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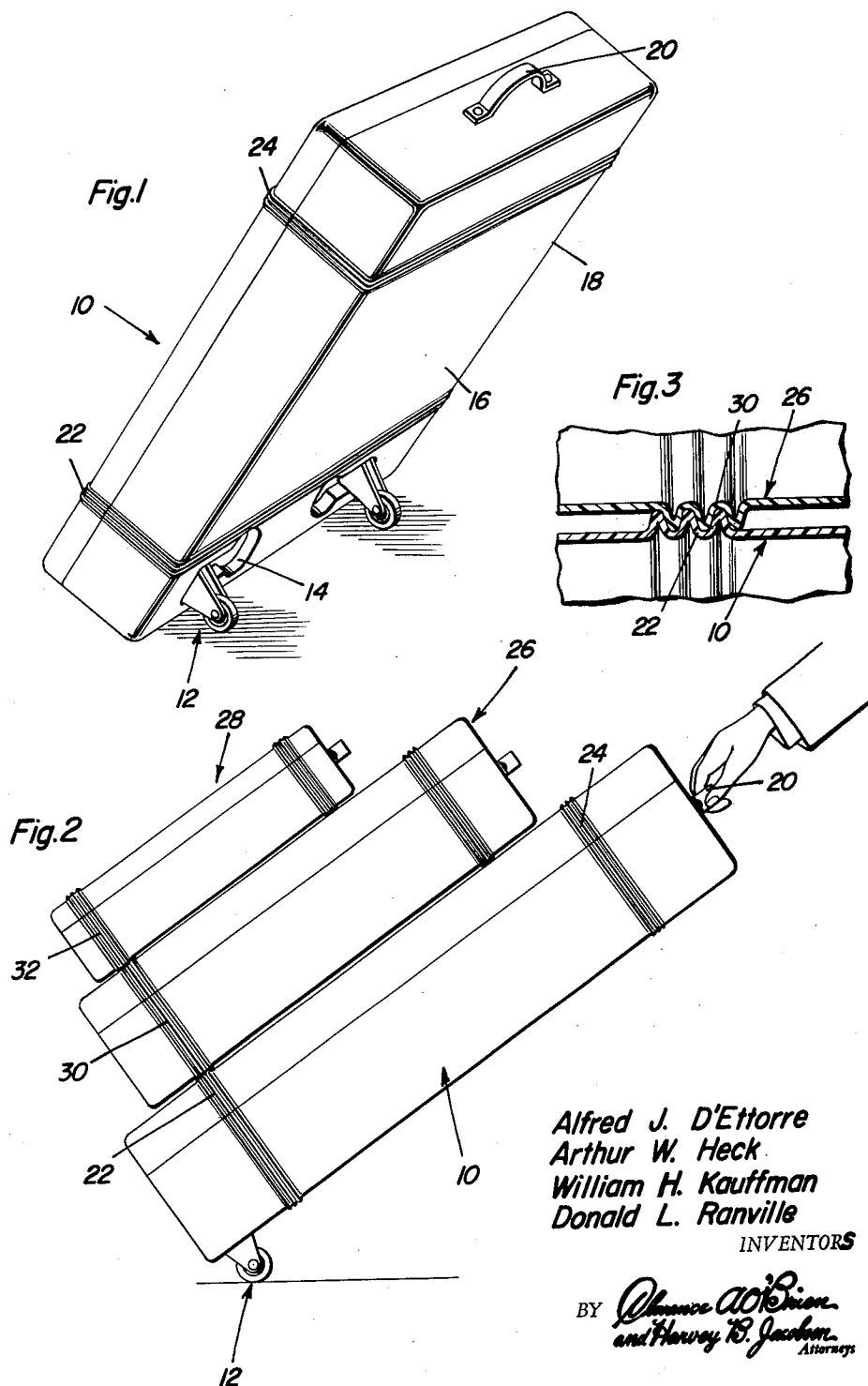
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3,057,636

