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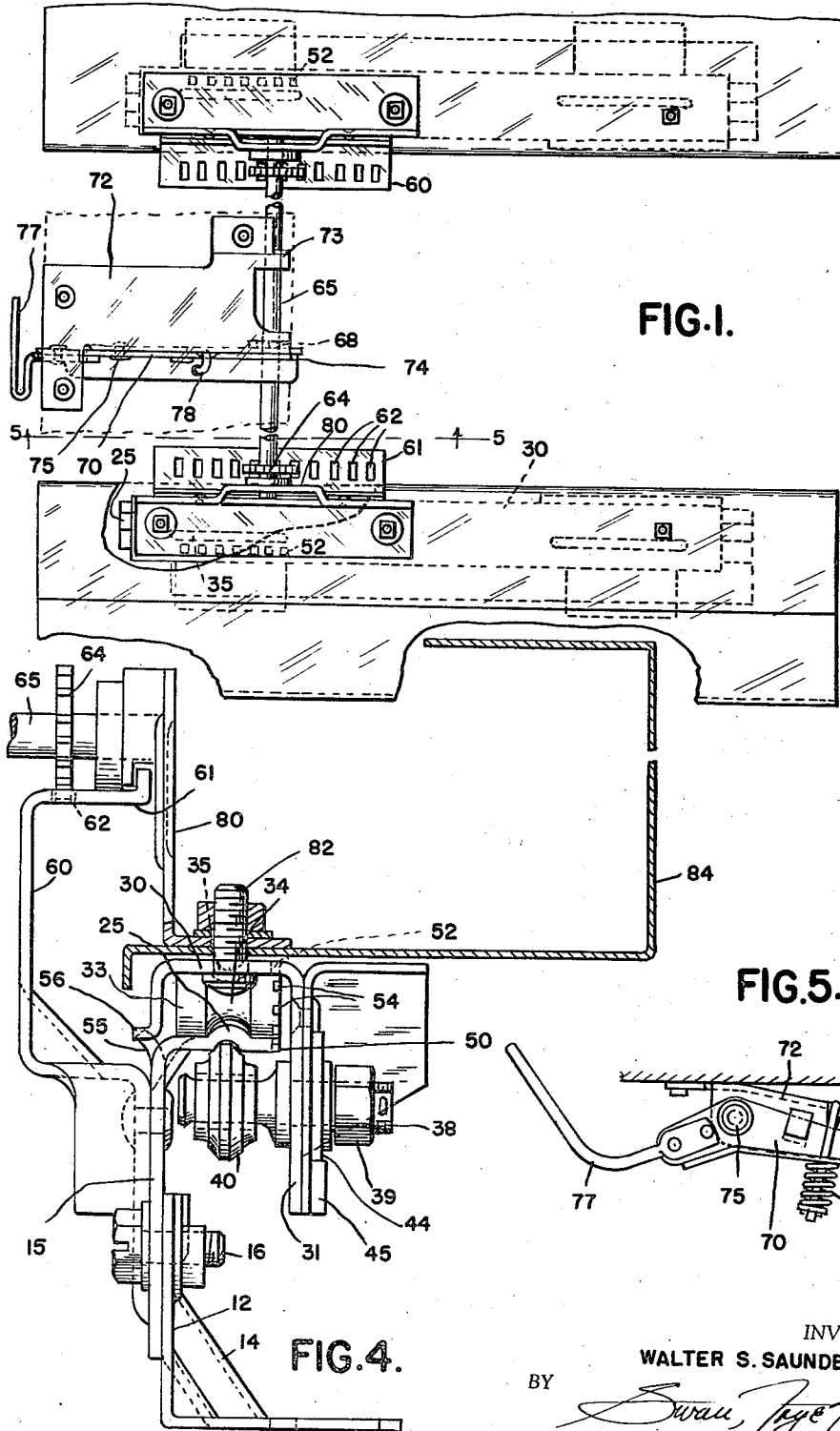
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2,235,239

ADJUSTABLE SUPPORT

Filed Oct. 9, 1939

2 Sheets-Sheet 1



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FIG.2.

