June 20, 1967 J. L. LEWERY 3,326,170

MAIN SHEET OR LIKE SLIDERS

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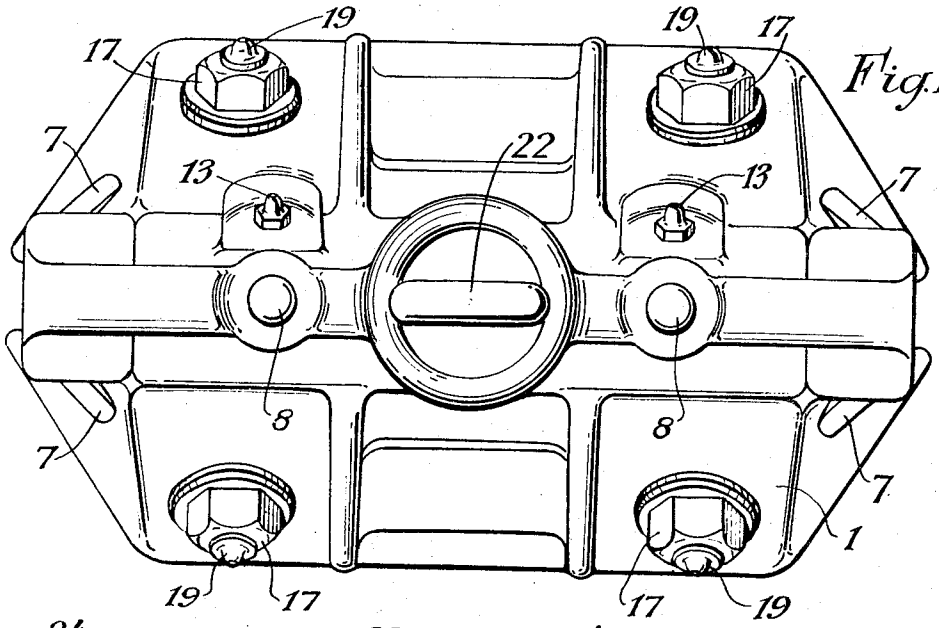


Fig. 1.

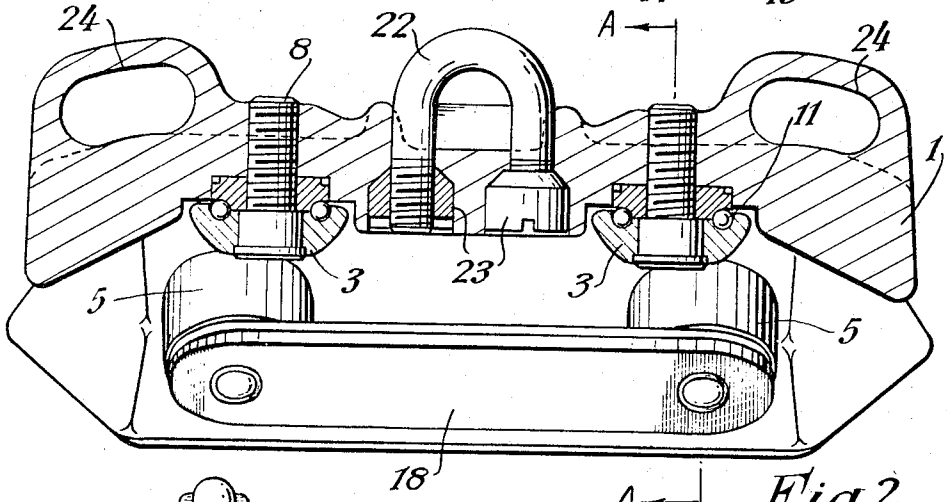


Fig. 2.

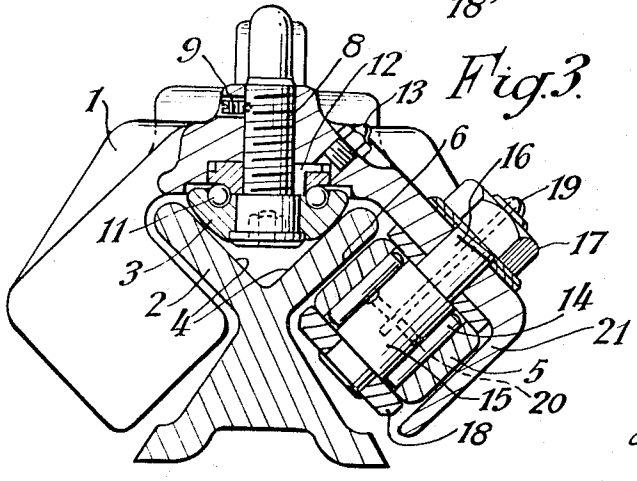


Fig. 3.

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MAIN SHEET OR LIKE SLIDERS

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This invention relates to main sheet or like sliders for use on sailing boats, sailing yachts and the like, the slider in accordance with the present invention including a traveller and its associated track being designed to operate satisfactorily with a minimum of friction whilst heavily loaded.

The track when in use lies athwartship and it will be appreciated that in the case of a main boom, very heavy loads are transmitted via the main sheet to the traveller, the direction of the applied load changing with every variation in angle of the main boom and its associated sheet. Consequently the track and its associated traveller are called upon to operate satisfactorily under very difficult conditions and over a wide range of angularly applied loads of varying intensity, the loads in the case of a large sailing boat or sailing yacht being considerable. Whilst primarily intended for use on large sailing boats or yachts the invention is also applicable to a certain extent to smaller boats utilizing sliders.

