

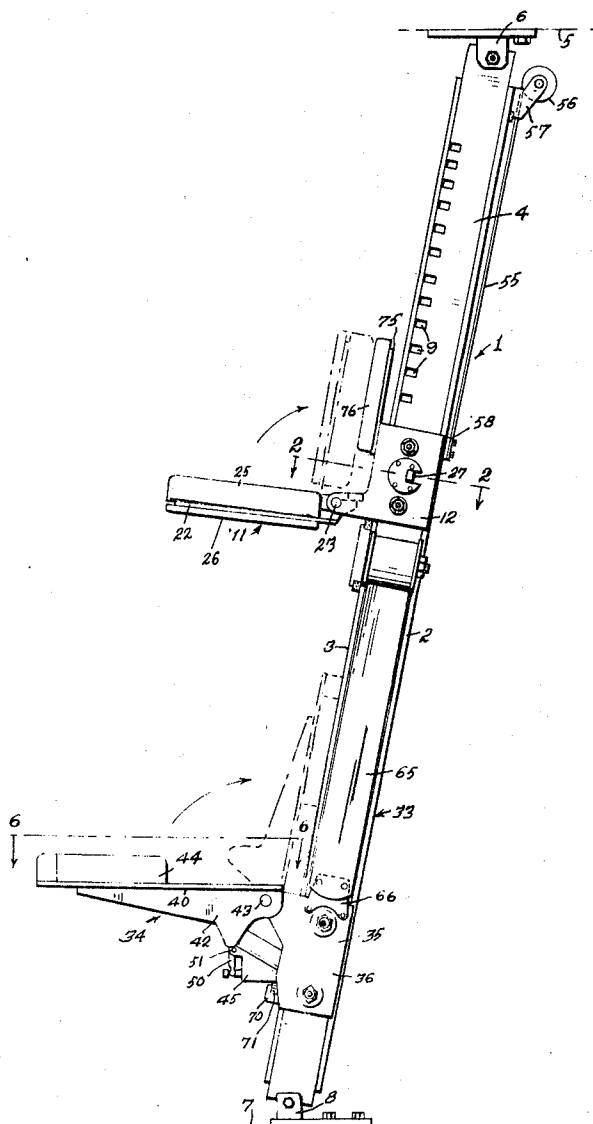
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[73] Assignee **The United States of America as**
represented by the Secretary of the Army

