May 19, 1953 S. N. GOLDMAN 2,639,161

STORE SERVICE TRUCK

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Fig. 1.

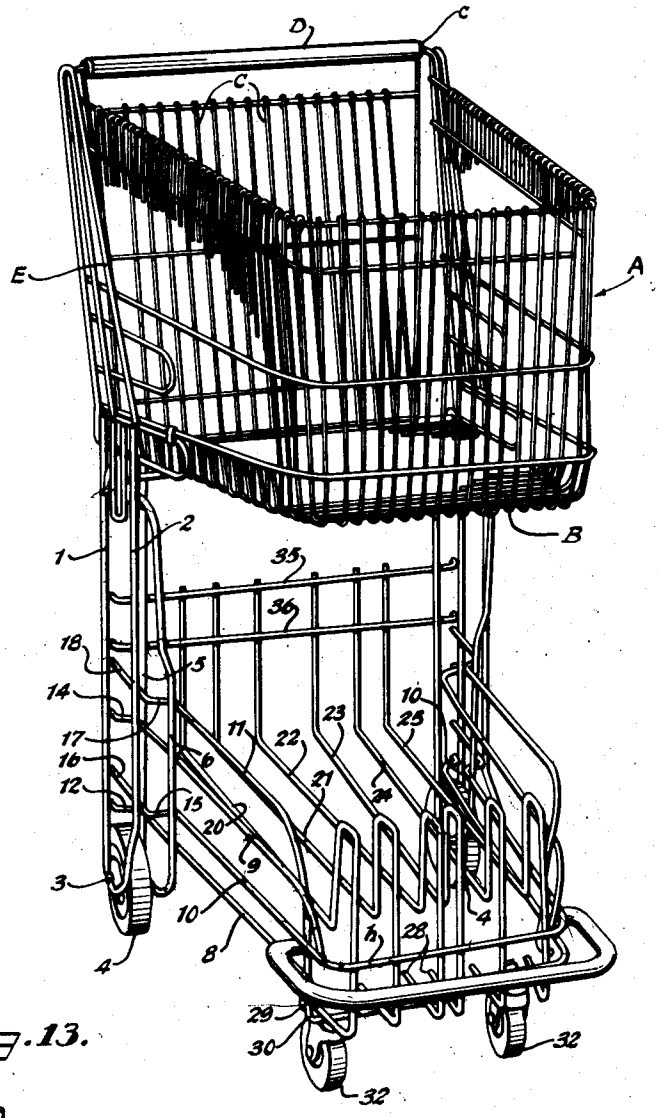


Fig. 13.

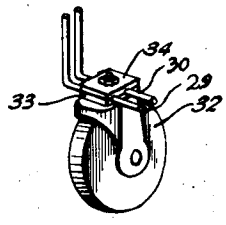
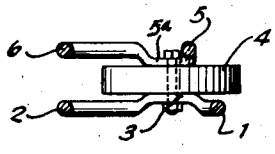


Fig. 14.



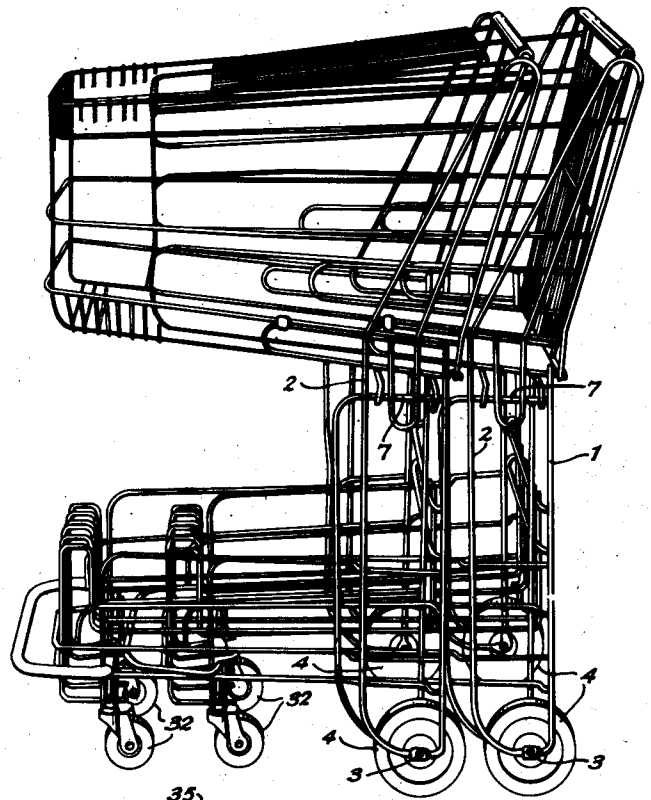
INVENTOR.
SYLVAN N. GOLDMAN.
BY
Ralph J. Bassett
ATTORNEY