A slider in accordance with the present invention includes a track of substantially V shape and an associated traveller slidable lengthwise of the track and having means for connection with a sheet, for example the main sheet, the traveller straddling the track and being fitted with rollers or recirculating balls which engage the outer faces of the V track and one or more of the inner faces of the track.

The track preferably has a 90° angle in cross-section, the rollers or re-circulating balls being suitably spaced throughout the length of the traveller.

With such an arrangement, when the load is vertical or substantially vertical, as for example when the yacht is close hauled, the load will be taken by the rollers or the like engaging the outer faces of the V track and when the angle of the sheet is considerable, as for example when running before the wind, the rollers or the like engaging the inner faces of the track will take a considerable proportion of the load, i.e. when the load is oblique to the traveller and its associated track.

In this way the load will be distributed over the rollers or the like irrespective of the angle at which it is applied, and consequently the traveller will operate with a minimum of friction.

Preferably the track takes the form of a rolled or extruded section adapted for mounting upon pedestal or other type of supports for attachment to the deck or other fixed part or is so shaped in cross-section as to include such a support which in turn can be bolted to the deck, the V shaped part of the track in either case lying clear of the deck so as not to interfere with the free sliding movement of the traveller.

Referring to the accompanying drawings:

FIGURE 1 is a plan view of a main sheet traveller in accordance with the invention;

FIGURE 2 is a longitudinal vertical section of same on the centre line;

FIGURE 3 is a transverse section on the line A—A in FIGURE 2, the traveller being shown mounted in position on its associated track.

In one embodiment of the invention illustrated the traveller **1** is shaped to straddle the V shaped track **2** and carries spaced centrally positioned V shaped rollers **3** which can engage either of the inner surfaces **4** of the V track under the applied load and oppositely arranged longitudinally spaced cylindrical wing rollers **5** which depend downwardly from the under surface of the traveller and engage the outer under surfaces **6** of the V track.

The traveller may take the form of a light weight alloy casting slotted at **7** at its opposite ends to receive the limbs of the V shaped track.

Rollers **3** are mounted on vertical spindles **8** locked in position by grub screws **9**, each spindle **8** carrying a hardened steel race member **10**, ball type bearings **11** running in annular grooves in the member **10** and roller **3**. Each member **10** is cut away at **12** to form a grease duct, lubricant being supplied via a greasing nipple **13**.

The cylindrical rollers **5** revolve about needle type bearing members **14**, the needle bearing members enclosing an enlarged diameter part **15** of a spindle **16** secured by a nut **17**, each pair of spindles being connected by a strap **18**. Each spindle carries a greasing nipple **19** from which grease is distributed to the bearings by grease ducts **20**.

The traveller is closed at its ends except where it is cut away for the entry of the track and is formed with downwardly converging side flanges **21**, which protect the cylindrical rollers **5**.

In the construction shown two spaced V shaped rollers are employed and two pairs of spaced cylindrical rollers. The V shaped rollers are preferably adjusted with shim washers to give a small clearance between the rollers and track so that under any loading conditions only four of the six rollers will engage the track thus minimising friction.

The traveller is fitted at its centre with a removable and adjustable loop **22** for the attachment of a block or the like for the main sheet, the limbs of the loop being threaded to receive securing nuts **23** which are accessible when the traveller is removed from the track.

The traveller is formed with additional end loops **24** to receive ropes or lashings if required.

The load to the traveller via the sheet will tend to twist the traveller on the track but the load will be applied to the track through all the appropriate rollers, thus enabling the traveller to slide freely on the track with a minimum of friction. For example when the load is vertical, the outer wing rollers will take the load, and when the load is oblique the central rollers will assist in taking the load in conjunction with the opposite wing rollers.

Instead of using tapered rollers having the same angle of taper as the angle of the V track, cylindrical rollers may be used engaging one inside surface of the track, i.e. the surface engageable by the rollers when the load is at an oblique angle and in a particular general direction.

The track illustrated has a 90° angle in cross-section and is preferably fitted with adjustable stops carrying rubber buffers to limit movement of the traveller.

I claim:

1. A slider including a track of substantially V shape having inner and outer faces, an associated traveller slidable lengthwise of the track, said traveller having means for connection with a sheet, and straddling the track, and means fitted to said traveller for engagement with the outer faces of the track and at least one of the inner faces of the track.

2. A slider according to claim **1**, comprising rollers fitted to the traveller for engagement with the outer and at least one inner face of the track.

3. A slider according to claim **1**, comprising recirculating balls fitted to the traveller for engagement with the outer and at least one inner face of the track.

4. A slider according to claim **1**, said last mentioned means including V type rollers engageable with at least one inner face of the track and cylindrical rollers engageable with the outer faces thereof.

5. A slider according to claim **1**, said last mentioned means including a pair of V type rollers engageable with

at least one inner face of the track and two pairs of spaced cylindrical rollers engageable with the outer faces of the track.

6. A slider according to claim **4**, said V type rollers being axially adjustable whereby only a predetermined proportion of the rollers is in contact with the track faces when the traveller is under load.

7. A slider according to claim **2**, said rollers running on bearing means.

8. A slider according to claim **1**, said traveller completely embracing that part of the V track on which it is arranged to lie and the end of the traveller being slotted for the passage of the V track therethrough.

No references cited.

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