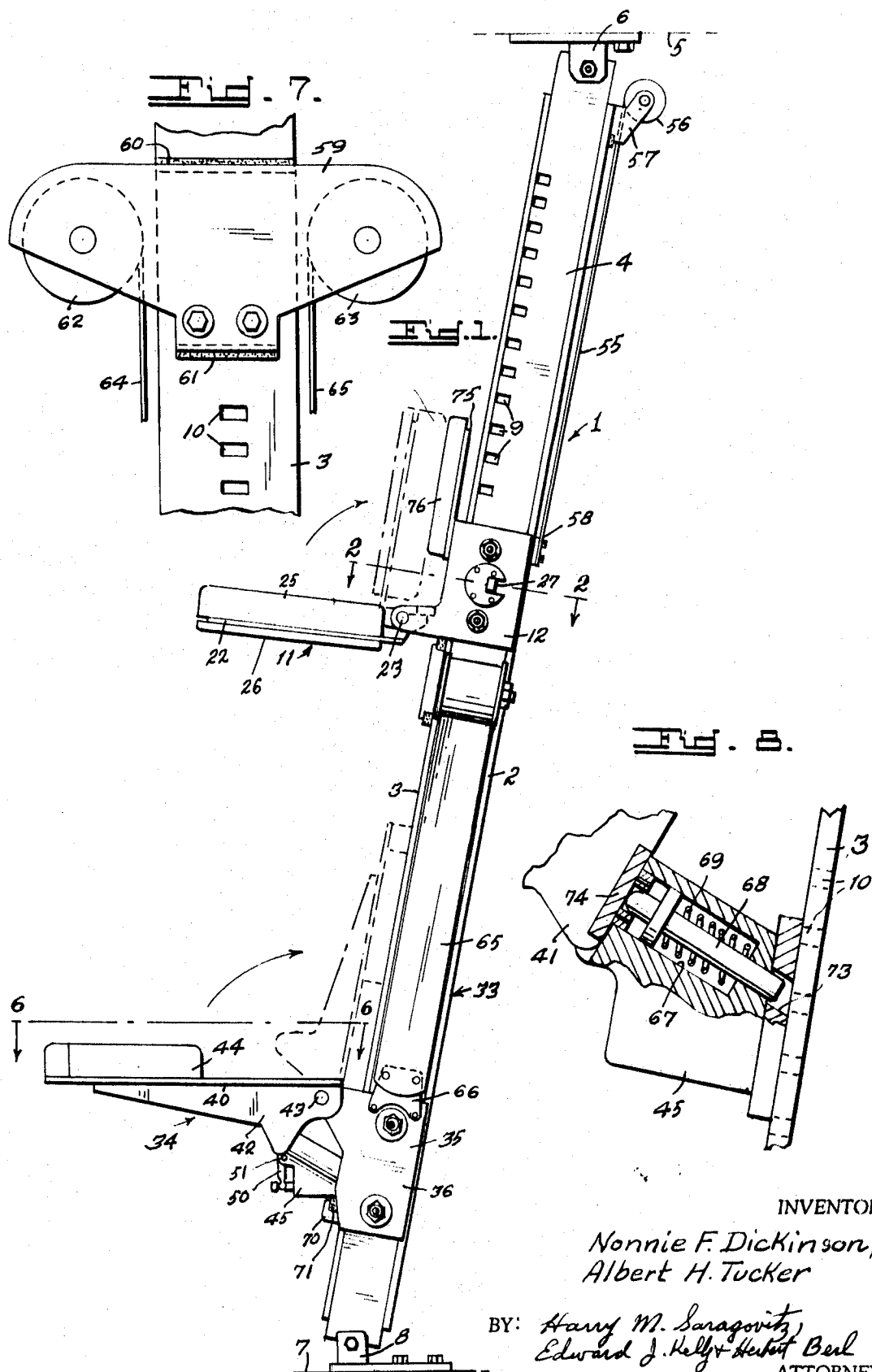
[56] **References Cited**
UNITED STATES PATENTS
2,937,692 5/1960 McMichael 297/345 X
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[54] **TANK COMMANDER'S SEAT AND FOOT**
PLATFORM ASSEMBLY
8 Claims, 8 Drawing Figs.

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297/338, 297/345, 297/433, 297/437, 248/383,
248/162, 248/409
[51] Int. Cl. **A47c 1/02**
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345, 333, 433, 434, 437; 248/383, 162, 408, 409,
423; 244/122; 296/63

ABSTRACT: A combined seat and foot platform assembly to be mounted in the turret of a military tank or like vehicle and consisting of a substantially I-beam column secured between the floor and roof of the tank's turret. Spring loaded seat and foot platform assemblies are slidable along the column and are quickly adjustable in selected positions release levers which engage notches in the column. The seat and foot platform are quickly released for emergency descent from an open hatch to a combat position in the turret.

