Nov. 2, 1965 R. F. SWENSON ETAL 3,215,470

SEAT WITH ADJUSTABLE ELEMENTS

Filed May 22 1964

2 Sheets-Sheet 1

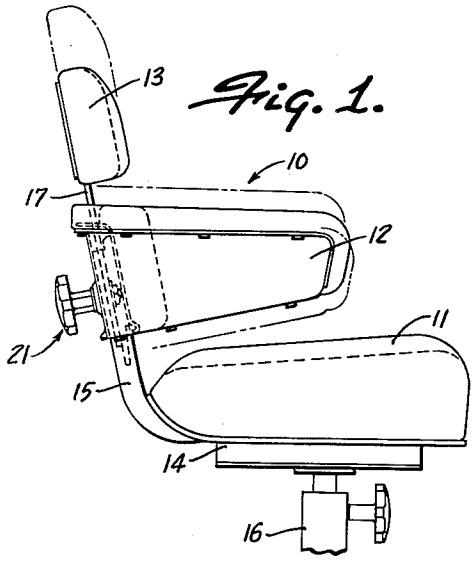

Fig. 1.

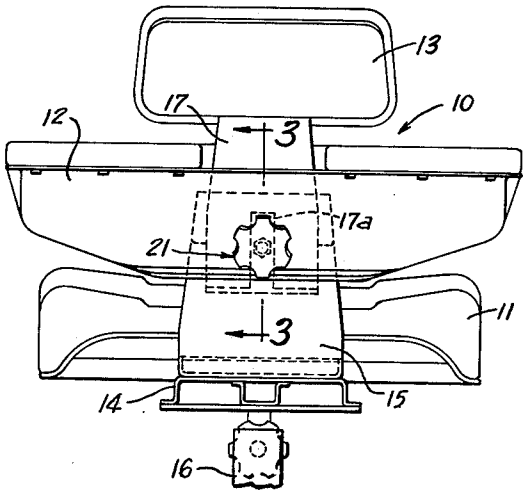

Fig. 2.

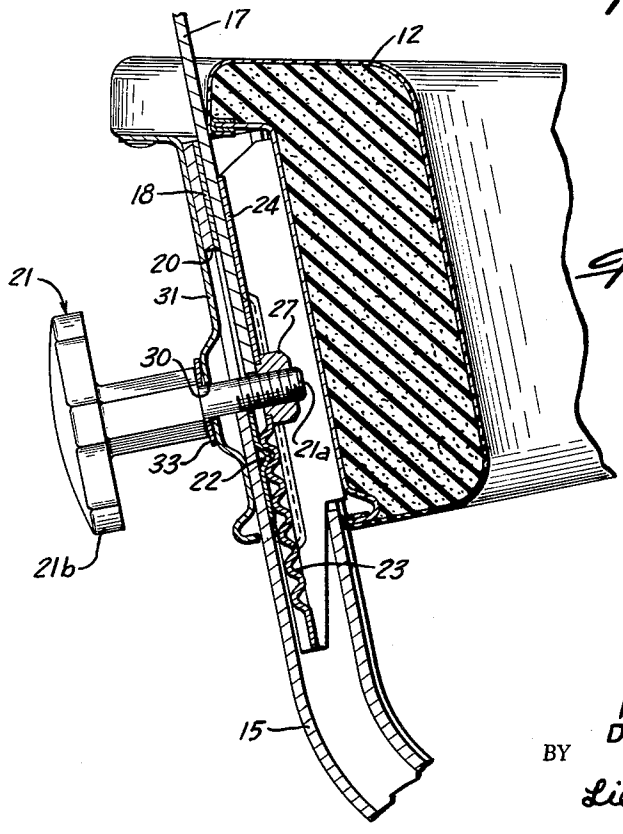

Fig. 3.

INVENTORS.
R. F. SWENSON
D. C. GALBRAITH

BY Lieber & Nilles
ATTORNEYS

Nov. 2, 1965 R. F. SWENSON ETAL 3,215,470

SEAT WITH ADJUSTABLE ELEMENTS

Filed May 22 1964

2 Sheets-Sheet 2

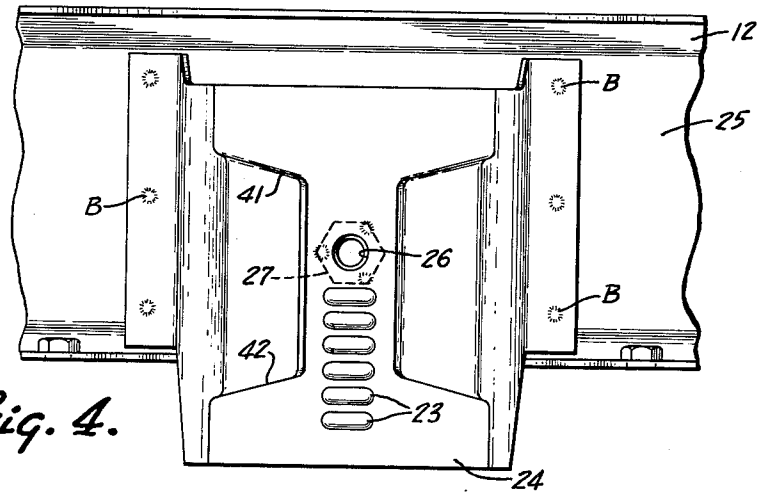

Fig. 4.

