

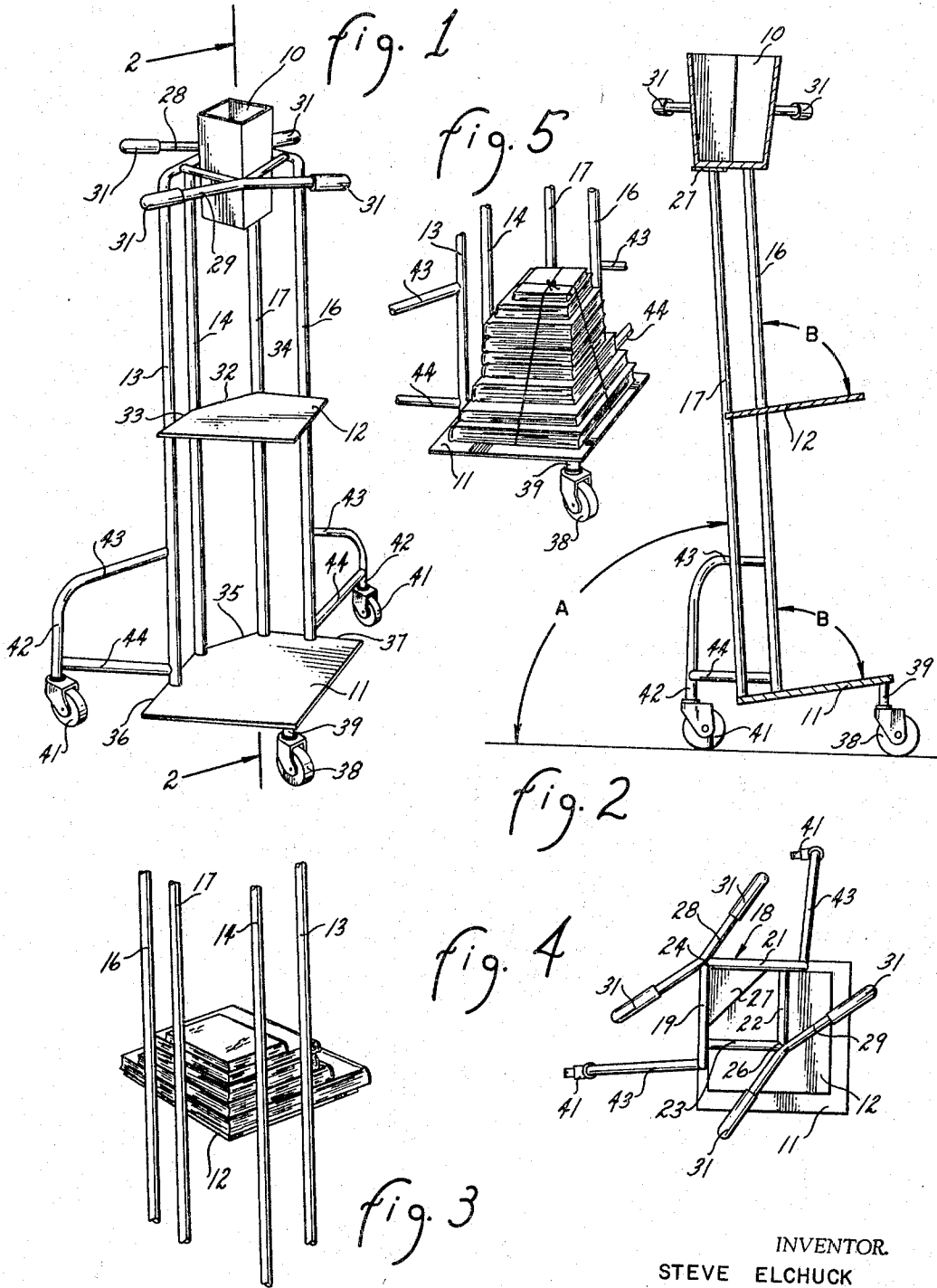
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BOOK STORE CUSTOMER'S CART

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**BOOK STORE CUSTOMER'S CART**

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8 Claims. (Cl. 280-47.34)

My invention relates in general to a book store customer's cart, and more in particular, to a book store customer's cart primarily adapted for use in college book stores where text books and books for required reading are purchased.