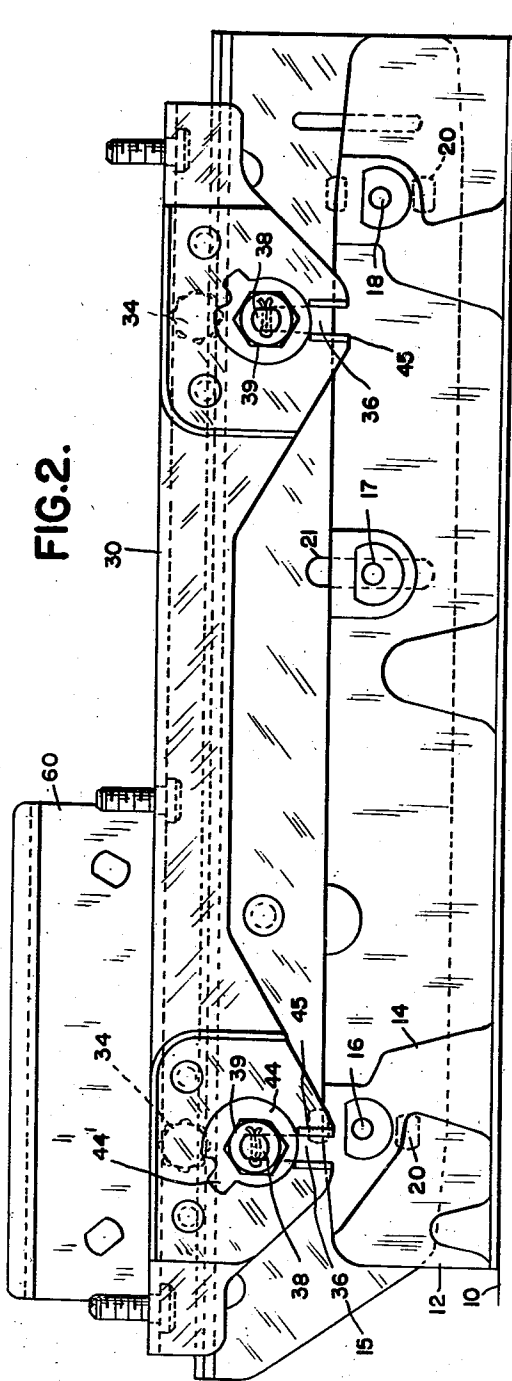
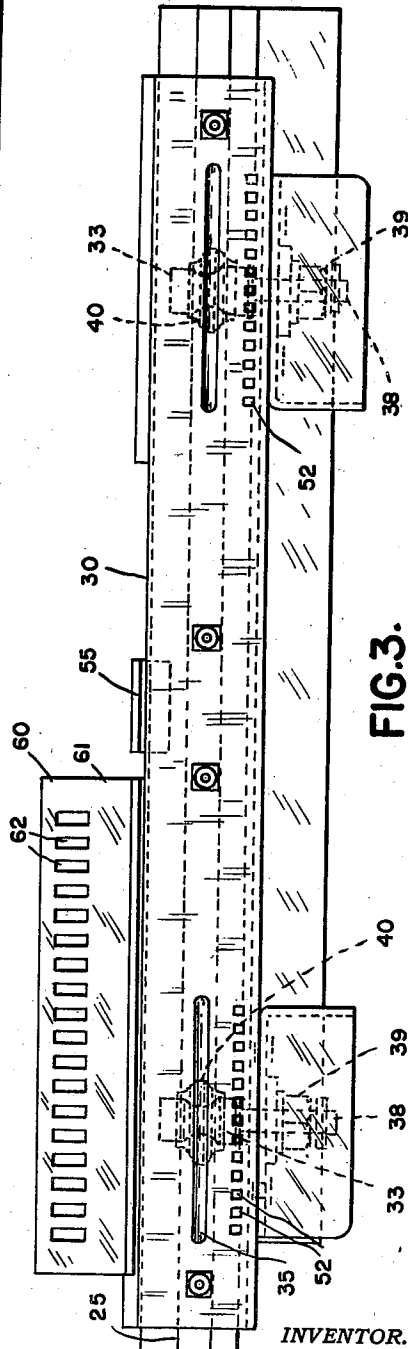


FIG.3.



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## UNITED STATES PATENT OFFICE

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## ADJUSTABLE SUPPORT

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Application October 9, 1939, Serial No. 298,591

4 Claims. (Cl. 155—14)

This invention relates to an improved adjust-  
able supporting device, especially adapted to the  
mounting of vehicle seats, although equally ap-  
plicable to the support of virtually any other ob-  
ject desired to be held in such manner that it  
may easily be moved at will, yet is normally held  
very rigidly in position, against all possibility of  
unwanted travel, lost motion and/or rattling.