LUGGAGE MEANS WITH RETRACTABLE WHEELS

Filed Aug. 16, 1960

2 Sheets-Sheet 1



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Fig. 4

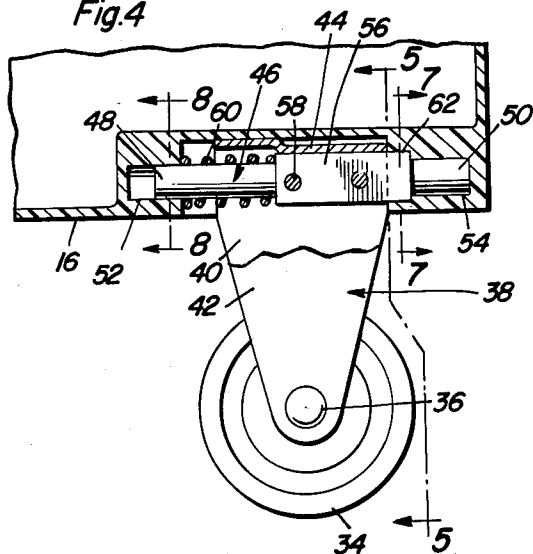


Fig. 5

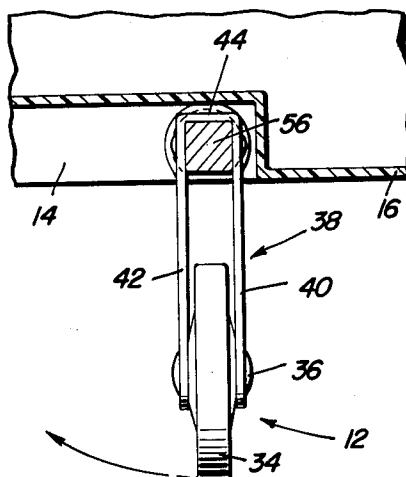


Fig. 6

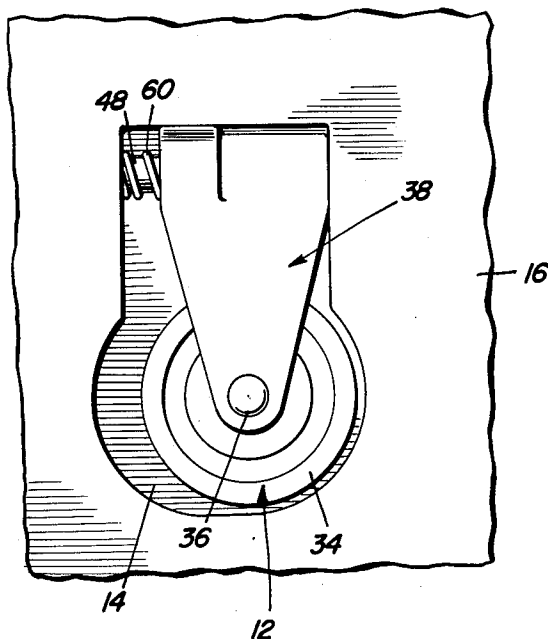
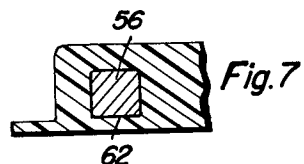
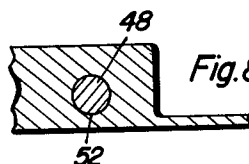


Fig. 8



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LUGGAGE MEANS WITH RETRACTABLE WHEELS

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2 Claims. (Cl. 280—37)

This invention relates to luggage construction especially designed to enable a traveller to easily maneuver a set of such luggage without assistance.

It is therefore a primary object of this invention to provide luggage for the traveller which may be easily moved without assistance when porters or other help are not available or when it is desired to travel in an economical fashion by avoiding payment for service. The luggage construction made in accordance with this invention therefore involves a structural departure from previous devices of generally similar purposes that is not only more economical than such previous devices but is also of greater convenience to the traveller.

A further object of this invention in accordance with the foregoing objects, is to provide a luggage construction involving retractable wheel assemblies for the luggage which avoids the disadvantages of previous devices by requiring no disassembly of the wheel assemblies from the luggage case for opening thereof, said wheel assemblies being retractable into the luggage case and flush with the outer surface thereof without reducing to any significant extent the spatial accommodation of the luggage case.

A further object of this invention is to provide a set of luggage cases having interlocking ridges formed thereon so as to enable the stacking of the plurality of luggage on top of each other in stepped fashion with the larger and bottom luggage case having the retractable wheel assemblies.

An additional object of this invention is to provide a retractable wheel assembly for a luggage case which is of economical construction, durable and by virtue of its novel arrangement capable of sustaining the forces and loads imposed thereon without the necessity of additional and expensive bracing structure.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of a bottom luggage case construction made in accordance with this invention showing the wheel assemblies in their extended positions.

FIGURE 2 is a side elevational view of a set of luggage made in accordance with this invention being maneuvered.