May 19, 1953 S. N. GOLDMAN 2,639,161

STORE SERVICE TRUCK

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Fig. 2.



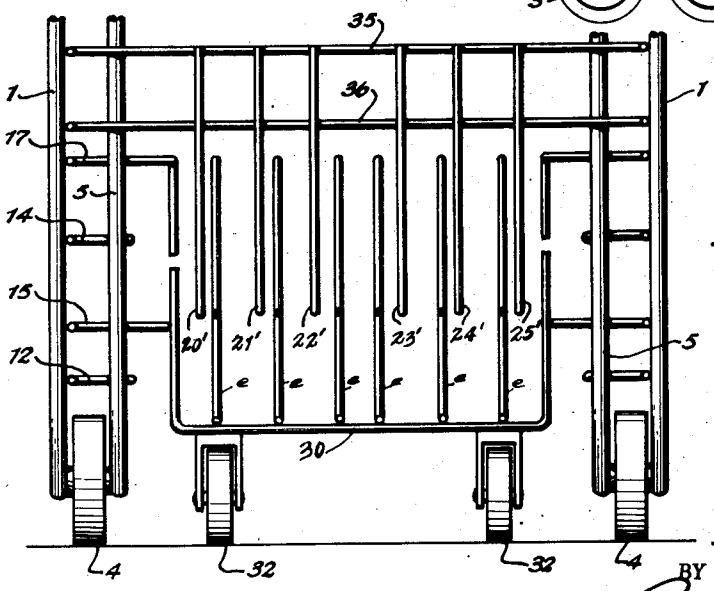


Fig. 3.

INVENTOR.
SYLVAN N. GOLDMAN.

BY Ralph T. Barrett

ATTORNEY

May 19, 1953 S. N. GOLDMAN 2,639,161

STORE SERVICE TRUCK

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Fig. 4.

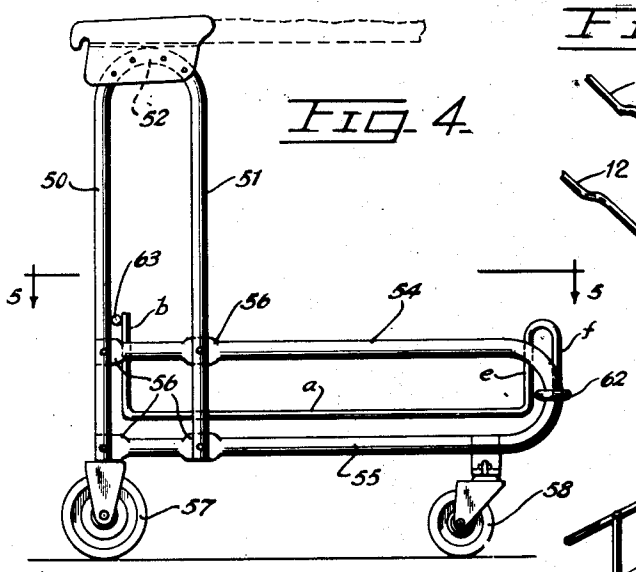


Fig. 15.

