Oct. 13, 1931. O. S. NELSON ET AL 1,826,949

EXTENSIBLE AUTO TRUNK

Filed May 18, 1929 3 Sheets-Sheet 1

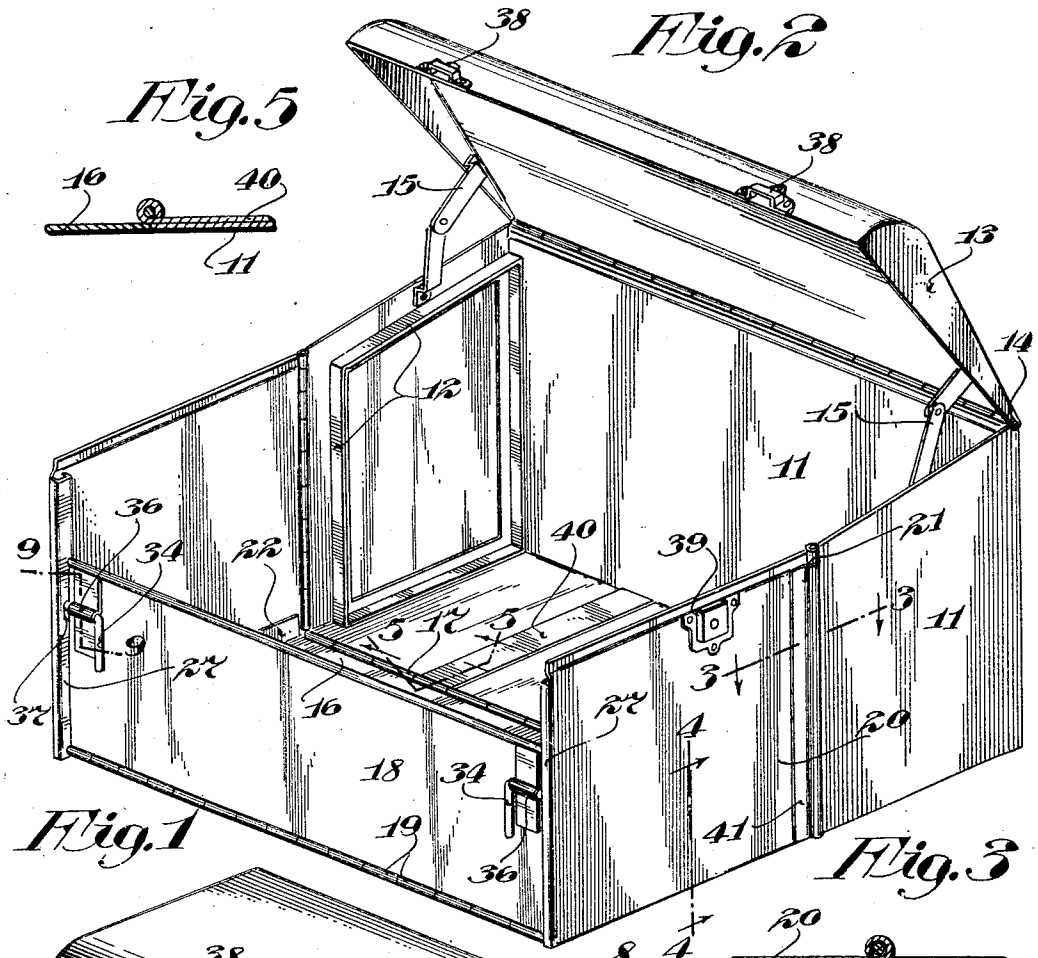


Fig. 2

Fig. 5

Fig. 1

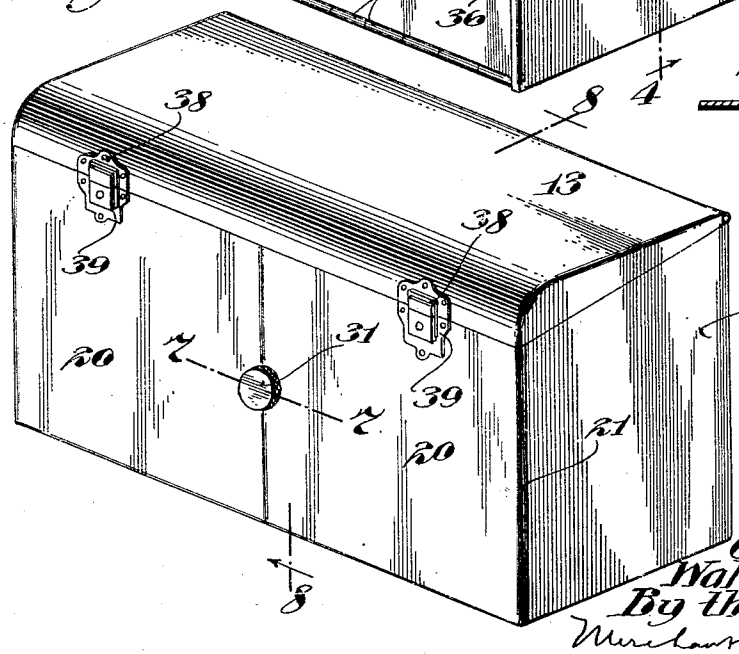


Fig. 3

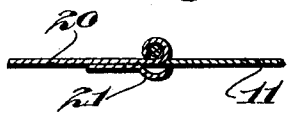
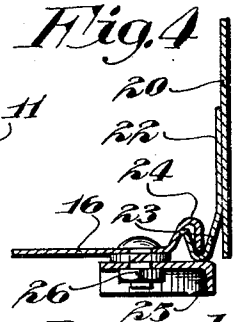