FIGURE 3 is a sectional view showing the interlocking ridges of luggage cases stacked on top of each other.

FIGURE 4 is a partial sectional view of the bottom luggage case illustrating one wheel assembly thereof in its extended position.

FIGURE 5 is a sectional view taken through a plane indicated by section line 5—5 in FIGURE 4.

FIGURE 6 is partial bottom view of the bottom luggage case illustrating one wheel assembly in retracted position.

FIGURE 7 is a sectional view taken through a plane indicated by section line 7—7 in FIGURE 4.

FIGURE 8 is a sectional view taken through a plane indicated by section line 8—8 in FIGURE 4.

Referring to the drawings in detail, the bottom luggage case made in accordance with this invention is illustrated

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in FIGURE 1 and is generally designated by reference numeral 10. It will also be observed in FIGURE 1, that the retractable wheel assemblies each generally designated by reference numeral 12 are in their extended position and may be retracted by pivotal movement toward each other within the recesses 14 formed within the bottom side 16 of the bottom luggage case generally indicated by reference numeral 18. It will also be observed that a handle member 20 is attached to the top end of the luggage case 18 for the purpose of pulling the luggage case which will be wheeled by means of the wheel assemblies 12.

It will be observed in FIGURE 1 that two bands of ridge formations 24 and 22 are formed about the luggage case 18 intermediate the ends thereof. The ridge formations 24 and 22 not only are pleasing in appearance for the purpose of making the luggage case 18 attractive but also serve a useful purpose. It will therefore be observed in FIGURE 2, that luggage cases 26 and 28 are stacked upon the bottom luggage case 18 and are retained in said stacked relation by means of ridge formations 30 and 32 formed on the luggage 26 and 28 respectively. Referring therefore to FIGURE 3 in particular it will be observed that the ridge formations 22 on the luggage 18 interlocks with the ridge formations 30 on the luggage 26 in order to prevent displacement of the luggage 26 relative to the bottom luggage case 18 in the direction in which the bottom supporting luggage 18 is being pulled by means of its handle 20. The luggage 28 is similarly retained on top of the luggage 26 by means of its ridge formations 32 which interlock in a similar manner with the ridge formations 30. It will also be observed in FIGURE 2, that the luggage cases 26 and 28 are arranged on top of the luggage case 18 in a stepped fashion so that the traveller may place his coat, handbag, camera case or other similar items on the back luggage cases while he pulls the luggage by means of the wheeled assemblies 12 mounted on the bottom assembly case 18.

Accordingly, the luggage cases as contemplated by this invention may be made in graduated sizes with the largest size case of a set having the wheel assemblies 12 mounted thereon. The cases may therefore be made of a molded material such as fiberglass so that the ridge formations 22 and 24 may be molded thereon as well as the recesses 14 within which the wheel assemblies 12 are retracted.

Referring therefore to FIGURE 6, it will be observed that the bottom side 16 of the bottom luggage case 18 has the recess 14 molded therein within which recess the wheel assembly 12 is retracted flush with the bottom surface 16. The wheel assembly 12 accordingly includes a wheel 34 which is rotatably mounted on a journal pin member 36 which is received within apertures at the bottom end of a wheel mounting bracket member 38. The wheel mounting bracket member 38 is accordingly pivotally moved 90 degrees outwardly from the recess 14 into its extended position as illustrated in FIGURES 4 and 5 in particular.

It will therefore be observed that the wheel mounting bracket member 38 includes a pair of arms 40 and 42 interconnected within the recess 14 by means of a top portion 44. It will therefore be observed from FIGURES 1, 5 and 6, that the wheel assemblies 12 are pivotally retractable and extended about axes parallel to the direction in which the bottom case 18 is pulled by means of handle 20. Accordingly, the pulling force and hence tractive force applied to the wheel assemblies 12 will be applied along the pivot axis about which the wheel assemblies are retractable so that the aforesaid forces will have no tendency to collapse or retract the wheel assemblies. It will therefore be appreciated that the wheel assembly 12 despite its small spatial extent and lack of bracing struc-

ture will adequately sustain the luggage loads in a reliable manner. Furthermore, the relatively flat configuration of the wheel assemblies will require a relatively shallow depth recess 14 for accommodating the wheel assemblies in their retracted position to thereby avoid any significant sacrifice of space within the luggage case itself.

