Nov. 15, 1927. 1,649,535

H. J. LIEBL

SYSTEM OF TRANSPORTATION

Original Filed March 5, 1926 3 Sheets-Sheet 1

Fig 2.

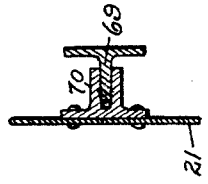
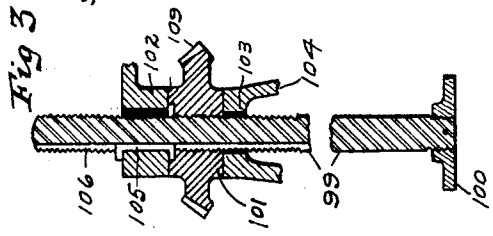


Fig 1.

Fig 3



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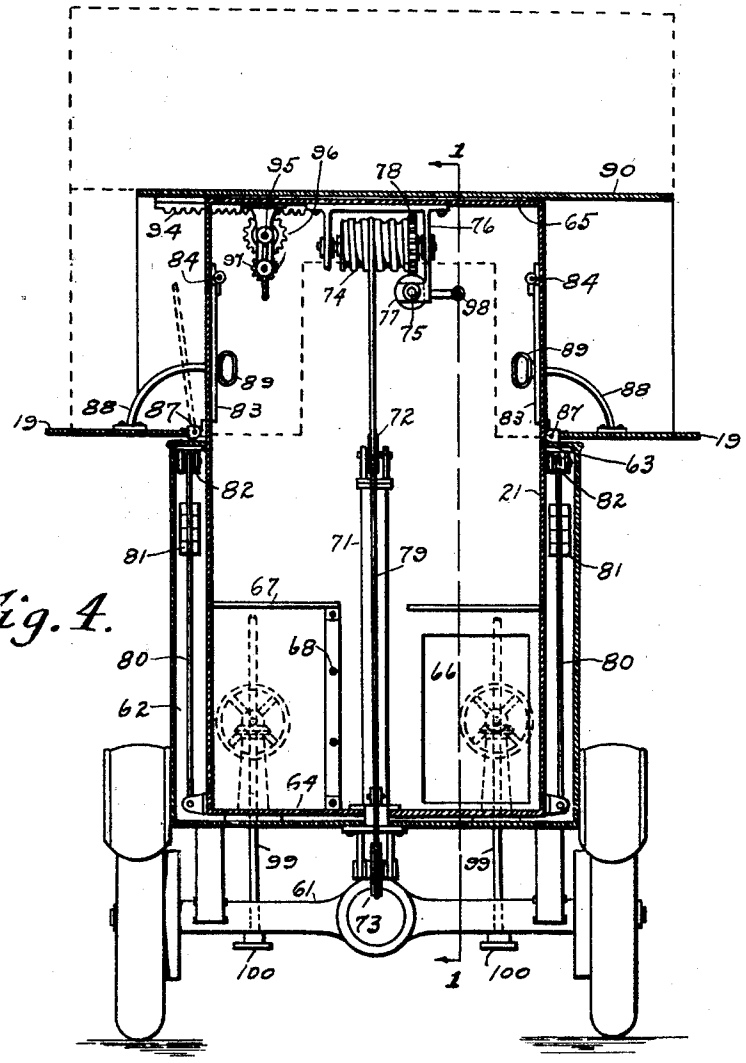


Fig. 4.