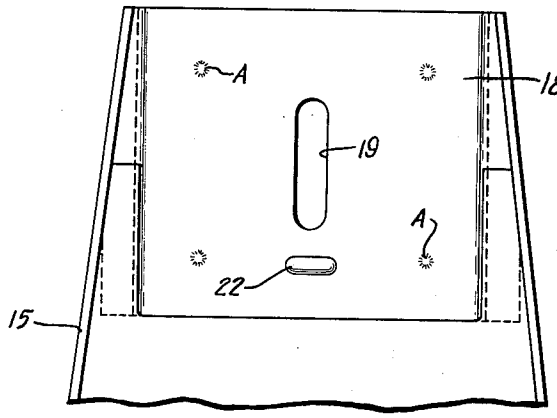

Fig. 5.

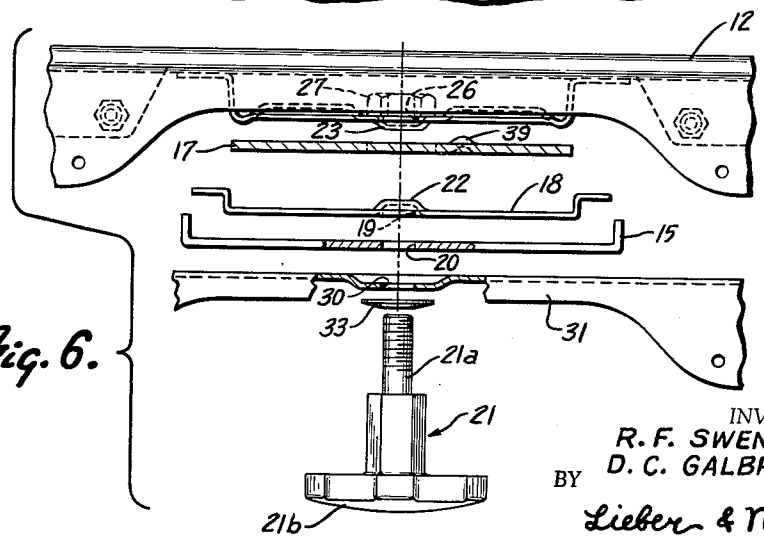

Fig. 6.

INVENTORS.
R. F. SWENSON
D. C. GALBRAITH
BY
Lieber & Nilles
ATTORNEYS

United States Patent Office 3,215,470 Patented Nov. 2, 1965

3,215,470

SEAT WITH ADJUSTABLE ELEMENTS

Richard F. Swenson and Donald C. Galbraith, Milwaukee, Wis., assignors to Milsco Manufacturing Co., Milwaukee, Wis.

Filed May 22, 1964, Ser. No. 369,514
9 Claims. (Cl. 297—353)

This invention relates to seating devices, and it relates more particularly to seating devices having adjustable back and arm rests manipulatable from a single adjustment device.

A primary object of the invention is to provide an improved adjustment device for back and arm rests associated with a seating device and in which one or both of the rests may be adjusted independently or concurrently from a single station.

Various adjustment devices for the back and arm rests of seats have heretofore been proposed, as shown, for example, in U.S. Patents No. 567,096, dated September 1, 1896, No. 1,007,985, dated November 7, 1911, No. 1,001,610, dated August 29, 1911, and No. 3,059,971, dated October 23, 1962. However, these prior art structures all required separate adjusting devices for each back and/or arm rest provided. In Patent No. 567,096, for example, each cushion rest is independently adjustable by separate means along a common supporting bar, while all of the other patents show seating devices wherein upper and lower back rests of cushions are separately mounted for independent adjustment by separate adjusting means.

The present invention provides an adjustment device wherein either or both of a pair of rests may be adjustably positioned either by independent or simultaneous manipulation of a single adjustment knob or device. Furthermore the prior art devices do not propose any structure whereby a plurality of rest members for a seat assemblage are carried on a single supporting member for coaction in a novel manner to provide for the adjustment of one or more of the rest members by a single adjustment device.