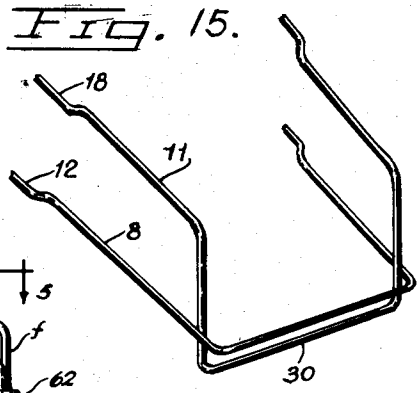


Fig. 7.

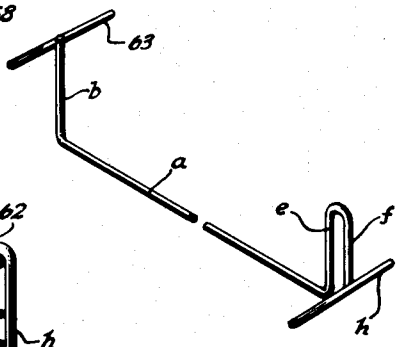


Fig. 5.

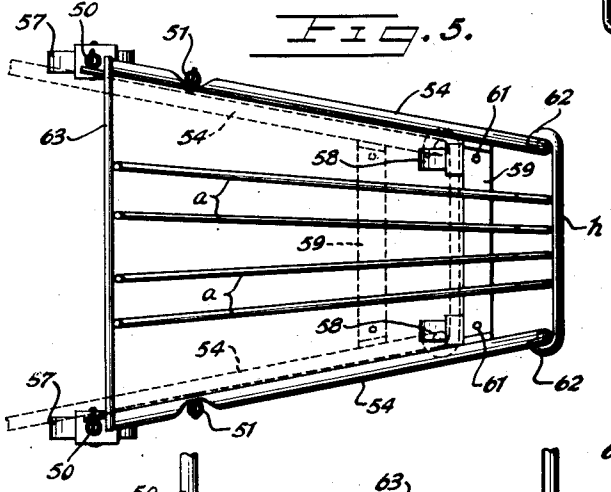
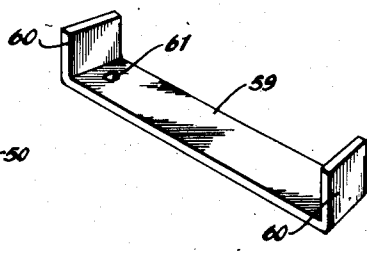


Fig. 8.



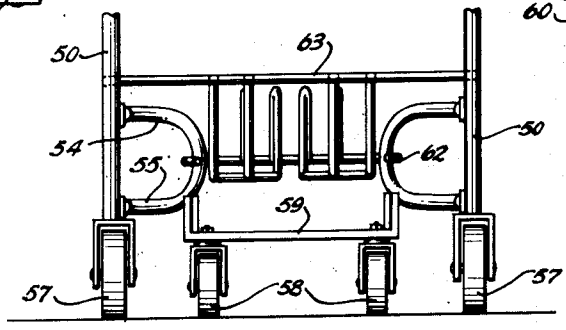


Fig. 6.

INVENTOR.
SYLVAN N. GOLDMAN.
BY
Ralph J. Barnett
ATTORNEY

May 19, 1953 S. N. GOLDMAN 2,639,161

STORE SERVICE TRUCK

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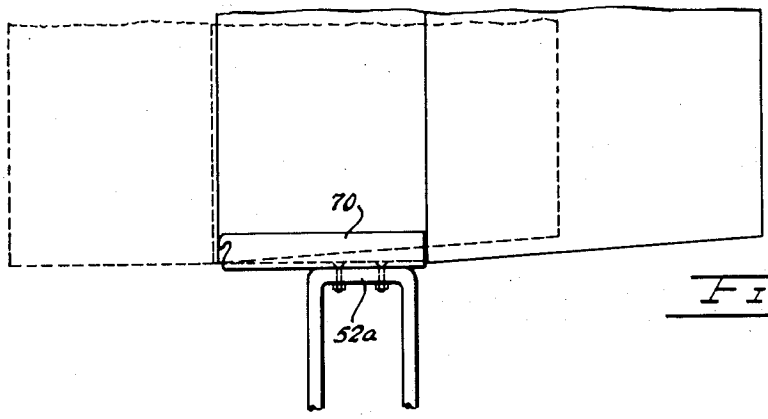


Fig. 9.

