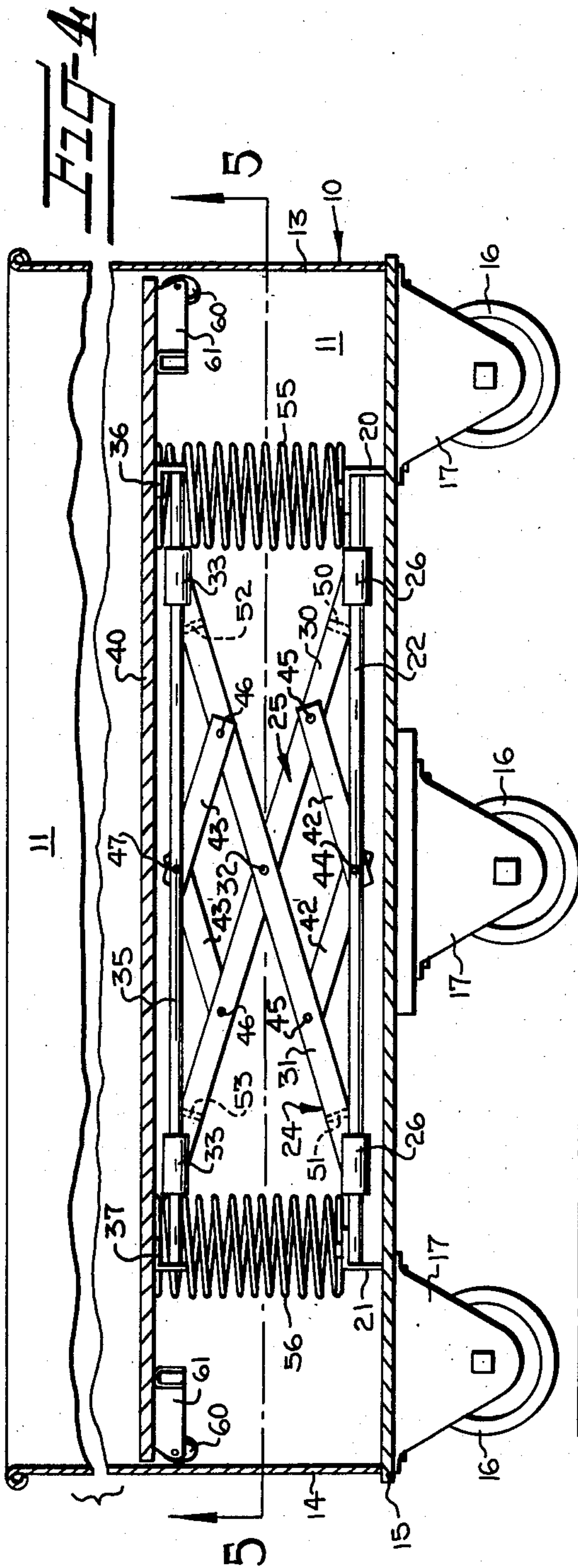
N. W. EUREY

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NOAH W. EUREY,
INVENTOR.

BY

Eaton + Bell

ATTORNEYS

1

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FALSE MOVABLE BOTTOM FOR BOBBIN TRUCKS

Noah W. Eurey, Lincolnton, N. C., assignor, by mesne assignments, to Excel, Inc., Lincolnton, N. C., a corporation of North Carolina

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1 Claim. (Cl. 220—93)

This invention relates to hand trucks and more especially to a false movable bottom which is adapted to be used in a conventional bobbin truck.

Numerous prior attempts have been made to provide a truck with a false bottom which is automatically depressed upon a plurality of articles being placed thereon and automatically elevated as the supply of articles thereon is used up so as to maintain the level of the articles in the truck at substantially the top edge of the truck to prevent stooping over to reach articles in the bottom, as is done with an ordinary truck. Little success has been obtained, however, in providing a truck with a false movable bottom which will not bind or tilt when weight is unevenly distributed over the bottom and structures seeking this end employ complicated mechanisms requiring numerous and expensive parts which have proved impractical to manufacture.

It is therefore a primary object of this invention to provide a false movable bottom for a hand truck, which bottom will at all times maintain the top surface of the bobbins or cargo therein at a constant elevation conveniently accessible to an operator, and which bottom will not tilt or bind as it is automatically elevated or depressed regardless of the distribution of the cargo thereon.