An important object of the invention is to pro-  
vide such a supporting mechanism which is  
adapted to be constructed and assembled in a  
most economical manner, and which is formed  
principally of simple stamped sheet metal parts.  
Another object is to provide such a support which  
permits convenient independent adjustment of  
the height and the longitudinal position of the  
seat, or other supported object, and which is  
equipped as well with novel, simple and very ef-  
fective take-up means whereby lost motion be-  
tween the parts is eliminated, which take-up  
means is, furthermore, readily adjustable after  
the device has gone into service, to enable taking  
up any play which may result from wear during  
use of the device.

Other objects and advantages will be apparent  
from the following description, wherein reference  
is made to the accompanying drawings illustrat-  
ing a preferred embodiment of my invention and  
wherein similar reference numerals designate sim-  
ilar parts throughout the several views.

In the drawings:

Figure 1 is a plan view of seat supporting means  
constructed in accordance with the present in-  
vention, with the synchronizing cross shaft partly  
broken away and the seat removed, except for a  
fragment of the base thereof which is shown in  
dotted lines in connection with the locking mech-  
anism.

Figure 2 is a side elevational view of one of  
the two supporting assemblies which constitute  
the complete mechanism, the synchronizing shaft  
and its supporting means and the seat supporting  
bracket being omitted.

Figure 3 is a plan view thereof.

Figure 4 is a front elevational view of the sup-  
porting assembly.

Figure 5 is a section taken substantially on the  
line 5—5 of Figure 1, and looking in the direc-  
tion of the arrows, showing the locking mech-  
anism in side elevation.

Referring now to the drawings:

It will be understood that two complete sup-  
porting assemblies are employed, one located be-  
neath each end of the seat, in the position now  
regarded as conventional. Since the two units

are alike, though symmetrically opposite in their  
construction, a full description of one will suffice.  
The relative disposition of the two assemblies  
and the centrally located locking mechanism is  
shown in Figure 1.

Attachment to the floor 10 or other platform  
upon which the seat is to be mounted is effected  
by elongated angle brackets 12, one for each as-  
sembly. These are provided with stiffening ribs  
14 and a plurality of apertures (undesigned) 10  
through which extend bolts 16, 17, 18. A track  
element of similarly elongated angle section is se-  
cured to the support 12 by the bolts 16, 17, 18.  
The front and rear bolts, 16, 18, are projectable  
through any one of a plurality of vertically spaced  
holes 20 in the track element, while a vertical slot  
21 accommodates the central bolt 17. It will be  
seen that by removing the front and rear bolts  
and loosening the central bolt, the track may be  
raised or lowered to adjust the height of the seat.

The top flange of the track element is sub-  
stantially horizontal and provided with an up-  
wardly projecting longitudinal rib 25, rolled or  
otherwise formed in the sheet metal, so that it  
also provides a trough upon the underside. A  
carriage 30 is mounted upon rollers 33 arranged  
to travel along the top of the track, the central  
portions of such rollers being peripherally chan-  
neled as indicated at 34 to provide an interlock  
with the track-rib 25 which prevents lateral dis-  
placement of the rollers. A downwardly project-  
ing rib 35 in the track is similarly interengaged  
with the peripheral channel 34 in the roller, to  
positively locate the carriage against lateral dis-  
placement. The carriage will be seen to be of in-  
verted channel form, with one side flange, desig-  
nated 31, projecting downwardly beside and below  
the track flange. In downwardly projecting  
flange 31 vertical slots 36 are provided which per-  
mit vertical adjustment of the positioning of the  
stub shafts, 38, upon which the take-up rollers 40  
are mounted.

The take-up rollers 40 underengage the track  
flange and are shaped to fit into the channel  
formed by the hollow rib 25, the outer end of the  
stub shafts 38 upon which the rollers are jour-  
naled being threaded to receive nuts 39 by which  
they are clamped in place. Held upon each  
stub shaft between the nut and carriage is a flat  
sheet metal cam 44, rotatable upon the shaft  
when the nut is loosened and adapted to bear  
downwardly against a pair of lugs 45 turned out-  
wardly on either side of the slot 36 from the metal  
of the carriage. An ear 44' projecting radially  
from the cam permits the same to be turned by

a spanner wrench or other suitable tool. This permits the shaft 38 to be forced upwardly to drive the rollers 40 against the bottom of the track with great pressure, thereby drawing the carriage down upon the rollers 34 with like pressure, and taking up all clearance between the moving parts.