It is, therefore, another object of the invention to provide an improved adjustable device for the rest members of a seat assemblage which avoids the objections and disadvantages of the prior art as hereinabove set forth.

It is a further object of the invention to provide an improved adjustment device for adjusting a plurality of seat rests of a seat assemblage which allows for facile and efficient adjustment of said rests from a single adjustment station.

It is another object of the invention to provide an improved adjustment device for a seat whereby either one or both of two back rests may be readily adjusted either independently or together relative to a back support through the expedient of a single adjustment knob.

Still another object of the invention is to provide an improved adjustment means for adjusting a first and second cushioning means of a seat assemblage relative to the seat and relative to each other, the adjustment means being of simple and rugged construction while providing a ready adjustment for either or both of said cushioning means.

These and other objects and advantages of the invention will become apparent from the following detailed description.

A clear conception of the several features constituting the present invention may be had by referring to the drawings accompanying and forming a part of this specification, wherein like reference characters designate the same or similar parts in the various views.

FIGURE 1 is a side elevational view of a typical seating assemblage embodying the invention;

FIGURE 2 is a rear elevational view of the seating device of FIGURE 1;

FIGURE 3 is a somewhat enlarged fragmentary sectional view taken generally along line 3—3 of FIGURE 2;

FIGURE 4 is an enlarged fragmentary rear view of the lower back and arm rest member of the device removed from its support;

FIGURE 5 is an enlarged fragmentary rear view of the back support of the device; and

FIGURE 6 is an exploded plan view in partial section.

While the improvements have been illustrated and described as being especially advantageously embodied in a tractor seat structure, it is not intended to thereby unnecessarily limit or restrict the invention since the improved adjustment device may be used to like advantage in other seating devices. It is also contemplated that certain descriptive terminology used herein shall be given the broadest possible interpretation consistent with the disclosure.

Referring now to the drawings, FIGURES 1 and 2 disclose a seat assemblage **10** comprising a seat cushion **11**, a combined lower arm and back rest **12**, and an upper back rest **13**. The seat cushion **11** is carried on a base support **14** to which is attached an upright back rest support **15**. The seat support **14** may be provided with any suitable mounting means for attaching the seat to a pedestal **16** or the like carried by the tractor, or other vehicle. The lower combined arm and back rest **12** member is adjustable along the upright backrest support **15**, and the upper back rest **13** is also adjustable through its support member **17** which is slidable relative to support **15** as hereafter more fully described.

Reference is now made to FIGURE 5 wherein the upright back rest support **15** is shown with the attendant structure removed to clearly reveal the back rest support guide **18** secured thereto. As shown, the support and guide member **18** is attached to the upright support **15** as by spot welding or the like as indicated at A. An elongated slot or opening **19** in the guide member **18** is substantially coextensive with a similar slot **20** in the upright support **15**. The openings **19** and **20** are adapted to receive a threaded shank **21***a* of an adjustment member **21** having a gripping knob **21***b* on its outer end. The longitudinal extent of the slot **19** determines the amount of adjustment of the combined arm and back rest member **12** relative to support **15**. Subjacent the opening **19** is a detent or transverse recess **22** adapted to engage between a series of spaced transverse ribs **23** or the like formed in a frame member **24** secured to the integral arm and back rest unit **12** as by spot welding at locations B (see FIGURE 4).

The frame or mounting member **24** of FIGURE 4 is attached to a base plate **25** which serves as a frame for the combined arm and back rest **12**, and this frame **25** is padded or upholstered in the usual manner. An aperture **26** is formed in the frame member **24**, and a threaded nut **27** is welded or otherwise secured to the member **24** and adapted to receive the threaded shank **21***a* of the adjusting member **21**. The series of ribs **23** as formed in the member **24** lie below the aperture **26**, and the spaces intermediate each pair of adjacent ribs **23** are adapted to selectively receive the detent **22** of back rest support guide **18** dependent upon the desired position of the arm and back rest **12**.

Further reference is now made to FIGURE 2 wherein the upper back rest supporting or carrying member **17** is shown as provided with an elongated slot or downwardly open recess **17***a* to provide a bifurcated lower portion which is adapted to fit on both sides of the rib series **23** of the frame member **24** when the said back support is completely assembled.

Reference is now made to FIGURE 3 wherein a sectional view illustrates the assembled relation of the components constituting the adjustment of the lower arm and back rest units **12** and the upper back rest **13** relative to the upright support **15** and seat **11** and its support. Specifically, the threaded shank **21***a* of the adjustment member **21** is passed through an opening **30** in an outer plate **31** carried by the arm and back rest unit **12**. The opening **30** is provided in a raised portion of the plate **31** to offer desired resilience when the knob is tightened while also adding strength to the member **31**. A spring washer **33** is preferably interposed between member **21** and opening **30** to provide a bearing. The shank **21***a* is further passed through opening **20** in the upright support **15** and through opening **19** in supporting member **18** and then through opening **26** to threadably engage the nut **27** and thus maintain the lower arm and back rest unit **12** in a desired position of adjustment upon tightening of the adjustment member **21** in nut **27** with the detent **22** engaging a location between selected ones of the ribs **23**.