Fig. 4



Inventors
Otto S. Nelson
Walter M. Willy
By their Attorneys
Merchant and Kilgore

Oct. 13, 1931. O. S. NELSON ET AL 1,826,949

EXTENSIBLE AUTO TRUNK

Filed May 18, 1929 3 Sheets-Sheet 2

Fig. 6

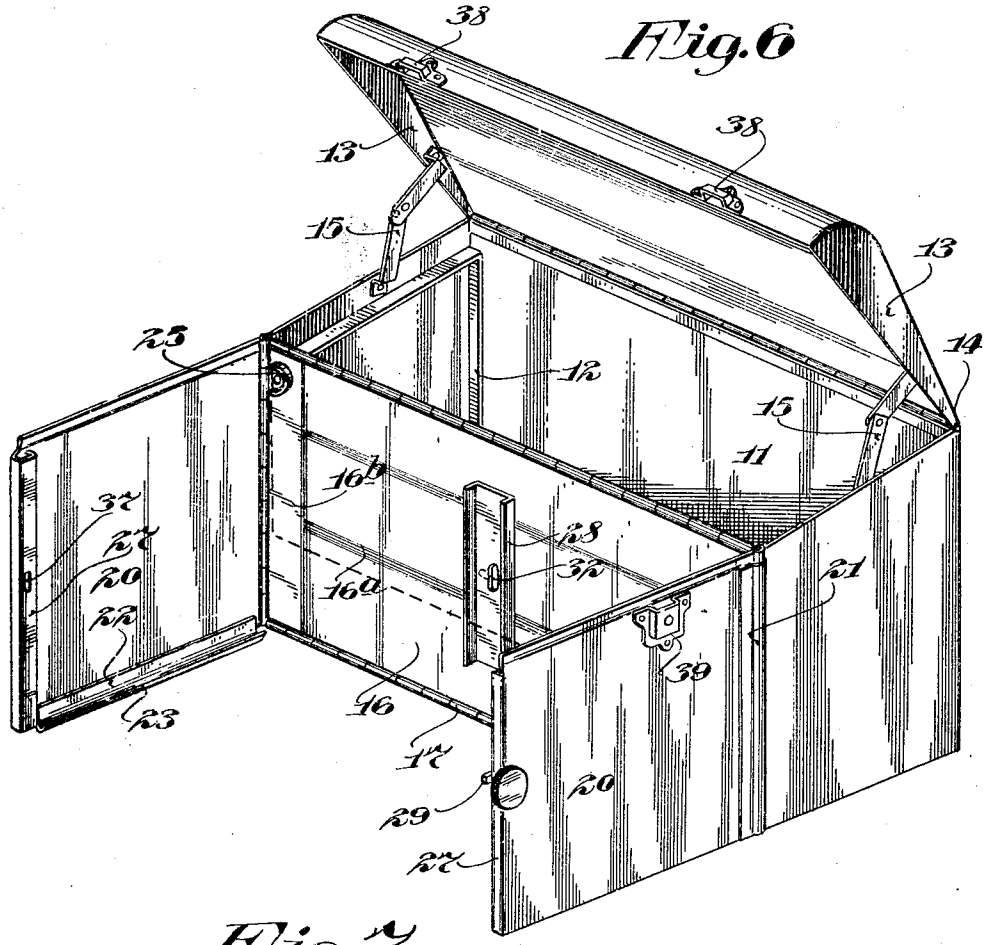
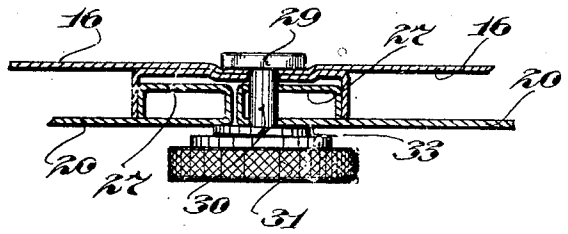