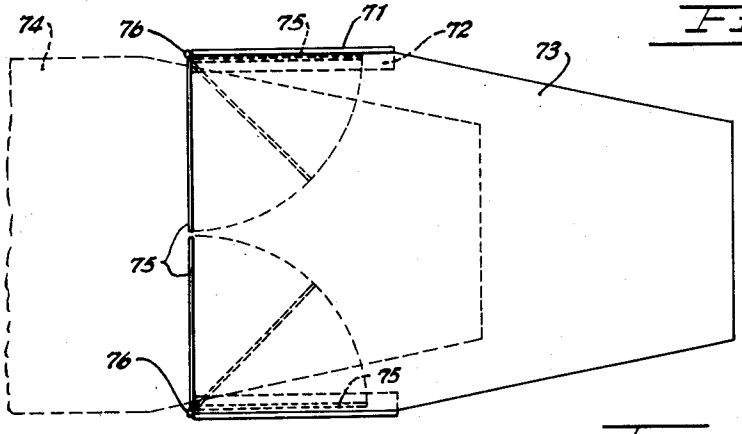
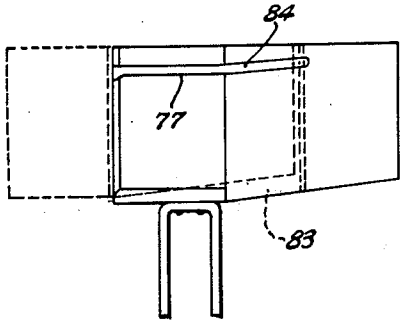


Fig. 10.

Fig. 12.



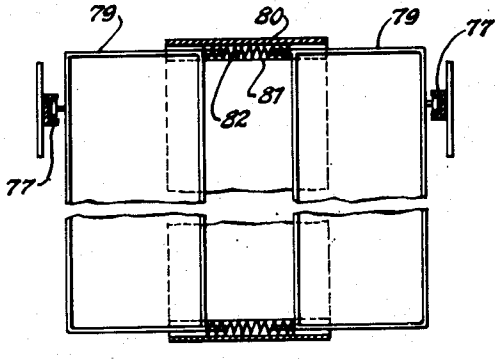


Fig. 11.

INVENTOR.
SYLVAN N. GOLDMAN.
BY
Ralph G. Bennett
ATTORNEY

Patented May 19, 1953

2,639,161

UNITED STATES PATENT OFFICE

2,639,161

STORE SERVICE TRUCK

Sylvan N. Goldman, Oklahoma City, Okla.

Application November 21, 1949, Serial No. 128,582

6 Claims. (Cl. 280—33.99)

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This invention relates to store service trucks of the type embodying a carriage and a basket or container, both of which are constructed and arranged for nesting association with carriages and baskets of similar construction.

In the prior art it has been found that in many instances the nesting operation embodies unnecessary friction during the nesting association of a multiplicity of parts, particularly in instances where the parts have been slightly deflected or misaligned due to long usage and abuse, and due to the unnecessary friction some difficulty may be encountered in separating the store service trucks when too much force is used by the attendant in arranging the devices in nesting association.

The main object of this invention is to so construct and arrange the parts of the carriage or truck that the interengaging or nesting parts when assembled in telescoping arrangement are substantially without frictional contact so that frictional contact is only present between the baskets carried by the nested trucks.

A further object of the invention is to construct the carriage with a lower basket in which the basket is constructed of a plurality of substantially spaced U-shaped rods or wires, each of which is forwardly inclined and properly spaced and wherein the frame of the carriage is sufficiently elevated above the front of the basket forming elements that the latter are free for spaced telescoping association in connection with similar parts of the same type of structure, whereby the nesting association is present without frictional engagement of the related and associated parts.