To provide for the support and adjustment of the upper back rest **13**, the bifurcated lower portion of its carrying member **17** is insertable between the frame member **24** and the back rest support member **18** with the slot or recess **17***a* straddling the ribs **23** and threaded shank **21***a* of the adjustment member **21**, the member **17** being thus adjustable longitudinally of the upright support **15**. The tightening of adjustment member **21** thus pulls the members **18** and **24** together to clamp the support member **17** therebetween in order to maintain the back rest **13** in a predetermined selected position. To limit the extent of movement of the member **17** and prevent inadvertent displacement of the upper back rest assembly, a stop **39** may be formed in the support **17** so as to coact with the upper and lower edges **41**, **42** of the frame member **24** of the lower arm and back rest unit.

Either the upper back rest **13** or the combined lower arm and back rest unit **12** may be adjusted independently by the loosening of adjustment member **21** and subsequent adjustment, or they may be adjusted simultaneously. The arm and back rest unit **12** is adjustable by loosening the member **21** and in causing detent **22** to engage between selected depressions between the ribs **23**, and the upper back rest member **17** is adjusted as by sliding the member **17** up or down to a selected position relative to the fixed upright support **15** within the limits of adjustment defined by the edges **41**, **42**.

Thus, a seat having a plurality of adjustable rests has been provided wherein each of the back rests is adjustable independently or together from a single adjustment station carried by the main back support of the seat.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

We claim:

1. A seat assembly comprising, a main frame having a rear upright support provided with an elongated slot, a lower back and arm rest member provided with a rear attachment element having a threaded socket, an upper back rest member having a depending support provided with an elongated slot alignable with the slot of said upright support, and an adjustment member having a gripping knob and a threaded shank extending through the slot of said upright support and the slot of said depending support of the upper back rest and threadably received in said socket for securing both said lower rest and said upper rest members in selected positions of adjustment relative to said upright support.

2. A seat assembly according to claim **1**, wherein the rear attachment element of the lower back and arm rest member is also provided with a series of ribs and the rear upright support has means coacting with said ribs to lock said lower rest member against displacement from adjusted position.

3. A seat assembly according to claim **2**, wherein the ribs formed in the attachment element are located below the threaded socket and provide spaced receiving grooves, and the locking means of the upright support includes a rib receivable within selected ones of said grooves.

4. A seat assembly according to claim **2**, wherein the locking means includes a plate secured to the upright support and having an elongated slot corresponding to that of said support, and said plate also having a rib receivable between selected ribs of the attachment element.

5. A seat assembly according to claim **1**, wherein the lower back and arm rest member is provided with a clamping plate having an aperture aligned with the threaded socket of the attachment element for receiving the shank of the adjustment member.

6. A seat assembly according to claim **5**, wherein the clamping plate is mounted for flexing movement relative to the attachment element upon tightening of the adjustment member.

7. A seat assembly comprising, a main frame having a rear upright support provided with an elongated slot, a lower back and arm rest member provided with a rear attachment plate having a threaded socket, a clamping plate secured to said lower back and arm rest member in spaced relation to said attachment plate, said clamping plate having an aperture aligned with said threaded socket, and said upright support being received between said attachment plate and said clamping plate, an upper back rest member having a supporting leg provided with a downwardly open elongated slot alignable with the slot of said upright support, the slotted portion of said upper back rest supporting leg being received between the upright support and the attachment plate of said lower back and arm rest member, and an adjustment member having a gripping knob and a threaded shank extending through the aperture of said clamping plate and the slots of said upright support and said depending supporting leg for threaded engagement with the socket of said attachment plate for securing both said lower rest and said upper rest members in selected positions of adjustment relative to said upright support.

8. A seat assembly according to claim **7**, wherein the clamping plate is secured to the lower rest member at its upper end for flexing movement relative to the attachment plate upon manipulation of the adjustment member.

9. A seat assembly according to claim **7**, wherein the attachment plate and the upright support have interlocking portions for preventing displacement of the parts from their adjusted positions.

References Cited by the Examiner

UNITED STATES PATENTS

2,485,111	10/49	Robins	297—284 X
2,577,050	12/51	Van Buren	297—353 X
3,027,194	3/62	Rumptz	297—410
3,059,970	10/62	Angell et al.	297—353
3,059,971	10/62	Becker	297—353

FRANK B. SHERRY, *Primary Examiner.*