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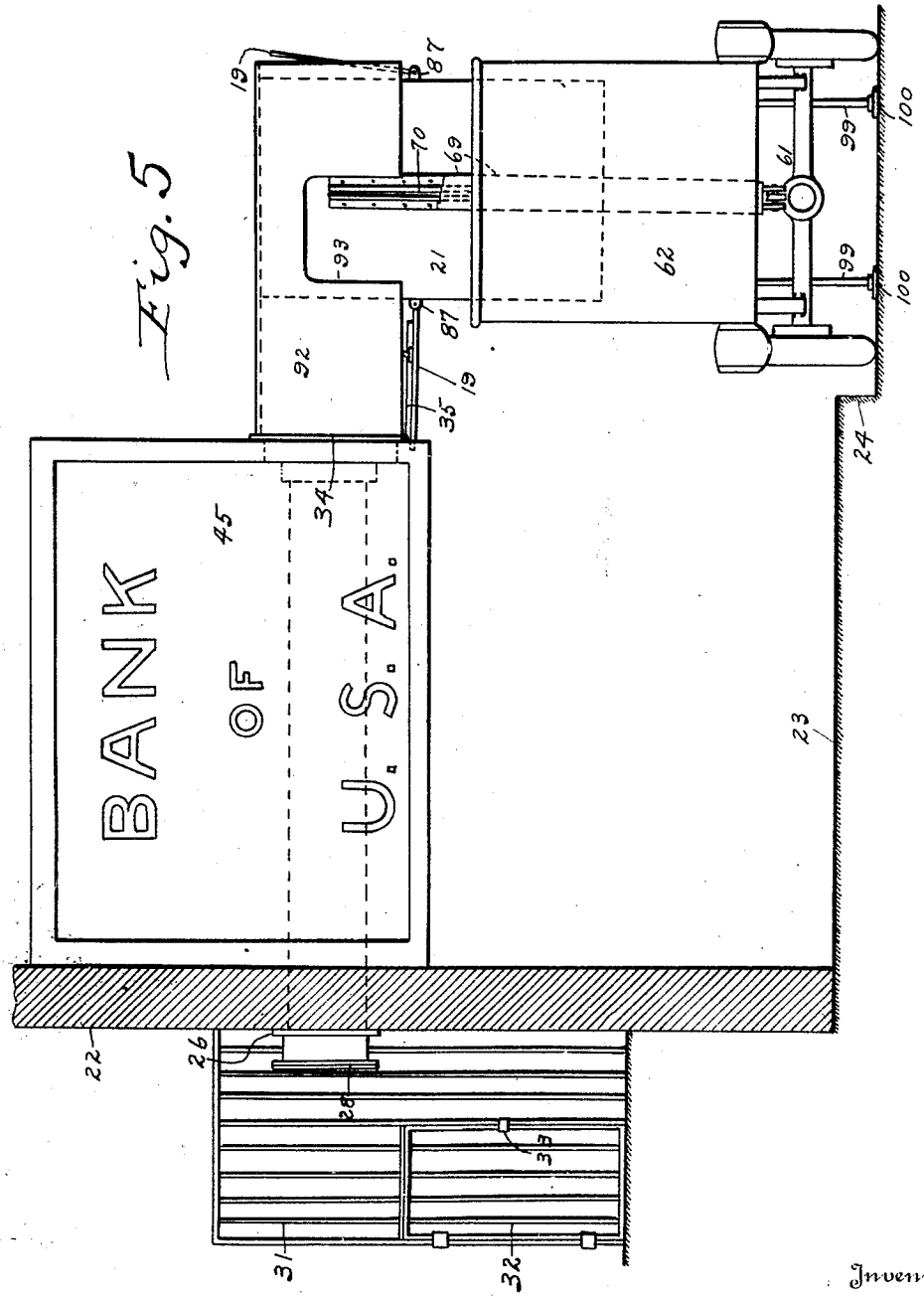
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Fig. 5



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UNITED STATES PATENT OFFICE.

HENRY J. LIEBL, OF BUFFALO, NEW YORK.

SYSTEM OF TRANSPORTATION.

Original application filed March 5, 1926, Serial No. 92,650. Divided and this application filed September 17, 1926. Serial No. 136,111.

This invention relates to means for transferring valuables from one building to another by a vehicle so as to avoid the loss of the same during transportation by bandits or hold-up men, and more particularly to means of this character which will insure the transportation of money, bonds and stocks and the like from one bank or fiduciary institution to another by the use of an automobile.

It is the object of this invention to provide means whereby this purpose is accomplished safely, expeditiously and conveniently and without exposing the valuables during such transportation, thereby avoiding suspicion and allaying any tendency to obtain unlawful possession of the valuables.

This application is a division of an application for patent filed March 5, 1926, Serial No. 92,650.

In the accompanying drawings:

Figure 1 is a longitudinal elevation of an automobile partly in side view and partly in section showing the same equipped with parts of my invention, the section being taken on line 1—1, Fig. 4.

Figure 2 is a fragmentary horizontal section taken on line 2—2, Fig. 1.

Figure 3 is a fragmentary sectional elevation of the means for leveling and steadying the car so that the parts mounted thereon will co-operate effectively with the parts of a building for transferring money or other valuables from a car to a building and vice-versa.

Figure 4 is a vertical transverse section taken on line 4—4, Fig. 1.

Figure 5 is an elevation of a car and a building showing the manner in which communication is established between them for the transfer of valuables in accordance with my invention.

Similar characters of reference indicate like parts in the several figures of the drawings.

In carrying out my invention in practical form a tunnel 20 is provided which leads into the building and a tower 21 is provided on the transporting vehicle which tunnel and tower are adapted to be coupled so as to form a completely closed passageway between the interior of the building and the enclosed compartment of the vehicle which permits unobserved transfer of money or valuables from the vehicle to the building and vice-versa. This tunnel is preferably constructed of metal in the form of a horizontal tube of the required diameter which passes through an opening in the wall 22 of the building at a suitable distance above the sidewalk 23 to permit pedestrians to walk underneath and extending from the building wall to the curb 24 of the roadway so that communication may be established between the tunnel and the tower of the vehicle while the latter is standing in the street next to the curb. This tunnel is preferably held in place by two rings 25, 26 secured to the periphery thereof and fastened to the outer and inner sides of the building wall by any suitable means. The inner end of the tunnel is provided within the building with a closure consisting preferably of a door 28.