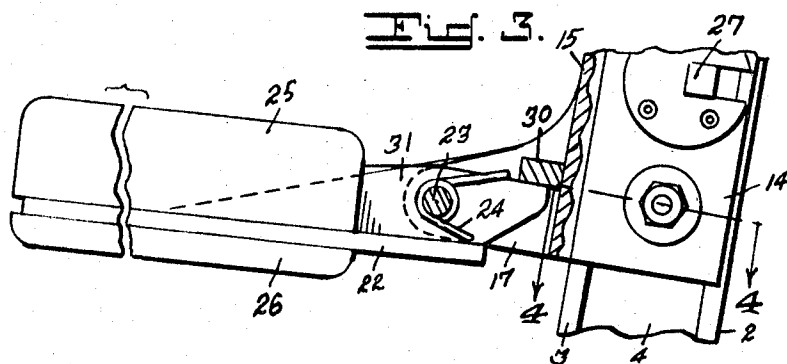
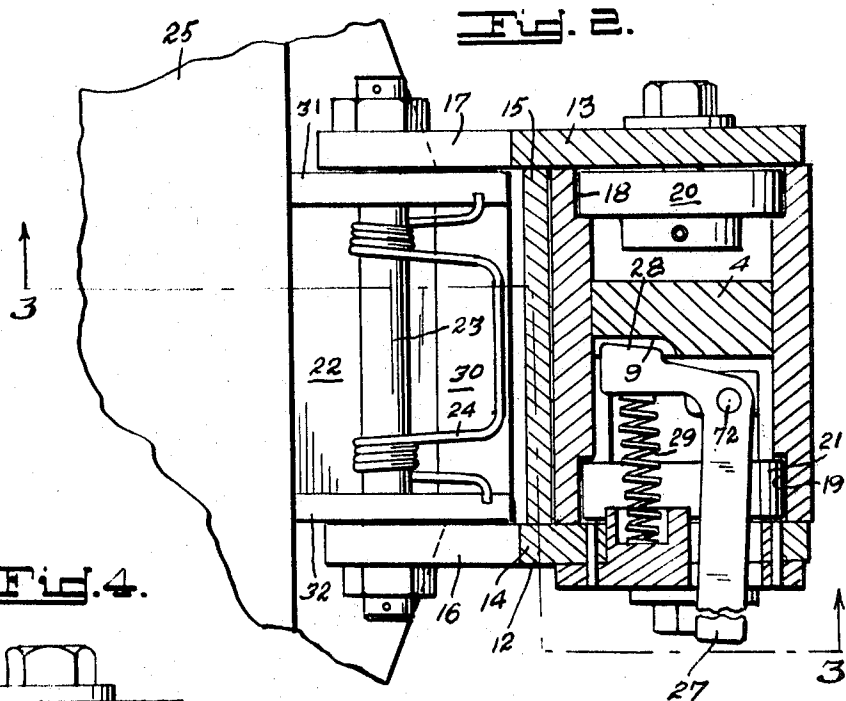
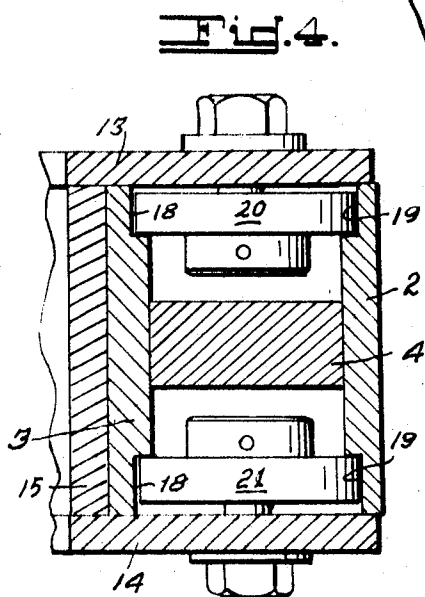