Book stores on or near college campuses, usually privately owned or working cooperatively with college faculties, frequently sell twenty to fifty books to a single student required in the course which he is taking in a given semester. These books may comprise hard cover bound books, frequently sold back to the book store, and then sold as second-hand books, but almost always include relatively large numbers of paper bound books required for reference purposes or for required reading, such as in an English course. In the past, students have been required to purchase these books a few at a time because of the inability to carry more than a certain number of books loosely in the arms. In those instances in which students have purchased all of their required books, the practise has been followed usually of picking out a book at a time from the shelves and accumulating them at some convenient location, and then carrying them a few at a time to a checkout desk. Dropping and mutilation of books is common under such circumstances, and the hit or miss method of selecting and purchasing the books represents a serious problem, not only to the students, but to the owners and operators of the book store.

Accordingly, the principal object of my present invention is the provision of a book store customer's cart particularly adapted for use for college students who are required to select and purchase a relatively large number of books at one time.

Another object is the provision of such a cart which may carry a relatively large number of books and maintain such perfect balance as to minimize the possibility of being upset if it should be rolled over an obstruction or along an incline.

A further object is the provision of a book cart of the type identified in which the books are lodged in a position convenient to the purchaser and convenient to the checkout desk where they are paid for.

A still further object is the provision of a book store cart of the type identified which may be moved freely in a forward, backward, sidewise or rotary fashion without danger of upsetting, whether the cart is being used in close quarters within the book store or taken out to the parking lot for delivery of the books to a waiting automobile.

Other specific objects and features of the invention will be apparent from the following detailed description taken with the accompanying drawings, where

FIG. 1 is a perspective view of one embodiment of the invention shown ready for use, with an open top receptacle in position for carrying small objects, lists of required books, or any other small objects being purchased or used by the operator of the cart.

FIG. 2 is a sectional view taken along the line of 2-2, of FIG. 1, and showing the forward swivelable caster, and one of the rear swivelable casters in elevation.

FIG. 3 is as lightly enlarged fragmentary perspective view showing one suitable way of carrying hard cover books which are usually purchased as single volumes.

FIG. 4 is a plan view taken at a partial slant to illustrate more accurately the relative positions of some of the parts.

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FIG. 5 shows a conventional stack of books bound together, usually paper bound books and commonly so purchased for required reading or required reference purposes.

The book cart of the present invention comprises a unitary structure except for the opened top container 10, and the swivelable supporting casters. The unitary structure comprises thereof a bottom shelf 11 of suitable sheet metal and an intermediate shelf 12, welded to pairs of tubular uprights 13 and 14 on one side and 16 and 17 on the opposite side. These tubular uprights are connected together to a rectangular assembly indicated generally by the reference character 18 (see FIG. 4) and having four sides, 19, 21, 22, and 23.

As will be noted by reference to FIGS. 1 and 4, the side 19 comprises a continuation of the upright 13, while the side 21 comprises a continuation of the upright 16. The sides 19 and 21 are welded together at the corner 24, while the sides 22 and 23 comprise a single piece structure bent to form the corner 26 and having their ends butt welded into lateral portions of the sides 19 and 21. This arrangement not only provides very rugged structure, but with a triangular shelf 27 positioned somewhat below, the rectangular frame portion 18 forms a support for the open topped container 10.

A handle member 28 is welded to the corner 24 while the handle member 29 is welded to the corner 26. It will be noted, particularly by reference to FIG. 4, that on opposite sides of their point of attachment, the handle members 26 and 29 are slightly out-flared and each of their ends carries a rubber or plastic grip 31 suitably shaped to be attached to the ends of the handle members and provide a convenient outer surface for engagement by the hands of the user. Illustratively, grips 31 may be practically identical with the ordinary handle bar grip on a bicycle.

The shelf 12 comprises essentially a square plate, but with one corner cut away as at 32. The adjacent sides 33 and 34 are welded to the contiguous uprights 13 and 14 on the one hand and 16 and 17 on the other hand. Thus, it is obvious that the two pairs of uprights form a right angle with respect to each other.

