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 rest 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 assembly 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 assembly 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 assembly 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 assembly 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 assembly 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 assembly 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 21a of an adjustment member 21 having a gripping knob 21b 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 21a 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 17a 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 21a 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 21a 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 17e straddling the ribs 23 and threaded shank 21a 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 brought in the support 17 so as to coast with the upper and lower edges 41, 42 of the frame member 24 of the 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 attachment 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.

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