Fig. 7



Inventors
Otto S. Nelson
Walter M. Willy
By their Attorneys
Marshall & Fraser

Oct. 13, 1931. O. S. NELSON ET AL 1,826,949

EXTENSIBLE AUTO TRUNK

Filed May 18, 1929 3 Sheets-Sheet 3

Fig. 8

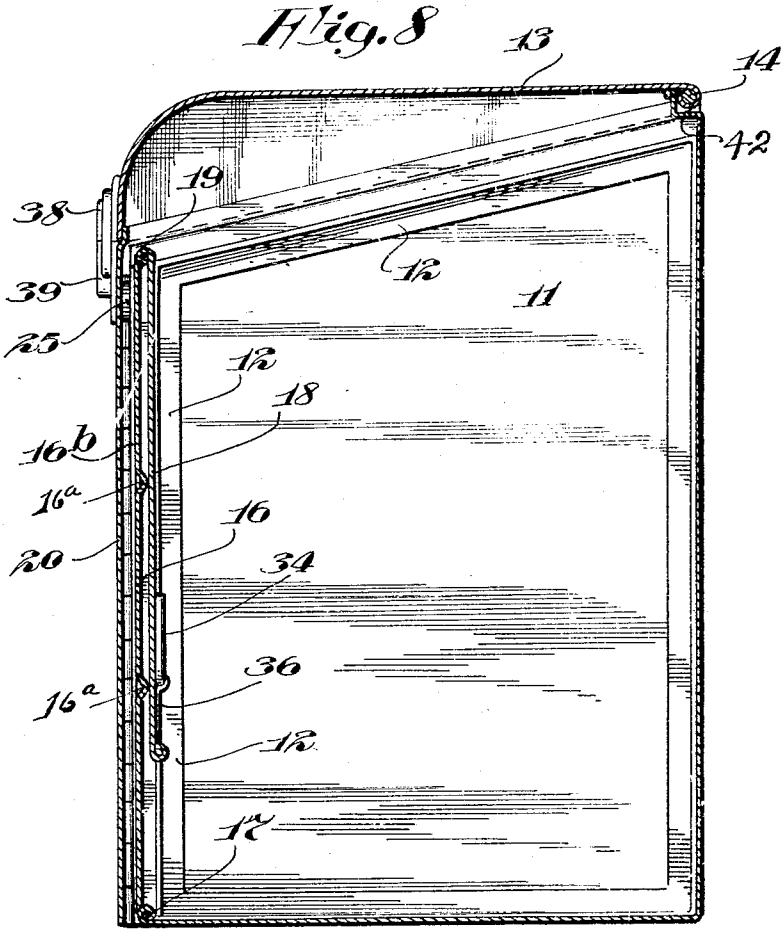


Fig. 9

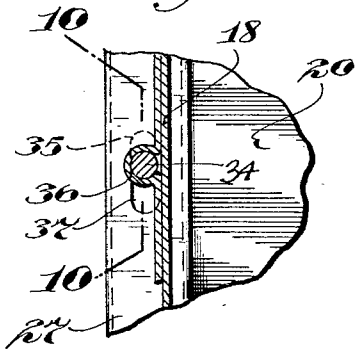
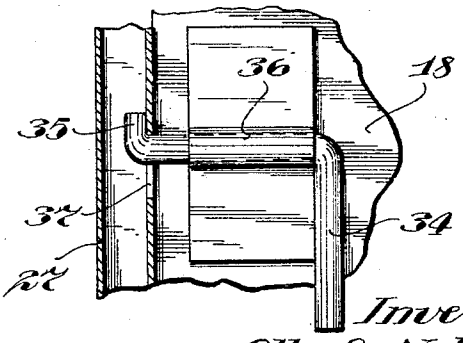


Fig. 10



Inventors
Otto S. Nelson
Walter M. Willy
By their Attorneys
Merchant and Kleyn

Patented Oct. 13, 1931

1,826,949

UNITED STATES PATENT OFFICE

OTTO S. NELSON AND WALTER M. WILLY, OF MITCHELL, SOUTH DAKOTA, ASSIGNORS TO HANDY-HAUL AUTO TRUNK COMPANY, OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF SOUTH DAKOTA

EXTENSIBLE AUTO TRUNK

Application filed May 18, 1929. Serial No. 364,163.

This invention provides an extremely simple, strong, durable and highly efficient extensible auto trunk and, generally stated, the invention consists of the novel devices, combinations of devices and arrangement of parts hereinafter described and defined in the claims. Devices of the above character are frequently designated as combined trunk and luggage carriers in that when they are folded or contracted, they afford a trunk for ordinary use and when extended, have greatly increased capacity for carrying luggage and other baggage. Such trunks are customarily secured on a suitable platform at the rear of an automobile.

In the accompanying drawings, which illustrate a commercial trunk embodying the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a perspective showing the trunk closed up or contracted for use as an ordinary trunk;

Figs. 2 shows the trunk opened up or expanded for increased capacity;

Fig. 3 is a fragmentary section on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary section on the line 4—4 of Fig. 2;

Fig. 5 is a fragmentary section on the line 5—5 of Fig. 2;

Fig. 6 is a perspective showing the trunk only partly opened up;

Fig. 7 is a section taken on the line 7—7 of Fig. 1;

Fig. 8 is a vertical section taken through the trunk in the plane of the lines marked 8—8 on Fig. 1;