The bottom shelf 11 is somewhat larger than shelf 12 and is also rectangular and preferably square. It also has a cutaway portion 35. The four uprights are butt welded to the top face of the bottom shelf 11 adjacent to the shelf sides 36 and 37. In effect, the parts described up to the present point comprise the basic unitary frame of the cart, and this frame supported on swivelable casters in a manner to be described. This frame, with other features, produces marked stability in the cart under all conditions of use.

A forward caster 38 is carried at the bottom of a short pipe 39, the top of which is welded to the bottom of the bottom of shelf 11 at the forward corner thereof. The two side casters 41 are supported at the bottom ends of frame members 42, which include a vertical portion, as shown, for receipt of the casters and an angled portion 43, which is butt welded to the contiguous uprights 13 and 14, as the drawings show. Bracing members 44 consists of relatively short straight sections of pipe welded to the uprights 13 and 16 at one end and to the general vertical section of the frame members 42 at the other end. The supporting structures for the two rear casters 41 lie in planes at right angles to each other for best performance in accordance with my own experimentation, but these angles may be modified somewhat without departing from the spirit and scope of the invention. As will be seen, the supporting casters lie outside the center of weight of the frame whether empty or loaded with a maximum load of books.

There are still other features which I have found im-

portant in a general positioning of the frame members and shelves. Looking at FIG. 2, it will be noted that the angle B between the shelves 11 and 12 of the uprights is less than a right angle and preferably comprises an angle between about 87 degrees and 80 degrees. I have found that when this angle is established at 85 degrees, very good results are obtained for maintaining balance and assuring retention of the books on the shelves, even though the cart is being manipulated rather vigorously by the user. I have also found it to be very advantageous to slope the frame members backward with respect to the horizontal, that is, they should slope from a direction of the forward swivelable caster 38 in a direction toward the swivelable casters 41. I have found this angle A also preferably between about 87 and 80 degrees to horizontal (the exact angle depends somewhat upon the positioning of the casters 41), but here again, I have found an angle of 85 degrees to be very satisfactory as a standard. The angle of the shelves themselves with respect to the uprights and the angles of the uprights with respect to the horizontal results in the shelves being at an increased angle to the horizontal. Thus, when the angles A and B are both 85 degrees, the shelves 11 and 12 will define a 10 degree to the horizontal and thus have the effect very definitely of causing the books to lodge firmly against the uprights, even when vigorous manipulation action is resorted to, such as is common with students when making selections of books for their classes.

While dimensions may vary exceedingly, I have obtained excellent results when an overall height of the cart is about 45 inches from the floor with a distance of about 18 inches between the two shelves, and a distance of about 22 inches from the middle shelf 12 to the top of the cart. Since the proportions shown are relative, the general dimensions and proportions of the several parts of the cart should be readily understandable to those skilled in the art.

One of the essentials of a smoothly operating cart is the use of a top grade swivelable caster with relatively little friction to resist rolling and relatively little friction to resist swiveling action. This combination permits the user to engage any two of the handles 31 to push the cart in a forward, backward, sidewise or curvilinear manner as he is progressing from one side of the book stalls to another in selecting his books. Relatively heavy objects, whatever their nature may be, should normally be carried on the bottom shelf 11. It is common practice in book stores catering to the needs of students to tie into a bundle, as shown in FIG. 5, a relatively large group of books, such as books which are required reading in an English course—or any other course for that matter—and these are commonly bound together with cord and can be picked up by the student and dropped on the bottom shelf 11. Usually when individual books are involved, they are placed on shelf 12 in the general manner shown in FIG. 3. They may be so large as to overlap the edges of this shelf without impairing the stability of the cart, and this stability is maintained even though the books may be piled to the top of the space available on shelf 12, and with no books on shelf 11. The rectangular member 18 not only acts to reinforce the top of the cart where the uprights terminate, but, with the triangular shelf 27 secured to the two uprights 14 and 17, acts as a support for the open top container 10. Suitably, this container is formed of plastic and is wedged in place when it is pushed down against the triangular shelf 27. It may be used to carry a list of books required. Frequently, the book stores arrange the books on shelves in accordance with a classification, and list above the book shelves the books required for the various college courses. Small items of all kinds, however, such as pencils, erasers, rulers, drawing instruments, or the like, may be placed in this container for easy checkout at the checkout station.