More specifically the invention comprehends a pair of spaced upright frame members supported on casters and constructed at their upper portions for supporting a telescoping basket having a rear hinged gate, the bottom of the frame including transverse braces which support U-shaped forwardly extending lading carrying rods or wires relatively widely spaced between the uprights and converging forwardly so that the forward upright portion of each of the U-shaped lading carrying elements will be positioned substantially intermediate the rear upright parts of the basket forming elements of an associated basket, thus permitting the front upright of the U-elements to fit in between the associated upright elements.

Another feature of the present invention is the formation of the lower article carrying basket in which the wires or rods forming the side elements of the basket are offset for association with the upright side frame members to comprehend the maximum bracing of the frame structure.

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A further object of the invention is the novel means for supporting the front casters of the carriage by deforming the rods forming the carriage or basket structure so that these parts will project downwardly and rearwardly in a horizontal plane whereby the front casters will be properly associated and arranged with respect to the rear casters and be spaced forwardly but inwardly of the same.

Other objects of this invention will more clearly hereinafter appear by reference to the accompanying drawings and specification, wherein like characters of reference designate corresponding parts throughout the several views, in which:

Fig. 1 is a perspective view of one form of the invention;

Fig. 2 is a perspective view of the structure of Fig. 1 associated in nesting relation with a similar assembly;

Fig. 3 is a rear elevation of the lower portion of the carrier of Fig. 1 partly in section;

Fig. 4 is a side elevation of a modified form of carrier frame embodying a lower basket structure of the type shown in Fig. 1;

Fig. 5 is a section taken on line 5—5 of Fig. 4;

Fig. 6 is a rear elevation of the lower part of the carriage of Fig. 4;

Fig. 7 is a perspective view of one of the elements forming the lower basket structure;

Fig. 8 is a perspective view of the front caster support;

Fig. 9 shows a fragmentary view in elevation of a modified form of basket in telescoping position with an associated structure;

Fig. 10 is a top plan view of the structure of Fig. 9;

Fig. 11 shows a modification of the rear gate;

Fig. 12 is an elevation partly in section showing the gate structure of Fig. 11 in detail;

Fig. 13 is a perspective view of the front caster mount;

Fig. 14 is a top plan view of a rear wheel mount; and

Fig. 15 is a perspective view illustrating the association of the side frame members.

The carriage assembly is of the general type of my applications Serial No. 70,658, filed January 13, 1949, and Serial No. 99,347, filed June 17, 1949, and as in the instance of these prior applications the embodiment include a carriage formed with spaced upright side frame assemblies having at

their lower ends suitable supporting rollers and at their upper ends mounting a telescoping basket, the basket being forwardly tapered and having its bottom inclined from the horizontal. The rear end of the basket is provided with a hinged gate to facilitate the nesting of a similar basket carried by a similar cart as more clearly shown in Fig. 2 of the instant application. The carriage likewise includes a lower supporting structure which projects forwardly at the bottom portion of the spaced side frames, which supporting structure is provided with suitably arranged casters. Obviously the bottom supporting structure must be of such a character as to permit a nesting operation similar to the nesting operation of the telescoping basket carried at the top of the assembly. The nesting basket structure supported at the top of the carriage side frames includes the forwardly tapered body A having its bottom B inclined from the horizontal and its rear gate C hinged at *c* to the handle portion D. The basket is braced at its rearward portion by the angularly projecting frame members E, which form a continuation of the side frame members and bottom cart structure which embodies the main features of the instant development.