It is another object of this invention to provide a false movable bottom as a self-contained unit which may be manufactured independently of the truck and which may subsequently be readily installed in an existing truck without the necessity of employing any type of fastening means, the accessory being satisfactorily mounted in the truck merely by placing the same on the existing bed of the truck.

The present invention may be readily removed from an existing truck by merely lifting the same upwardly beyond the top edge of the truck, there being no fastening means whatever to disconnect, said false bottom thus being adaptable for universal application with all types of existing trucks.

It is another object of this invention to provide a false bottom of the type described comprising an article receiving surface or bed and a frame and wherein the bed is so connected to the frame by means of resilient springs and lazy tongs that movement of one point of the bed will result in corresponding movement of all other points of the bed, thereby constantly maintaining the bed in a predetermined plane.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is a plan view of the false bottom shown in a conventional bobbin truck;

Figure 2 is an enlarged fragmentary longitudinal sectional view taken substantially along line 2—2 in Figure 1;

Figure 3 is an enlarged transverse vertical sectional view through the bobbin truck and a portion of the false bottom showing the false bottom in raised position;

2

Figure 4 is an enlarged longitudinal vertical sectional view taken substantially along line 4—4 in Figure 1 and showing the false bottom in a lowered position;

Figure 5 is an inverted plan view of one side of the false bottom taken substantially along the line 5—5 in Figure 4.

Referring more specifically to the drawings, the numeral 10 broadly designates a hand truck of the type which is usually used for transporting bobbins in the textile industry and which comprises sidewalls 11 and 12 and end walls 13 and 14 preferably joined together at their junctures by arcuate or curved corners. The side walls 11, 12 and end walls 13, 14 are mounted upon a base 15 which may comprise either a planar member as shown or an open framework and from which depend a plurality of wheels 16 suitably journaled in brackets 17.

It is with this type of structure that the present invention is particularly adapted to be associated, and although the simplified structure of the instant false bottom readily lends itself to being manufactured as a self-contained unit, it is to be understood that it may be incorporated into the frame of a truck without departing from the spirit of the invention. In this manner, the expense of a complete bottom or base 15 in the truck 10 may be eliminated.

The false bottom mechanism comprises a base or frame formed from a pair of transverse angle bars 20 and 21 adapted to be positioned adjacent respective end walls 13 and 14 in such a manner that the lower edges of the vertical flanges rest on the base or bottom 15 of the hand truck 10. The transverse angle bars 20 and 21 are connected by a pair of transversely spaced longitudinally extending guide or support rods 22 and 22' secured thereto, said rods 22 and 22' serving as supports for a lazy tong arrangement broadly indicated at 24.

The lazy tong arrangement 24 comprises two interconnected lazy tong devices 25 and 25', the lazy tong device 25 being connected to the guide or support rod 22 by a pair of tubular guides 26 and the lazy tong device 25' being connected to the guide or support rod 22' by tubular guides 26'. Each of the lazy tong devices 25 and 25' is constructed in an identical manner and only the device 25 will be described in detail, it being understood that like parts of the device 25' will bear like reference characters with the prime notation added.

The lazy tong device 25 comprises a pair of cross arms 30 and 31, the lower ends of which are pivotally connected to the tubular guides 26, and which cross arms 30 and 31 converge upwardly to a juncture at which point they are pivotally connected as by a pivot pin 32. The cross arms 30 and 31 diverge upwardly from the pivot pin 32 and their upper ends are pivotally mounted on respective tubular guides 33 which are slidably mounted on an upper guide or support rod 35 opposite ends of which are fixedly secured in the vertical flange of angle brackets 36 and 37. The horizontal flanges of the brackets 36 and 37 are secured to the inner surface of a false bottom 40, which false bottom 40 is preferably of slightly less dimensions than the distance between the respective sidewalls and end walls of the truck 10 to provide a clearance therebetween.

The cross arms 30 and 31 are further guided and caused to move the same amount in a scissors motion, that is, when one cross arm 30 or 31 is moved the other cross arm will have the same amount of movement, by lower and upper links or auxiliary bracing members 42 and 43, respectively.