Looking at the cart from the standpoint of the overall assembly thereof, it will be noted that the three casters de-

fine an equilateral triangle, with the forward caster supported from the bottom shelf 11 being the apex of such angle. It should be noted also that the two shelves are generally rectangular, although one corner is cut off to avoid projection of such corner to the rear of the cart, but that the contiguous sides of the rectangular and preferably square shelves are secured to the two sides of the uprights, with the other two sides of the shelves at right angles to the plane of the uprights. It should be obvious also that while suitably and advantageously these shelves are rectangular with a sharp forward corner, a rounding of the contiguous sides and of the forward rectangular corner, if resorted to for aesthetic or safety purposes, would not affect the function of these shelves in any way. It is also a fundamental criterion of the cart of the present invention that the swivelable casters be so placed that they are always outside the center of gravity of whatever load may be carried by the cart. It may be pointed out that while I have obtained very excellent operation by using only the single intermediate shelf 12, additional shelves can be provided if special circumstances should indicate their need.

Notwithstanding the detailed description of a preferred embodiment of the invention, its scope is defined by the claims.

What is claimed is:

1. A book store customer's cart comprising:

- (a) Two groups of parallel uprights, the planes in which such two groups fall defining a right angle,
- (b) A generally rectangular bottom shelf secured to bottom ends of said uprights with its sides parallel to and at right angles to the planes of said uprights,
- (c) Means securing said uprights together at their upper ends,
- (d) A second rectangular shelf intermediate said last mentioned means and said bottom shelf,
- (e) A swivable supporting caster at a forward inner edge of said bottom shelf,
- (f) A pair of supports projecting outwardly from said bottom shelf generally at right angles to each other, and
- (g) Swivable supporting casters carried by said supports,
- (h) Said three casters defining an equilateral triangle with said forward caster as the apex of said triangle and said casters extending outwardly beyond a center of gravity of said cart regardless of the load of books thereon.

2. A cart as defined in claim 1 wherein said means for securing said uprights at their upper ends comprises a rectangular open frame.

3. A cart as defined in claim 1 wherein said means for securing said uprights at their upper ends comprises a rectangular open frame, and an open top container, and means, including a projection from at least one of said uprights for securing said container within said open frame.

4. A book store cart as defined in claim 1, wherein said uprights slant slightly away from the forward caster to define an angle with a horizontal frame of about 85 degrees.

5. A book store cart as defined in claim 1, wherein said uprights slant slightly away from the forward caster to define an angle with a horizontal frame of about 85 degrees and said shelves are at an angle of about 85 degrees to the uprights so as to slope inwardly toward the uprights at an angle of about 10 degrees to a horizontal support on which the casters rest.

6. A cart as defined in claim 1 wherein said means for securing said uprights at their upper ends comprises a rectangular open frame, and at least one operating handle with a mid-point thereof integral with a corner of said open frame.

7. A cart as defined in claim 1 wherein said means for securing said uprights at their upper ends comprises a

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rectangular open frame and a pair of mutually generally aligned handles with thin mid-points integral with opposite corners of said rectangular frame.

8. A book store customer's cart comprising:

- (a) A pair of generally rectangular shelves, 5
- (b) Four tubular uprights arranged in pairs at contiguous side edges of said shelves, said pairs being formed in planes at right angles to each other,
- (c) Said tubular uprights having their ends integral with one shelf to form a bottom shelf thereof, and to a second shelf to form an intermediate shelf thereof, 10
- (d) An open rectangular frame integral with said tubular uprights at their tops, to form an integral frame,
- (e) At least three swivable casters supported on said frame outside a center of gravity thereof, 15
- (f) A pair of generally parallel handles integral with corners of said rectangular frame, at mid-point of said handles,
- (g) Said uprights slanting in a direction away from

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said shelves to define an angle of about 85 degrees with a horizontal surface on which the casters rest, and said shelves defining an angle of about 85 degrees to said uprights to define an angle of about 10 degrees with the horizontal to cause books supported on said shelves to have a tendency to slide toward said uprights.

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