In the form of the invention shown in Figs. 1, 2 and 3 the side frame assemblies are fabricated of relatively heavy wires or rods and each of these frame members is associated with the horizontal supporting structure which provides the spacing and bracing elements required in the development. Each side frame member includes an outer U-shaped frame having vertical elongated legs 1 and 2, the connection between these legs 1 and 2 being substantially widened as at 3 to form the outer support for the axle of the roller 4. The axle supporting portion 3 may be formed by flattening the U-shaped member as more clearly indicated in Fig. 14 and this flattened area can be drilled to receive the end of the axle. The inner vertical element of each of the side frame members is generally of U-shaped form and includes the upright legs 5 and 6, the bottom connecting portion 5a of which is flattened as in the instance of the outer frame element to receive the inner end of the axle or wheel mounting in the same manner as the outer wheel end is supported. The upper portion of the forward leg 6 of the inner U-shaped frame element is offset outwardly and the extremity of this leg is bent into substantially a horizontal plane as shown at 7 in Fig. 2 to lie flush against the legs 1 and 2 of the outer frame member and at points of intersection this arm 7 and the legs 1 and 2 of the outer frame member are welded so that the arm 7 forms an upper brace for the legs 1 and 2, spacing the latter and retaining the same in rigid relationship to the rest of the assembly. The rear legs 1 and 5 of the U-shaped elements of the side frame members are rigidly secured against lateral movement or distortion by the rear end portions of the frame members 8 and 9, while the front legs 2 and 6 of the U-shaped side frame members are laterally spaced by the alternately arranged side frame members 10 and 11. The lower frame member 8 is of U-form and has its free end portions offset laterally as at 12 to extend between the rear legs 1 and 5 and at points of contact are welded to form the bottom brace for the bottom parts of the inner legs 5 and 6. The side member 9 is similarly offset at its rear end as at 14 and forms an upper brace between the rear legs 1 and 5 of the side frame members. The inner legs 5 and 6 of the inner U-shaped frame member are braced by being welded at points of contact with the legs of the frame member 9. The side frame member 10 is of U-form and is offset at 15 to form a front spacer and connection between the front legs 2 and 6 of the side frame assemblies and the extremities of the U-shaped member 10 project rearwardly as at 16 to form a longitudinal brace between the legs 1 and 2 of the outer frame members. The upper frame member 11 is offset in a similar manner as the U-shaped member 10, as shown at 17, to form a lateral spacer between the legs 2 and 6 and the end portion of the member 11 extend longitudinally as at 18 between the outer legs 1 and 2 to brace the latter above the brace 16. It will be understood that the parts at all points of intersection are properly welded to form a rigid fabricated side framing which at their upper ends support the nesting or telescoping baskets and at their lower ends mount the casters 4. Thus there is provided alternate lateral and longitudinal braces for the spaced upright inner and outer frame members which support the rear casters 4.

The elements 8, 9, 10, and 11 form the side walls of the lower nesting carrier, the bottom and end walls of which are constructed of a plurality of U-shaped wickets 20, 21, 22, 23, 24 and 25, which are six in number and which are illustrated in perspective in Fig. 7. Each of these wickets is formed with a relatively elongated base indicated by reference character *a* in Fig. 7 with the rear upright leg *b* and the forward upright leg *e*, the latter being looped downwardly at *f* for connection with the base *h* of the U-shaped frame member 10 heretofore mentioned. In the structure of Fig. 7 the downwardly extending projection *f* at the front of each of the wickets terminates at the cross brace *h* of the modification shown in Figs. 4, 5, and 6. However, in Figs. 1, 2, and 3, this arm *f* extends beyond the connection with the base *h* of the U-shaped member 10 and below the elongated base *a* of the carrier wicket to a point approximating the plane of the wheel carrier structure hereinafter described, and terminates in rearwardly extending portions 28 which overlie the wheel carrier assembly and is secured thereto for supporting and retaining the same in position. The wheel carrier frame is formed by downwardly offsetting the base of U-shaped side frame member 11 and the bumper (not labeled), these offset portions being indicated by reference characters 29 and 30 and lying in a common horizontal plane and being suitably spaced by welding to the rearwardly projecting lower end extremities 28 of the U-shaped wickets 20–25, inc. The front casters 32 are spaced inwardly of the rear wheels 4 and have an upright stub swivel projecting through the clamping plates 33 and 34 as shown in detail at Fig. 13. The rear arms of the U-shaped wickets 20–25, incl., after forming the bottom of the lower commodity carrying structure, extend upwardly at 20', 21', 22', 23', 24' and 25', well above the front end portions *e* and *f* of these wickets and are connected to the cross braces 35 and 36 which extend across and form lateral braces for the rear legs 1 and 5 of the side frame assemblies. The lower cross brace 36 must be spaced sufficiently above the front upright portion of these wickets to permit the front portions to move below the same when one carriage is telescoped with another carriage of similar construction. Likewise the spacing of the rear up-