The auxiliary bracing member 42 is pivotally connected at its ends to the support rod 22 and the lower medial portion of the cross arm 30 as at 44 and 45, respectively, and the ends of the upper auxiliary bracing member 43 are pivotally connected as at 46 to the upper medial portion of the cross arm 31 and to the medial

portion of the upper guide rod 35 as at 47. The cross arms 30, 31 and 30', 31' are rigidly tied together and bridged by lower transverse bracing members 50 and 51 and upper transverse bracing members 52 and 53, respectively, thereby insuring that the lazy tong devices 25 and 25' will move in unison and the slightest movement of either of said devices will result in corresponding movement by the other.

It is thus seen that a lazy tong arrangement is provided for insuring that the false bottom 40 will be lowered and raised in a level or horizontal position regardless of the distribution of weight thereon. One end of the false bottom 40 may not be lowered or raised without the other end being lowered or raised the same amount since the cross arms 30, 31 and 30', 31' along with the auxiliary bracing members 42, 43 and 42', 43' cause the tubular guides 26 and 26' to be moved the same distance along the respective guide rods 22, 22' and 35, 35' as the false bottom 40 is elevated or depressed.

The false bottom 40 is normally urged upwardly by resilient means such as springs 55 and 56 which extend upwardly from the medial portions of the transverse angle bars 20 and 21 to the under surface of the false bottom 40. Suitable spring clamping brackets 57 connect respective ends of the springs 55 and 56 to the angle bars 20 and 21 and the false bottom 40. Rollers 60, adapted to engage the curver corners of the bobbin truck 10 are journaled in suitable brackets 61 secured to the under surface of the false bottom 40 adjacent the corners thereof. The rollers 60 insure that the edges of the false bottom 40 will not engage and drag against the side walls 11, 12 and end walls 13, 14 of the truck 10 during elevation or depression of the false bottom 40.

It is thus seen that the springs 55 and 56 tend to resiliently urge the false bottom 40 upwardly when there are no bobbins or other articles placed on the false bottom 40 and upon a weight or plurality of bobbins being placed in the bobbin truck 10 upon the false bottom 40, the false bottom 40 will move downwardly from substantially the position shown in Figure 2 to the position shown in Figure 4. The cross arms 30, 31 and 30', 31' will thus be moved the same amount in a scissors motion and insure that the false bottom 40 will move downwardly in a level condition to prevent wedging of the false bottom 40 in the truck 10 or to prevent the shifting of the bobbins or weight placed thereon.

It is thus seen that I have provided a vertically movable false bottom easily adaptable to be placed in a conventional hand truck, or which could be made a part of a hand truck.

In the drawings and specification, there has been set forth a preferred embodiment of the invention and

although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claim.

I claim:

A self-contained, self-leveling, weight adjustive, false floating bottom unit comprising a planar false bottom member, a transverse support bar beneath each end of the false bottom, a pair of horizontally spaced parallel lower guide rods longitudinally extending between and secured to said support bars, a corresponding pair of upper guide rods secured to the under surface of the false bottom extending in parallel relation to said lower guide rods and being disposed above said lower guide rods in common vertical planes therewith, a pair of cross arm assemblies each consisting solely of two arms and a relatively short upper and lower auxiliary link, the two arms in each assembly being arranged in variable angular relation to each other and intersecting each other adjacent their medial portions, the arms in each cross arm assembly being pivotally interconnected at their juncture and slidably and pivotally connected at their respective ends to the corresponding upper and lower guide rods, the auxiliary upper link for each cross arm assembly being pivotally anchored at its upper end to the mid portion of its respective upper guide rod, said auxiliary upper links extending downwardly in diverging relationship and being pivotally connected at their lower ends to the upper portion of diagonally opposed arms of their respective cross arm assemblies, the auxiliary lower link for each cross arm assembly being pivotally anchored at its lower end to the mid portion of its respective lower guide rod, said auxiliary lower links extending upwardly in diverging relationship and being pivotally connected at their upper ends to the lower portion of diagonally opposed arms of their respective cross arm assemblies, bracing means extending transversely between the two assemblies and interconnecting the arms in one assembly with corresponding arms in the other assembly, and spring means positioned outwardly of the cross arm assemblies extending between the planar false bottom member and the transverse supports and normally urging said false bottom member upwardly.

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