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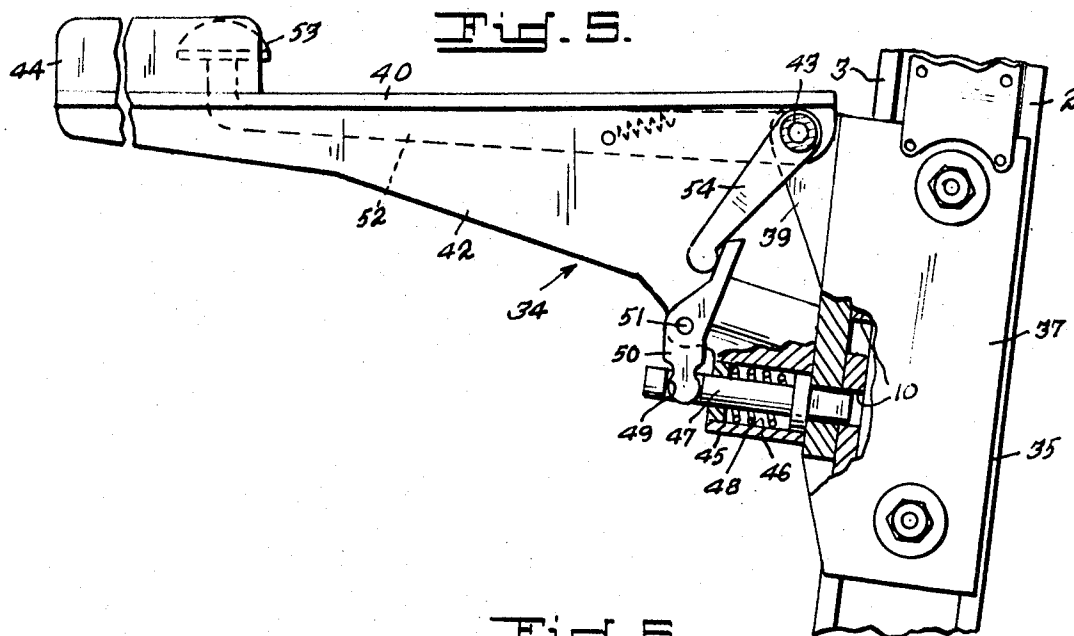
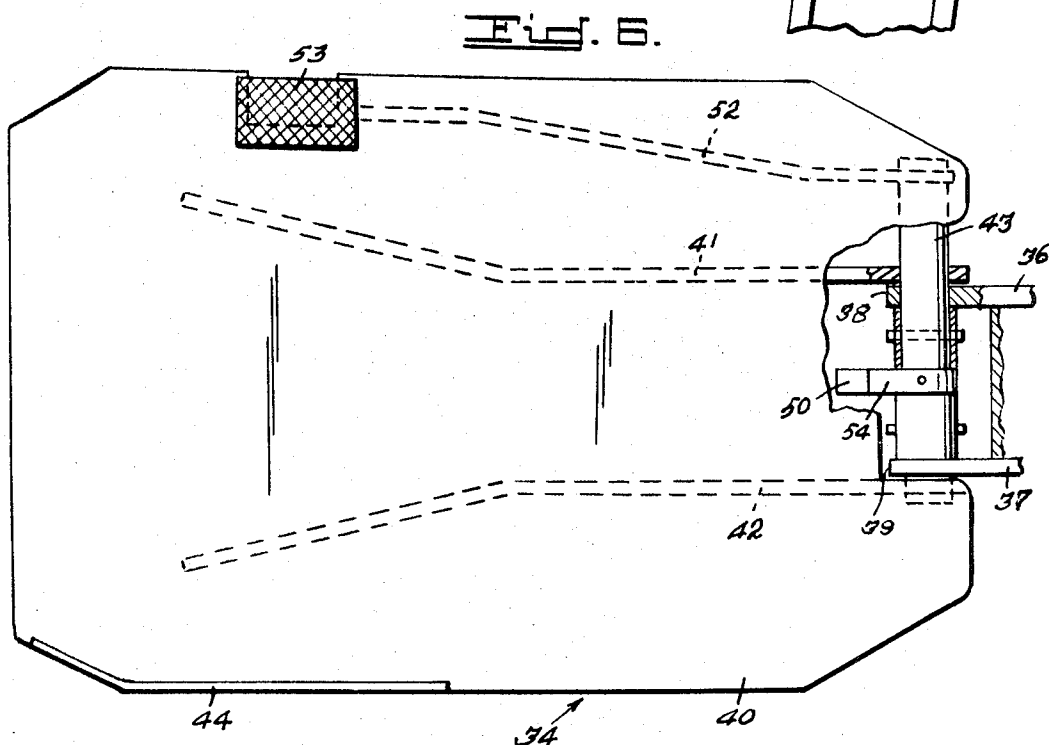
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TANK COMMANDER'S SEAT AND FOOT PLATFORM ASSEMBLY

The invention described herein may be manufactured, used, and licensed by or for the U.S. Government for governmental purposes without the payment to us of any royalty thereon.

In military vehicles such as tanks, etc., it is often necessary that a commander who has been observing through an open hatch to quickly descend within a turret to assume a combat position. Usually the observer is in a sitting position and to escape quickly into the turret he must either fold up a seat or climb down a ladder, if the turret is large. It is desirable to eliminate lost motion when assuming the combat position and the invention is directed toward this end. Thus, the present invention is designed to overcome lost motion when changing from an open hatch position, i.e., the body of an observer being partly exposed above the hatch opening of a tank's turret, to a combat position within the turret.