For greater security the inner end of the tunnel when open preferably communicates with a cage 31 within the building which cage is provided with a gate or door 32 having a lock 33 so as to prevent unauthorized access to the valuables which are to be conveyed to and from the building through the tunnel. At its outer end the tunnel is provided with a closure consisting of a frame 34 secured to the outer end of the tunnel and a vertically swinging door 35 connected at its lower edge by a hinge with said frame.

For the purpose of supporting the tunnel in a position in which it overhangs the sidewalk from the building a brace rod 44 connects the front end thereof with the adjacent upper part of the building and to conceal this tunnel and render the same unobjectionable, so far as appearance is concerned, signs 45 of any suitable character may be arranged vertically along opposite longitudinal sides of the tunnel as shown in Fig. 5.

Any approved means may be provided for conveying a load of valuables lengthwise in the tunnel.

The tower 21 may be transported by a vehicle of any suitable character but preferably by an automobile having the rear part of its frame 61 provided with a housing or compartment 62 the top of which has an opening 63 through which the tower 21 moves for raising and lowering the same. The tower has a closed bottom or floor 64, a roof 65 and a door 66 on the lower part of its front side whereby, when the tower is lowered, access may be had to the tower

from this compartment of the automobile for introducing valuables into the tower or removing the same therefrom. The load of valuables is preferably stored or supported within the tower on elevated platforms or shelves 67 which may be reached by a ladder or stairway 68 or other suitable means.

On the upper part of the tower the same is provided with means for placing either one side or the other thereof in communication with the outer end of the tunnel 20 and means are also provided for raising and lowering the tower so as to bring the passages in its upper part into the proper position for communication with the tunnel. During the vertical movement of the tower on the automobile the same is guided by upright guide bars 69 arranged in front and in rear of the tower and mounted on the automobile and channels 70 arranged on the outer sides of the tower and engaging with these guide bars, as shown in Figs. 1 and 2.

The vertical movement of the tower may be effected by means which are variously constructed, those shown in the drawings being satisfactory and constructed as follows:

The numeral 71 represents a post mounted on the automobile frame and provided at its upper and lower ends with sheaves or pulleys 72, 73. The numeral 74 represents the drum of a windlass mounted on the underside of the roof of the tower and adapted to be turned by a crank shaft 75 journaled on the frame 76 of the windlass and having a worm 77 which meshes with a worm wheel 78 on the drum. The numeral 79 represents a hoisting line which has one end wound around the drum and its other end secured to the floor of the automobile and passes with its intermediate part around the upper and lower sheaves 72, 73, as shown in Figs. 1 and 4. For the purpose of facilitating the raising and lowering of the tower its weight is counterbalanced by cords or lines 80 arranged between laterally opposite sides of the tower and the automobile compartment and each connected at one end with the lower part of the tower and at its opposite end with a weight 81 and passing with its intermediate part around a pulley or sheave 82 on the underside of the roof of the automobile compartment, as shown in Figs. 1 and 4.

On laterally opposite sides of its upper part the tower is provided with openings each of which is adapted to be covered and uncovered by a door 83 arranged on the inner side of the tower and pivoted thereto at its upper edge by hinges 84 and detachably connected therewith at its lower edge by a lock 85. Persons on the interior of the tower may obtain a view of the external surroundings through windows 86 arranged in the doors 83.

After the tower has been raised so that one of its top communicating openings is at the right height and in line as well as in the proper spaced relation to the outer end of the tunnel then the attendant within the tower first spans the lower part of the space between the tower and the tunnel by means of one or another of the bridges 19 arranged on the upper lateral sides of the tower and each of which is pivoted at its lower end by hinges 87 to the tower and manipulated from the interior of the tower by curved shifting bars 88 each of which passes through an opening in the tower wall and is connected at its outer end with the respective bridge 19 and provided at its inner end with a handle 89 which is adapted to engage with the inner side of the tower and serves as a stop to limit the downward movement of the bridge when the same reaches a horizontal position.