Fig. 9 is a fragmentary section taken on the line 9—9 of Fig. 2; and

Fig. 10 is a section taken on the line 10—10 of Fig. 9.

The commercial trunk illustrated includes as its main element a box-like body 11 that is normally open at top and rear and hence, or otherwise stated, comprises a back plate, a bottom plate and side plates. The above noted parts of the body member 11 are preferably of sheet steel. Approximately rectilinear reinforcing angle frames 12 are rigidly secured directly to the sides plates of the body 11 preferably by spot welding. These reinforcing frames 12 at their tops are slightly inclined so as to correspond to the inclination of the upper edges of the side plates of the body member 11, but are set slightly below the upper edges of the latter and considerably inward of the rear edges of the side plates of said body member 11. The flanges of the frames 12, however, are spot welded to the back and bottom plates of the body member 11 so that not only are the side plates of the body very greatly reinforced, but the connections between the same and the back and bottom plates are made very rigid and, in fact, the entire body member is stiffened by the said reinforcing frames.

A suitable trunk cover 13 also preferably of sheet steel is connected to the upper edge of the back plate of the body member 11 by a hinge 14 and, as shown, for holding the lid open, toggles 15 connect the sides of the lid to the sides of the trunk body, but it will be understood that these toggles constitute no part of the present invention.

A bottom extension plate 16 also of sheet metal, preferably steel, is connected at its lower edge to the rear edge of the bottom plate of the trunk body 11 by a hinge 17. This bottom extension plate 16 is preferably stiffened by corrugations as at 16^a and by end reinforcing strips 16^b the latter of which are spot welded to the plate 16. To the free edge of the bottom extension plate 16, a secondary extension plate 18, for convenience called a tailboard, is connected by a hinge 19.