Briefly this invention consists of both seat and foot platform assemblies slidable on a single column which is connected at its ends to the floor and roof of a tank turret, and which assemblies are adjustable in selected positions along the column and which are quickly released by levers to permit rapid descent of an observer into the turret from an exposed position. Both the seat and foot platform are spring loaded and also may be folded out of the way when not in use.

It is therefore a principal object of this invention to provide a novel seat and foot platform arrangement for instant descent from an open hatch position to alternate combat positions within a tank turret.

It is another object to provide a seat and foot platform arrangement wherein the seat and foot platform are spring loaded to prevent an undesired high descent velocity.

Still another object is to provide a seat and foot platform arrangement having a column along which the seat and foot platform are adjustably and slidably mounted thereon.

These and other objects and advantages of the present invention will be fully apparent from the following description when taken in connection with the annexed drawings, in which:

FIG. 1 is a side view of the seat and foot platform assembly of this invention;

FIG. 2 is a cross-sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is an enlarged cross-sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is a cross section taken along line 4—4 of FIG. 3,

FIG. 5 is an enlarged side view of the foot platform;

FIG. 6 is a cross-sectional view taken along line 6—6 of FIG. 1;

FIG. 7 is a partial front view of the column and a stop and showing the counterbalance springs, and,

FIG. 8 is a sectional detail view of the buffer for the foot platform.

THE COLUMN

Referring now to the drawings, FIG. 1, reference character 1 indicates generally the combined column, seat and foot platform assemblies. The column, per se, is indicated generally by 33 and is substantially of I-beam construction, having end plates 2 and 3 connected by a median strip 4, best seen in FIG. 4. Column 33 is secured at its upper end to turret top 5 by a racket 6 and at its lower end to the turret floor 7 by a bracket 8 as seen in FIG. 1. Notches 9 are cut in one side of median strip 4 along the travel of the seat assembly and in the face of end plate 3 along the travel of the foot platform as indicated by 10, see FIG. 7.

SEAT ASSEMBLY

The seat assembly is indicated generally by 11 and consists of a support 12 slidable on column 33. The support 12 is provided with side plates 13 and 14 and a connecting plate 15. Side plates 13 and 14 are provided with integral ears 16 and 17, as shown. End plates 2 and 3 have grooves 18 and 19

running their lengths for receiving bearing rollers 20 and 21 which are journaled inside plates 13 and 14 and ride in grooves 18 and 19, respectively. There will be four rollers and only two are shown, and may be mounted on ball bearings, not shown, to permit easy travel of support 12 along column 33.

The seat proper consists of a plate 22 pivotally mounted by a shaft 23 to ears 16 and 17. A torsion spring 24 mounted on shaft 23 normally biases plate 22 towards an upwardly folded position. Plate 22 may be padded above and below with a suitable material as at 25 and 26, respectively, the padding at 26 being used as a back rest when the seat is folded up and the observer standing on the foot platform and not using the seat.

Means are provided to adjust and hold the seat assembly at selected positions along the column 1, and consists of a hand lever 27 pivoted as at 72 within the support 12. Lever 27 is L-shaped, its long leg being the handle and its short leg having a dog 28 which is received in a notch 9. Lever 27 is further biased by a coil spring 29 to urge dog 28 into one of the notches 9. A stop 30 extending from plate 15 prevents plate 22 from rotating downward from a normal seating position. A pair of extensions 31 and 32 rising from plate 22 and pivotally mounted on shaft 23 are stopped by stop 30 when the seat has rotated to its seating position.

FOOT PLATFORM ASSEMBLY

Reference character 34 indicates the foot platform assembly generally, and consists of a support 35 which is similar to support 12 in construction, consisting of sideplates 36 and 37, four bearing rollers, not shown, and ears 38 and 39. A footplate 40 is provided for an observer to stand on. Runners 41 and 42 integral with its bottom side provide a means for pivotally mounting the footplate 40 to the shaft 43 which passes through runners 41, 42 and ears 38, 39 and is rotatable with respect to them. Footplate 40 is further provided with an upstanding foot guard 44 as seen in FIGS. 1 and 6.