right arms of the wickets 20–25, incl., is substantially greater than the front spacing of these wickets, the spacing at the front end of the wickets being so arranged that the front upright portions thereof will be substantially medial of the associated pair of wickets, whereby during telescoping the front upright extensions will pass between the rear upright portions and permit the nesting operation. This construction and arrangement is best shown in Fig. 3.

In Fig. 4 there is a modified form embodying the same inventive development and wherein the frame is constructed of tubing, with the tubing flattened and riveted at points of intersection. In this form of the invention the upright spaced side frame members are formed of inverted U-shaped tubing structures, the legs of which are indicated by reference characters 50 and 51 with the base of each frame indicated by reference character 52. The side frame members are likewise of bent U-shaped tubing and are formed to include the legs 54 and 55, the closed end of the U being forward and the rear end portions being flattened at spaced portions indicated by reference characters 56 to facilitate the riveting at points of intersection with the upright side frame members 50 and 51. Rear rollers 57 support the rear arms 50 of the upright U-shaped frame members and front casters 58 are mounted on the caster supporting cross tie 59 shown in detail in Fig. 8. This cross tie 59 is of general U-form embodying vertical extremities 60 which are welded to the lower side frame arms 55. This support is formed with suitably spaced openings 61 through which the caster shaft extends as more clearly shown in Fig. 6. As in Figs. 1, 2, and 3, the lower commodity supporting structure is formed of a plurality of rods or relatively heavy wire of general U-shaped form as illustrated in Fig. 7. These rods have been heretofore described as embodying the elongated base portion *a*, the rear upright portion *b*, and the forward upright portion *e*, which latter is looped downwardly to provide the arm *f* which is welded at its extremity to the cross tie *h*. The cross tie *h* is best shown in Fig. 5 and has looped extremities 62 which are hooked about the base of the U-shaped frame members 54 and 55 and are welded into position. The rear ends of the U-frame elements forming the front, rear, and bottom of the carrier extend upwardly above the top of the front upright portion and are welded to the cross tie 63 which extends between and is welded to the frame members.

In Fig. 9 the tubular frame of Figs. 4, 5, and 6 is slightly modified by being flattened at 52ª so that the basket carrying brackets 70 will lie in a horizontal plane. These basket carrying brackets 70 are of angular form with the outer vertical legs 71 and the horizontal legs 72, the basket 73 being illustrated as having its rear side wall portions substantially parallel and tapering forwardly as shown. The length of the taper will comprehend a distance approximating the length of the nesting operation, this association being readily understood by reference to the associated basket 74 shown in dotted lines. In the illustrations of Figs. 9 and 10 the gates 75 are shown as arranged on vertical hinges 76 and swing inwardly to lie parallel to the vertical flanges 71 of the brackets. In Fig. 11 the baskets are of the same type as in Figs. 9 and 10, however, in the structure of Fig. 11 trackways 77 are provided and the gates are of collapsing form as shown in Fig. 12. Each gate which closes an end of the basket embodies the end portion 79 and the middle portion 80, the latter being formed with suitable guides as at 81 including springs 82 and the sliding outer gate section 79 moves inwardly and telescopes within the middle portion 80 as the gate is moved forward under the edge of a coacting telescoping basket. To maintain the gates in horizontal position trackways 77 are provided along the inner edge of the basket as shown in Fig. 11, this trackway being horizontal for a sufficient distance to compensate for horizontal movement of the associated basket, due to the relative inclined bottoms 83, the forward ends of the trackway 77 extending upwardly in a plane with the bottom of the basket as shown at 84 to elevate the associated basket during the telescoping operation and simultaneously reducing the width of the gate so that when two associated baskets are properly telescoped the gate will be in the forward narrow portion of the basket and duly collapsed to compensate for the change of width of the structure. Any suitable means such as springs, weights, or the like can be provided for returning the gates or they may return automatically due to the inclination of the trackways as shown.