Rear wall plates 20 are connected to the rear vertical edges of the side plates of the trunk body 11 by hinges 21 on which they may be swung to provide side extensions as shown in Figs. 2 and 6. These rear wall and side extension plates 20, at their lower edges, are provided with reinforcing metal strips 22 which, in line with the lower edges of said plates 20, are formed with flanges 23 bent to form channels that are preferably approximately V-shaped in cross-section, as best shown in Fig. 4. Here it also should be noted that the bottom extension plate 16, at its side edges, is formed with flanges 24 bent approxi-

mately U or V-shaped for interlocking engagement with the channel-shaped flanges 23, so that when the extension plate 16 is turned down into engagement with the rearwardly extended extension plates 20, the former will be limited in its downward movement and the latter will be locked against lateral swinging movements.

As a simple means for locking the bottom extension plate 16 in its downturned extended position, shown in Figs. 2 and 4, it is shown as provided near its flanged edges 24 with segmental turn buttons 25 pivotally connected thereto at 26. When the turn buttons 25 are turned as shown in Fig. 4, the plates 16 and 20 will be locked together, but when said turn buttons are given one-half turns from the position shown in Fig. 4, they will clear the flanges 23 and then permit the plates 16 to be turned upward into positions best shown in Fig. 8, in which position it will be noted that the tailboard 18 is turned down between the plates 16 and the rear vertical portions of the reinforcing frames 12.

The side extension plates 20, at their rear vertical edges, are shown as formed with rectangular folds 27 that reinforce the edges of said plates. When the extension plates 20 are folded as shown in Figs. 1 and 7, the reinforcing folds 27 are turned within a reinforcing metallic channel 28 that is rigidly secured preferably by spot welding to the intermediate portion of the bottom extension plate 16. As a means for locking the side extension plates 20 to the bottom extension plate 16 and the latter in vertical position, a very simple lock is provided in the form of a flat head or button 29, the stem 30 of which is journaled through the rectangular fold 27 of one of the plates 20 and is provided at its outer end with an operating head or hand-piece 31. The head 29 when turned into a vertical position is adapted to be passed through a vertically elongated slot 32 formed in the plate 16 and channel 28. Stem 30 is of such length that it will pass through the plate 16 and the back of the channel 28 so that when the head 29 is turned into a horizontal position, said parts will be locked together.

Preferably a split spring washer 33 is placed on the stem 30 between the head 31 and adjacent outer surface of the plate 20 to which it is journaled. Also by reference to Fig. 7 it will be noted that the washer 30, as well as the head 31 overlap the free folded edge of the left-hand plate 20 so that the common lock surface locks both of the plates 20 to the upturned plate 16. When the said parts are thus locked together, the plate 16 as already indicated, will be locked in vertical position and it will then serve as the real rear wall of the closed or contracted trunk.

For locking the tailboard 18 in its upturned operative position, as shown in Fig. 2, said board, is provided with turn button cranks 34 provided with normally depending relatively long inner ends and with relatively short normally upstanding outer ends. The shafts of the cranks 34 are mounted to rotate and for limited sliding movement in sheet metal keepers 36 that are spot welded to the tailboard 18 which latter, of course, is also preferably of sheet metal. When the lugs 35 are turned downward they are adapted to be passed through vertical slots 37 formed in the folded free edge portions 27 of the plates 20, but when said lugs are turned upward, as shown in Fig. 10, and in which positions they will be normally held by the weight of the long inner ends of the cranks 34, said lugs 35 will lock the tailboard to the plates 20. When the tailboard is thus locked to the side extension plates 20, the latter will be held against spreading movements and they will hold the side extension plates against spreading movements and the tailboard against either forward or rearward movements. The cover 13 and the side extension plates 20 are shown as provided, respectively with co-operating trunk-locking elements 38 and 39 such as usually found on trunks.

As further reinforcing elements, the bottom plate of the trunk body 11 may have reinforcing metal straps 40 spot welded thereto and the plates 20 at their hinged edges may have spot welded thereto reinforcing metal strips 41 that also serve to cover the hinges 21.