Means for locking the foot platform 34 in selected positions along column 33 are provided and consists of a housing 45, see FIG. 5. Housing 45 is mounted on the front end plate 3 of column 33 and is bored as at 46. A plunger 47 is received in bore 46 in housing 45 and is spring biased inwardly by action of a coil spring 48. Plunger 47 is provided with a reduced portion 49 to receive one end of a lever 50 which is pivoted as at 51 to housing 45. A platform release pedal 52 is carried by one end of shaft 43 and extends forwardly to end in an upstanding pad 53 for foot engagement. A second lever 54 carried by shaft 43 abuts lever 50 as shown in FIG. 5. The inner end of plunger 47 is adapted to extend into one of the notches 10 in end plate 3 when release pedal 52 is not depressed and to move out of notch 10 when pedal 52 is depressed by rotation of levers 50 and 54 which rotate with shaft 43 and foot pedal 53.

COUNTERBALANCING AND SHOCK ABSORBING MEANS

Means are provided to counterbalance the seat assembly and the foot platform assembly and consists of constant force springs, one for the seat assembly and two for the foot platform. The seat spring assembly consists of a recoiling spring 55 which is wound on a spool 56 mounted in a bracket 57 fixed to end plate 2 of column 1. The free end of spring 55 is attached to support 12 as at 58 by suitable means.

The foot platform spring assembly consists of a bracket 59 fixed to the forward face of end plate 3 of column 1, which bracket also provides a stop for limiting the downward movement of support 12 of the seat and the upward movement of foot platform support 35. If desired snubbers 60 and 61 of a resilient material may be carried by the upper and lower edges of bracket 59, respectively. Bracket 59 supports a pair of spools 62 and 63 upon which recoiling springs 64 and 65 are wound. The free ends of clock springs 64 and 65 are attached to support 35 of the seat assembly, one attachment being shown at 66. A stop 70 for limiting the downward travel of

foot platform may be provided at the bottom portion of column 33. This may also have a snubber 71.

Means are supplied to absorb the shock of the foot platform when rotated from a folded position to the position for use and is seen in FIG. 8. A second bore 67 in housing 45 receives a plunger 68 which is biased outwardly by a coil spring 69. Plunger 68 is of a length so as to enter a second bore 73 in housing 45 so that when a plate 74 carried by runners 41 and 42 engages its outer end it is pushed inwardly in bore 67. Spring action of plunger 68 then absorbs the shock of a sudden unfolding of platform 34 and plunger 68 moves into bore 73.

OPERATION

The operation of the device is simple and quick. Normally seat 11 and foot platform 34 are folded, as seen by broken lines in FIG. 1. Before using either, they are adjusted to a height desired for compensating for the height of the observer or for what position he is to assume. Either one may be used individually or both together. The seat is adjusted by disengaging lever 27 from a notch 9 in column 33 and pushing up or downward the support 12. Then by pulling seat 11 downward the user may sit on it. The foot platform is adjusted by pressing the lever 52 by pad 53 to disengage the plunger 47 from a notch 10 in column 33 and moving support 35 upward or downward to the position desired. Then the plate 40 is unfolded for standing on it. When the observer wishes to descend quickly, and is using both the seat and foot plate, he operates lever 27 and lever 52 and descends downward quickly. Too sudden descent is prevented by the recoil springs 55, 64 and 65 which act as counterbalances.

An observer may stand on foot platform 34 and sit on top of the folded seat if he desires extra height. This is made more comfortable by addition of a plate 75 attached to support 12 as shown in FIG. 1. Plate 75 is upholstered by a pad 76. Both plates 75 and plate 22 are foreshortened so as to allow some of the pads 25, 26 and 69 to extend beyond and furnish a cushion area.

It is apparent that a novel seat and foot platform combination has been devised for support of an observer of a land tank or like vehicle.