It has been found quite difficult to construct of fabricated metal, and particularly of wire or rod structures, store service trucks of required stability. These store service trucks are subjected to extremely hard usage and the nature of this usage requires that the structures embody not only inherent stability but a tendency towards resiliency, so that the bumping and knocking during use and during telescoping will not distort the frames or the parts associated during telescoping. Obviously a distortion of the basic structure would result in the misalignment of the parts which are to be telescoped, and in addition would result in a battered appearing assembly which would be undesirable in the trade. As a consequence, the material used in the structure of these carts is selected after considerable study and engineering, and the parts are constructed as shown in the instant application to lend rigidity in all directions. The vertical frame structure, which is shown in Figs. 1 and 2, must obviously be reinforced against longitudinal and lateral distortion and this is accomplished by utilizing certain of the lower lading structural parts and deflecting these parts so that they will comprehend bracing elements as shown and described.

The bottom lading structure in the present development, and in all forms of the development as contained in this application, is constituted primarily of elongated U-shaped wickets which are so constructed and arranged that they will relatively interengage to permit a nesting operation. The relation of the parts, as for instance the wickets 20—25, incl. of the structure of Fig. 1, are so constructed and arranged that when two carts of a similar construction are telescoped the frictional engagement is minimized to a point as to be substantially non-existent. This is particularly important as it reduces the amount of force required in stacking and unstacking the structures by customers in a store. In other words, it is important that the amount of force required in the stacking and unstacking operation be substantially neutralized so that any person, regardless of age or strength, can select and remove a service cart without the exercise of material force. This not only facilitates the use of the device, but reduces the amount of wear on the structures during use and tends to greatly extend the life of the assemblies.

What I claim is:

1. In a store service truck, a wheel supported frame structure including spaced uprights, a member connecting and retaining said uprights in spaced position, and a forwardly projecting lading carrying assembly formed of a plurality of U-shaped laterally spaced wickets, said wickets being connected at their rearward upper portions to said spacing member, and being held in rigid spaced relation at their forward ends, the spacing of the wickets at their rearward ends being greater than the spacing at their forward ends, whereby the forward end of the lading carrying structure may move into telescopic association between the more widely spaced rearward ends of wickets of an associated service truck of like construction.

2. The substance of claim 1 characterized in that casters support the forward ends of the wickets, the casters being spaced inwardly of the rear supporting wheels.

3. In a store service truck, spaced vertical frame members, wheels supporting the frame members, a member connecting and spacing said upright frame members, a supporting structure mounted at the upper end of each of said uprights, and a lading carrying structure supported from said connecting member and including a plurality of laterally spaced U-shaped wickets, said wickets converging forwardly with respect to each other to permit a nesting operation with a structure of similar construction.

4. The substance of claim 3 characterized in that the upright frame members include a plurality of vertical, spaced rods having connecting means therebetween, the connecting means projecting forwardly of the frame members and being supported by rollers spaced inwardly with respect to the rear supporting rollers.

5. The substance of claim 3 characterized in that the supports at the upper end of the side frames are positioned to extend rearwardly of the rear upright frame structures.

6. In a store service truck, a frame including spaced uprights fabricated from a plurality of elements having intersecting parts which are secured at the points of intersection, a forwardly tapered lading supporting structure carried by the uprights and including a series of elongated U-shaped wickets, said wickets being supported between the uprights at their rear ends, a transverse member connecting the wickets at their front ends, and casters supporting the uprights and the transverse member.

SYLVAN N. GOLDMAN.

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