By reference particularly to Fig. 8, it will be noted that when the cover or lid 13 is turned down to a closed position, it overlaps the upper edges of the folded side extension plates 20 and holds the latter against outward swinging movements, thereby affording locking means additional to the lock device previously described. Also this overlapping of the cover affords water-shedding joints. By reference to Fig. 8, it will be noted that a water-shedding joint at the cover hinge 14 is afforded by providing the back plate of the trunk body 11 with an inwardly and upwardly offset angular portion 42. When the trunk is folded or condensed to true trunk form shown in Figs. 1 and 8, the plates 16 and 18 are held in compact formation between the folded plates 20 and the adjacent upright portions of the frames 12 and in such position afford a sort of back lining or false back that takes the wear and rough usage produced by the contents of the trunk and protects the folded plates 20 from all such rough usage. The adjustments of the trunk from the one condition or form to the other may be accomplished very quickly and in actual practice the device is found to be strong, durable and generally effective for the purposes had in view. The drawings illustrate what at present is thought to be the preferred embodiment of the invention, but it will, of

course, be understood that modifications thereof may be made all within the scope of the invention as herein disclosed and claimed.

What we claim is:

1. An extensible trunk comprising a box-like trunk body open at top and rear, side extension plates hinged to the rear edges of the side plates of said trunk body and normally cooperating to provide a closure for the rear of said body, and a bottom extension plate hinged to the rear edge of the bottom of said trunk body and arranged to be turned down between said side extension plates when extended to cooperate with the latter to increase the carrying capacity of the trunk.

2. An extensible trunk comprising a box-like trunk body open at top and rear, side extension plates hinged to the rear vertical edges of the side plates of said trunk body and normally cooperating to provide a closure for the rear of said body, a bottom extension plate hinged to the rear edge of the bottom of said trunk body and arranged to be turned down between said side extension plates when extended, a tailboard hinged to the free edge of said bottom extension plate, co-operating elements on said side extension plates and bottom extension plate for limiting the downward movement of the latter, and co-operating elements on said tailboard and side extension plates for locking said parts together when adjusted to extend the carrying capacity of the trunk.

3. An extensible trunk comprising a box-like trunk body open at top and rear, side extension plates hinged to the rear edges of the side plates of said trunk body and normally cooperating to provide a closure for the rear of said body, and a bottom extension plate hinged to the rear edge of the bottom of said trunk body and arranged to be turned down between said side extension plates and there supported by the rearwardly extended side extension plates and co-operating with the latter to increase the carrying capacity of the trunk, said bottom extension plate being arranged to be turned to vertical position and said side extension plates being arranged to be folded against the outer side of said upturned bottom extension plate, and means for securing said bottom extension and side extension plates in such overlapped positions.

4. An extensible trunk comprising a box-like trunk body open at top and rear, side extension plates hinged to the rear vertical edges of the side plates of said trunk body, a bottom extension plate hinged to the rear edge of the bottom of said trunk body, a tailboard hinged to the free edge of said bottom extension plate, co-operating elements on said side extension plates and bottom extension plate for limiting the downward movement of the latter, and co-operating elements on said tailboard and side extension plates for locking said parts together when adjusted to extend the carrying capacity of the trunk, said bottom extension plate and tailboard being arranged to be turned into vertical position to close the back of the trunk body, and said side extension plates being arranged to be folded together against the outer side of the upturned bottom extension plate to provide a rear closure for said body, and means for securing said extensible plates in such overlapped positions.

5. An extensible trunk comprising a box-like trunk body open at top and rear, side extension plates hinged to the rear edges of the side plates of said trunk body, a bottom extension plate hinged to the rear edge of the bottom of said trunk body and arranged to be turned down and there supported by the rearwardly extended side extension plates and co-operating with the latter to increase the carrying capacity of the trunk, said side extension plates being movable to close the rear of the trunk, and a lid hinged to the top of the back of the trunk body and arranged to overlap the upper edges of said folded extension plates.

6. The structure defined in claim 5 in further combination with lock elements operative to lock together said folded extension plates.

7. The structure defined in claim 5 in further combination with lock elements operative to lock together said folded evtension plates, and co-operating lock elements on said cover and side extension plates.

8. An extensible trunk comprising a box-like trunk body open at top and rear, rear wall plates hinged to the rear edges of the side plates of said trunk body, a bottom extension plate hinged to the rear edge of the bottom of said trunk body and arranged to be turned down when the rear wall plates are swung parallel to the side walls of the body and there supported by the rearwardly extended rear wall plates and co-operating with the latter to increase the carrying capacitv of the trunk, and co-operating interlocking flanges on the bottom edges of said rear wall plates and on the end edges of said bottom extension plate, operative, when engaged, to limit the downward movement of said bottom extension plate and the spreading movements of said rear wall plates.