A series of notches 50 is formed along the free edge of the track flange, and a similarly spaced series of holes 52 is formed in the carriage directly thereabove. Tooth-forming projections 54 upon the periphery of the rollers 25 mesh with the openings 50, 52, thus providing a geared connection between the track and carriage.

Travel of the carriage with respect to the track is limited by a lug 55 pressed from the middle of the track and projecting angularly upwardly therefrom in position to be engaged by downwardly projecting shoulder portions 56 carried by and near either end of the carriage to limit the travel thereof at desired points.

A channel-shaped rack element 60 is riveted or otherwise secured to the side of the track and projects upwardly therefrom, its horizontal flange 61 being serially perforated as indicated at 62 to provide rack teeth engageable by a pinion 64. Since each track is provided with such a rack, one pinion is provided for each, and the carriages of the two supporting assemblies (shown in Figure 1) are interconnected by a cross shaft 65, each end of which is secured to one of such pinions. The shaft at each end projects through and is journaled in a suitably positioned aperture (undesignated) in an angle bracket 80, bolted to the top of the carriage by bolts 82 which also serve to secure in place the seat frame 84. This will be seen to insure synchronized movement of the two carriages.

Fast upon a central portion of the shaft is a ratchet wheel 68, selectively engageable and releasable by a pawl 70 pivoted upon a sheet metal bracket 72 secured to the underside of the seat frame. The bracket is provided with hook-like half round bearing portions 73, 74, so disposed as to hold the shaft against deflection throughout a full 360°, yet adapted to be applied to the shaft by simply hooking the same thereover. The construction of these parts corresponds to that of the dogging mechanism disclosed in copending application of Thomas A. McGregor, Serial No. 84,144, filed June 8, 1936. The pawl, fulcrumed upon a shoulder rivet 75, projects forwardly from the seat to carry an operating handle 77 by which it may conveniently be manipulated to enable releasing the shaft at will, although the pawl is normally held in the engaged position, in which it locks the shaft against turning, by means of a spring 78.

It will be appreciated that when the pawl is released, the seat may be moved freely to front or rear, synchronization of the movement of both carriages being assured by the geared connection provided through the agency of the cross shaft and racks 60.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not

restrictive; reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. In a supporting device for seats and the like, in combination with a track having a substantially horizontal flange, a carriage rollable over said track flange and having a web portion extending downwardly beside and below said flange, said web portion having a slot therein extending transversely of said flange, a take-up roller carried by said web and underengaging said flange, means for adjustably supporting said take-up roller for movement to and from said flange, including a stub shaft adjustably mounted in said slotted portion of said web portion, releasable means for rigidly holding said stub shaft against unwanted movement, and cam means reacting against said stub shaft and web portion for forcing said stub shaft in a desired direction with respect to said web.

2. In a supporting device for seats and the like, in combination with a track having a substantially horizontal flange, a carriage rollable over said track flange and having a web portion extending downwardly beside and below said flange, said web portion having a slot therein extending transversely of said flange, a take-up roller carried by said web and underengaging said flange, means for adjustably supporting said take-up roller for movement to and from said flange, including a stub shaft adjustably mounted in said slotted portion of said web portion, releasable holding means for rigidly securing said stub shaft against unwanted movement, a cam rotatably mounted on said stub shaft and adapted to react against a portion of said web portion to force said stub shaft in a desired direction with respect to said web portion, said holding means being arranged to hold said cam against unwanted movement, and to free both the cam and said stub shaft when released.

3. In a supporting device for seats and the like, in combination with a track having a substantially horizontal flange, a carriage rollable over said flange and having web portions extending downwardly beside and below said flange, said web portions having a plurality of substantially vertical slots therein, take-up roller means carried by said web portions and underengaging said flange, a stub shaft adjustably mounted in each of said slots for supporting each of said rollers, a nut on each stub shaft for holding the same against unwanted movement in its slot, and a cam rotatably carried by each stub shaft between the nut and the web and reacting against a portion of said web, whereby both the cam and the stub shaft are held when the nut is tightened, while when the nut is loosened, the cam is rotatable and the stub shaft slidable in the slot.

4. Means as set forth in claim 1 in which said take-up roller and flange are adapted to interfit and thereby to key the carriage and track against unwanted lateral movement with relation to each other, said take-up roller being movable out of such interfitted relation with said flange when said holding means for the stub shaft is released.

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