What is claimed is:

1. A seat and foot platform assembly for use by an observer in the turret of a military tank or like vehicle comprising in combination,
 - a. A single column having positioning notches along portions of its length, said column being secured at its ends to the floor and top of said turret,
 - b. A seat assembly slidable on said column,
 - c. A foot platform assembly slidable on said column and disposed below said seat assembly,
 - d. Means carried by said assemblies and cooperating with said notches in said column for adjustably positioning said assemblies on said column,
 - e. Means on said column for limiting the travel of said assemblies along said column, and,
 - f. Means for counterbalancing said assemblies.
2. A device as set forth in claim 1 wherein said column comprises forward and rearward end plates arranged in spaced, parallel arrangement, a strip medially connected to the inner sides of said end plates, there being a groove cut longitudinally in the inner ends of each said end plate, a series of notches cut in one side of said strip and a series of notches cut in the forward end plate, said notches in said strip extending a distance substantially the length of travel of said seat assembly along said column and said notches in said forward end strip extending a distance substantially the length of travel of said foot platform along said column whereby said notches cooperate with said adjusting means carried by said seat and foot platform assemblies for the positioning thereof along said column.
3. A device as set forth in claim 1 wherein said seat as-

sembly comprises a support slidable on said column, a series of bearing rollers journaled in said support and riding in said column, a spring loaded, upholstered plate pivotally mounted to the forward end of said support and movable between an open and a folded position, a hand lever having a dog integral with its inner end and pivotally mounted in said support and a coil spring normally biasing said dog into a said positioning notch in said column.

4. A device as set forth in claim 1 wherein said seat platform assembly comprises a support slidable on said column, a foot plate, a shaft pivotally mounting said foot plate to the forward end of said support, said foot plate being movable between an open and a folded position, a housing secured to the forward end of said support, a spring biased plunger slidable in said housing normally engaging in a said notch in said column, a first lever pivoted to said housing and connected to said plunger, a second lever on said shaft and contacting said first lever and a release pedal on said shaft whereby when said pedal is depressed said shaft will rotate said levers to release said plunger from its respective notch in said column to permit said foot platform assembly to be raised or lowered along said column.

5. A device as set forth in claim 1 wherein said means for limiting the travel of said assemblies along column comprises a first stop having a resilient snubber at its upper and lower edges and fixed to the forward end of said column at a point midway of its length, and a second stop fixed to the forward end of said column near its lower portion, there being a resilient snubber carried by its upper edge, whereby the upward and downward travel of said seat assembly and said foot platform assemblies are limited.

6. A device as set forth in claim 1 wherein said means for counterbalancing said assemblies comprises a first bracket secured adjacent the top of said column and to its rearward side, a spool rotatable in said bracket, a clock spring wound on said spool, its free end being attached to said seat assembly, a second bracket secured to the forward end and at a point midway of said column, said bracket extending beyond both sides thereof, a spool rotatably carried by either side of said bracket and a clock spring wound on each said last names spools, their free ends being attached to said foot platform assembly.

7. In a seat assembly for use by an observer in the turret of a military tank and being adjustable at selected heights on a notched column secured between the top and floor of said turret, said seat assembly comprising a support slidable along said column, a pair of ears integral with the forward end of said support, a shaft mounted in said ears, a plate pivotally mounted on said shaft, a torsion spring encircling said shaft and normally biasing said plate to an upwardly folded position with respect to said column, a pad carried by the upper and lower surfaces of said plate a spring biased member carried by said support and cooperating with said notched column for releasably locking said support at selected heights therealong, and means connected to said support and said column for counterbalancing said seat assembly.

8. In a foot platform assembly for use by an observer in the turret of a military tank and being adjustable at selected heights on a notched column secured between the top and floor of said turret, said foot platform assembly comprising, a support slidable on said column, a shaft rotatably mounted on the forward end of said support, a spring loaded foot plate pivoted on said shaft and movable between folded and open positions, a spring biased plunger housed in said support and normally engaging in a notch in said column, a foot pedal fixed to said shaft, a first lever fixed to said shaft and a second lever pivoted on said support and abutting said first lever whereby a depression of said pedal will rotate said shaft, and said first and second levers to move said plunger from said notch to release said support for the adjustment of said assembly, and means connected to said column and said support for counterbalancing said foot platform assembly.

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