9. An extensible trunk comprising a box-like trunk body open at top and rear, rear wall plates hinged to the rear vertical edges of the side plates of said trunk body, a bottom extension plate hinged to the rear edge of the bottom of said trunk body, a tailboard hinged to the free edge of said bottom extension plate, co-operating elements on said rear wall plates and bottom extension plate for limiting the downward movement of the latter, co-operating elements on said tailboard and rear wall plates for locking said

parts together when adjusted to extend the carrying capacity of the trunk, and co-operating interlocking flanges on the bottom edges of said rear wall plates and on the end edges of said bottom extension plate, operative, when engaged, to limit the downward movement of said bottom extension plate and the spreading movements of said rear wall plates.

10. An extensible trunk comprising a box-like trunk body open at top and rear, side extension plates hinged to the rear vertical edges of the side plates of said trunk body, a bottom extension plate hinged to the rear edge of the bottom of said trunk body, a tailboard hinged to the free edge of said bottom extension plate, co-operating elements on said side extension plates and bottom extension plate for limiting the downward movement of the latter, and co-operating elements on said tailboard and side extension plates for locking said parts together when adjusted to extend the carrying capacity of the trunk, said latter noted lock elements serving also to lock the extension side plates in extended positions and against lateral spreading movements.

11. The structure defined in claim 2 in further combination with a cover hinged to said trunk body and having flanges that overlap the upper edges of the sides of said body and the upper edges of the folded extension plates and hold the latter in folded positions and form water-shedding joints therewith.

12. An extensible trunk comprising a box-like trunk body open at top and rear, side extension plates hinged to the rear edges of the side plates of said trunk body, a bottom extension plate hinged to the rear edge of the bottom of said trunk body and arranged to be turned down and there supported by the rearwardly extended side extension plates and co-operating with the latter to increase the carrying capacity of the trunk, and marginal metal reinforcing frames applied to the inner surfaces of the side plates of said trunk body and united with the back and bottom plates of said body, but spaced from the rear edges of the side plates of said body to afford space for the upward folding of said bottom extension plate.

13. An extensible trunk comprising a box-like body adapted to be opened at the rear, independently movable rear wall plates hingedly connected to the side walls of the body, said plates being swingable on their hinged connections to provide rearward extensions of the side walls, a bottom plate independently movable relative to said rear wall plates and to the bottom wall of the body to provide a rearward extension of said bottom wall, and interlocking means on said rear wall plates and side edges of said bottom plate adapted to sustain said plates in predetermined and fixed relation when extended to increase the carrying capacity of the trunk.

14. An extensible trunk comprising a box-like body adapted to be opened at the rear, independently movable rear wall plates hingedly connected to the side walls of the body and normally forming the rear wall thereof, said plates being swingable on their hinged connections to provide rearward extensions of the side walls, a bottom plate normally enclosed by said rear wall plates and independently movable relative thereto and to the bottom wall of the body to provide a rearward extension of said bottom wall, and interlocking means on the lower edges of said rear wall plates and side edges of said bottom plate adapted to sustain said plates in predetermined and fixed relation when extended to increase the carrying capacity of the trunk.

15. An extensible trunk comprising a box-like body adapted to be opened at the top and rear, independently movable rear wall plates hingedly connected to the side walls of the body and normally forming the rear wall thereof, said plates being swingable on their hinged connections to provide rearward extensions of the side walls, a bottom plate normally enclosed by said rear wall plates and independently movable relative thereto and to the bottom wall of the body to provide a rearward extension of said bottom wall, interlocking means on the lower edges of said rear wall plates and side edges of said bottom plate adapted to sustain said plates in predetermined and fixed relation when extended to increase the carrying capacity of the trunk, a cover hingedly connected to a wall of said body and adapted to overlie the upper edges of said rear wall plates when folded to enclose said bottom plate, and means positively connecting said cover to said rear wall plates.

In testimony whereof we affix our signatures.

OTTO S. NELSON.
WALTER M. WILLY.