Slidable transversely on the upper part of the tower is a hood or bonnet which is adapted to close the side and top of the space between the tower and tunnel above whichever bridge may be projected to space the lower part of the space between the same. This hood has a horizontal top 70 arranged above the top of the tower, and two vertical side walls 91, 92 arranged in front and in rear of the upper part of the tower and extending downwardly to the bridge which is in its horizontal open operative position. This hood may be projected laterally from either side of the tower to virtually enclose the passage from the tower to the tunnel of the building, and to permit of such movement each of the side walls is provided with a large cut recess or notch 93 which clears the upper ends of the guides between the front and rear parts of the tower and the automobile compartment, as shown in Figs. 1 and 4.

The movement of the hood from one side or the other of the tower is preferably effected by mechanism which is operated from the inner side of the tower and in this instance consists of two horizontal gear racks 94 secured to the underside of the top of the hood and sliding in slots in the top of the tower, a shaft 95 journaled in suitable bearings on the underside of the roof of the tower and provided with gear wheels 96, 96 meshing with said rack, and a pinion 97 pivotally mounted on the tower roof and meshing with one of said rack gears 96 and provided with a hand crank 98 for turning the same.

After the bridge on one side of the tower has been lowered and the hood has been projected on the corresponding side of the tower a practically covered passage-way is formed between the tower and the tunnel so that now the attendant in the tower can open the respective side door of the tower and cross the

bridge for giving a signal to the attendant in the building, if this is necessary, and then the outer door of the tunnel is unlocked and lowered over the tower bridge.

The apparatus as shown in Fig. 5 is now in condition for permitting valuables to be exchanged between the automobile and the bank or other building without this operation being seen by outsiders, thereby enabling transfer of valuables to be effected with safety and without arousing any thoughts in evil disposed persons to attempt a hold-up such as frequently occur when the containers of valuables are exposed during transportation.

Difficulty may be experienced in fitting the drop bridges or doors and the hood to the tunnel when the street upon which the automobile is parked is not even. In order to level the automobile at such times and also to steady the same while the transfer of valuables to and from the building is being effected two adjusting jacks are provided on opposite sides of the rear part of the automobile in front of the tower whereby the automobile and the parts mounted thereon may be braced and leveled if required. Each of these jacks comprises a vertically movable thrust rod 99 provided at its lower end with a foot 100 adapted to engage with the surface of the roadway, a screw nut 101 engaging with the upper threaded part of said rod and held against vertical movement between upper and lower sections 102, 103 of a standard 104 secured to the automobile, a spline 105 engaging with a longitudinal groove 106 in the thrust rod and mounted on the standard and a driving shaft 107 journaled in the upper part of the standard and provided at its inner end with a driving bevel gear wheel 108 which meshes with a driven bevel gear wheel 109 on the nut 101, and a hand wheel 110 arranged on the outer end of the driving shaft, as shown in Figs. 1, 3 and 4. By these means the car can be reliably and definitely brought to the right position as shown in Fig. 5 to ensure register of the tower and hood with the tunnel and enable transfer of money and other valuables to be effected in complete concealment so as not to excite temptation and endanger the safety of those to whom the duty of transferring valuables has been assigned and thereby making this occupation less hazardous.

I claim as my invention:

1. The combination with a car, of a tower movable vertically on said car and provided at its upper end with a passage, and means for raising and lowering said tower comprising a post rising from said car within the tower, guide wheels arranged at the upper and lower ends of said post, a windlass mounted on said tower, and a hoisting line connected at its ends with said car and tower and passing with its intermediate part around said wheels.

2. The combination with a car, a tower movable vertically on said car and provided at its upper end with a lateral passage, a bridge arranged on the outer side of the tower and pivoted thereto at its lower end for vertically swinging movement and a door arranged on the inner side of said tower for controlling said passage.

3. The combination with a car, a tower movable vertically on said car and provided at its upper end with a lateral passage, and a hood arranged on said tower above the lateral passage thereof.

4. The combination with a car, a tower movable vertically on said car and provided at its upper end with a lateral passage, and a hood arranged on the tower above the lateral passage thereof and adapted to be projected and retracted.

5. The combination with a car, a tower movable vertically on said car and provided at its upper end with a lateral passage, a hood arranged on the tower above the lateral passage thereof and adapted to be projected and retracted and means for moving said hood comprising a gear rack arranged on the hood, and a gear pinion mounted on the tower and meshing with said rack.

6. The combination with a building and a car, of a tunnel projecting laterally from said building, a door for closing the outer end of said tunnel and pivotally connected with the lower side of the latter for swinging into an upright closed or into a horizontal open position, a tower movable vertically on the car and provided on its upper part with a lateral passage, a bridge arranged on the outer side of said tower and pivoted thereto adjacent to the lower side of said passage, and a hood mounted on the tower and movable toward and from the outer end of said tunnel and having a top and side walls adapted to form with said doors a communication between said tower and tunnel.

In testimony whereof I hereby affix my signature.

HENRY J. LIEBL.