It will however be appreciated that a suitable lock mechanism will be required in order to hold the wheel assemblies 12 in retracted or extended position. Referring therefore to FIGURES 4 and 5 once again, it will be observed that the wheel mounting bracket 38 is connected to a shaft assembly generally indicated by reference numeral 46. The shaft assembly 46 includes end portions 48 and 50 of circular cross-section which are journaled in journal recesses 52 and 54 respectively formed within the bottom 16 of the luggage case in communication with the recess 14. The shaft assembly 46 also includes an intermediate portion 56 of squared cross-section. The wheel mounting bracket 38 is connected to the shaft assembly 46 by means of fasteners 58 extending through the arms 42 and 40 of the bracket 38 and the squared portion 56 of the shaft assembly 46. Accordingly, the shaft assembly 46 is rigidly connected to the wheel mounting bracket 38 and is pivotally movable therewith about an axis extending through the end shaft portions 48 and 50 and is also slidable therewith within the journal recesses 52 and 54 against the bias of a spring 60 as more clearly seen in FIGURE 4. The squared portion 56 of the shaft assembly 46 therefore also cooperates with a squared recess portion 62 disposed between the recess 14 and the journal recess 54 as seen in FIGURE 4. Accordingly, when the shaft assembly 46 and the wheel assembly connected thereto is biased toward the extreme right position as illustrated in FIGURE 4, the squared portion 56 of the shaft assembly will be locked to the bottom of the luggage case against pivotal movement relative thereto. In order to release the shaft assembly 46 and wheel connected thereto from its locked condition as seen in FIGURE 4, it will be necessary to slidably displace the shaft assembly 46 in an axial direction toward the left as viewed in FIGURE 4 or upwardly toward the handle end as viewed in FIGURE 1. The wheel assembly and shaft assembly 46 may then be pivotally moved inasmuch as the squared portion 56 of the shaft assembly 46 is no longer in the squared recess 62. The wheel assembly may then be retracted within the recess 14 by being pivotally moved 90 degrees and will subsequently be locked in said retracted position by the bias of the spring 60 returning the shaft assembly and squared portion 56 into the squared recess 62. It will therefore be observed in FIGURE 6, that when the retracted wheel assembly 12 is locked within its retracted position a space is provided to the left thereof in order to permit displacement of the wheel assembly 12 in a leftward direction for releasing the lock mechanism in order to extend the wheel assembly.

From the foregoing description, operation and use of the luggage construction made in accordance with this invention will be apparent. It will therefore be appreciated that as a result of the novel construction, luggage is provided which is attractive, economical, useful and convenient to an unexpected high degree.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and

equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A luggage case construction comprising, rigid luggage case means, handle means mounted on said case means at one end thereof for pulling in one direction, recess means formed within said case means adjacent the other end thereof, retractable wheel means pivotally mounted within said recess means about an axis parallel to said one direction, lock means operatively connected to said wheel means within said recess means for locking said wheel means in either a retracted position within said recess means or in an extended position and releasable in response to displacement of the wheel means within the recess means toward the handle means, said wheel means comprising a pair of wheel assemblies mounted on pivot shaft means pivotally mounted within the recess means for pivotally retracting each wheel assembly toward each other into said recess means flush with a bottom side of the luggage case means, said lock means comprising journal means slidably receiving said pivot shaft means enabling axial displacement thereof toward said handle means a squared section formed on said shaft means, a squared bore portion formed in said journal means for slidably receiving the squared section and biasing means engageable with the shaft means for urging the squared section into the squared bore portion for locking said shaft means against pivotal movement relative to the journal means.

2. A luggage case construction comprising, a rigid luggage case means, handle means mounted on said case means at one end thereof for pulling in one direction, recess means formed within said case means adjacent the other end thereof, retractable wheel means pivotally mounted within said recess means about an axis parallel to said one direction, said wheel means including a wheel mounting bracket mounting a wheel at one end thereof, shaft means rigidly connected to said bracket and having projecting ends on opposite sides of the bracket adjacent the other end thereof, said shaft means including a non-circular section projecting from one side of the bracket, a pair of journal bores formed in the case means in communication with the recess means for slidably receiving said projecting ends of the shaft means for pivotally mounting the wheel means about said axis, spring means mounted on the shaft means and reacting between the recess means and non-circular section for biasing the bracket toward a locking position in the recess means, one of said journal bores having a non-circular portion for slidably receiving the projecting non-circular section of the shaft means only when the bracket is in a retracted position or an extended position for locking thereof.

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