United States Patent [19]

Dumont

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[45] **June 26, 1973**

[54] **HITCHING ATTACHMENT FOR A SNOWMOBILE**

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[52] **U.S. Cl.** **280/24**

[51] **Int. Cl.** **B62b 13/00**

[58] **Field of Search** 280/24, 503, 483, 280/486; 211/105.6, 86

[56] **References Cited**

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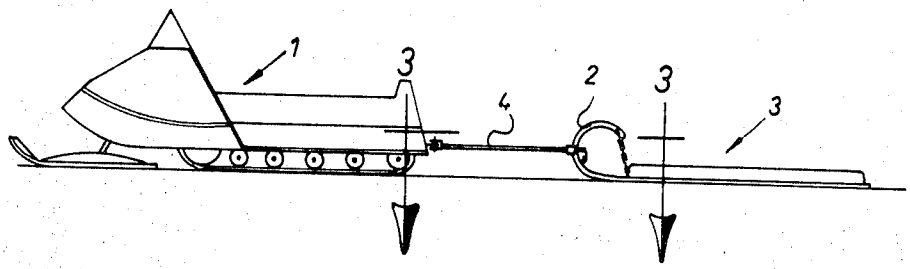
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[57] **ABSTRACT**

A hitching attachment to be fixed to a snowmobile and arranged to tow a sled and, more particularly, a tobaggan. A hitching attachment having a pair of grips arranged to engage the opposite lateral sides of the curved front portion of a toboggan and arranged to be displaced relative to one another to grip toboggans of different widths. The grips are slidably mounted for transverse displacement to allow lateral shifting of the sled or toboggan and a spring engages the grips to bias the toboggan towards a neutral position. A tying line of adjustable length and tension provided with a toggle clasp joins the two grips to hold the same into firm engagement with the above lateral sides. A towing bar arranged to be pivotally connected to a snowmobile and to said grips to allow various movements of the towed toboggan relative to the towing snowmobile.

2 Claims, 11 Drawing Figures



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SHEET 1 OF 3

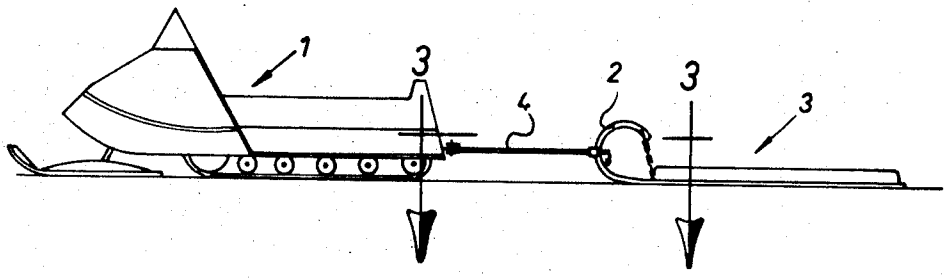


FIG.1

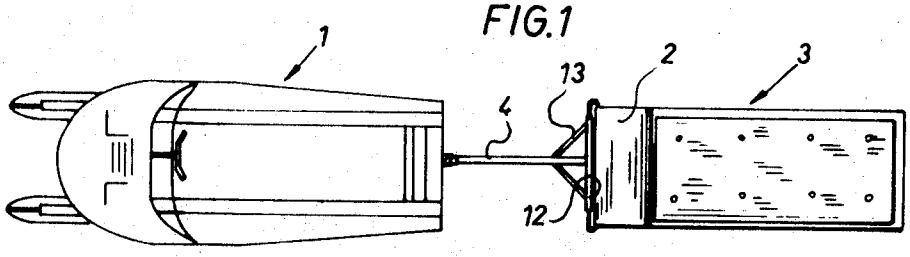


FIG.2

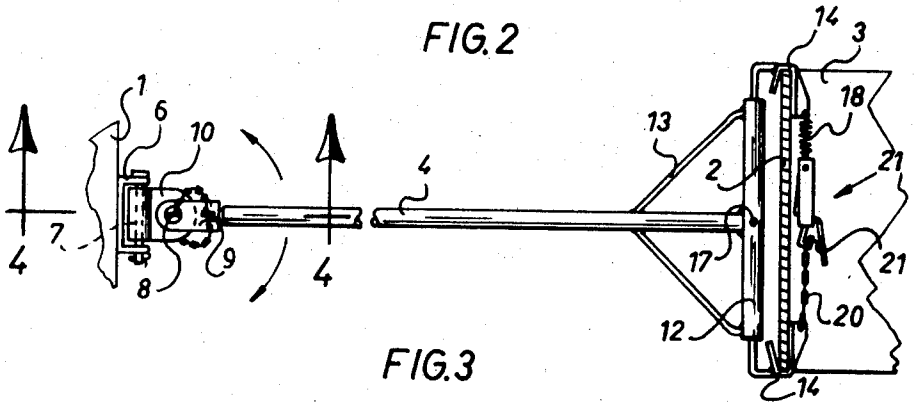


FIG.3

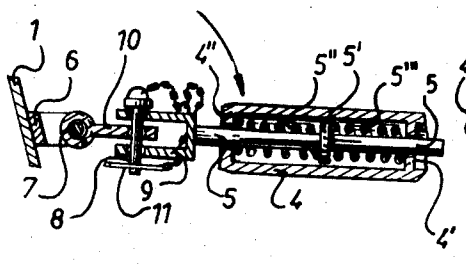


FIG.4

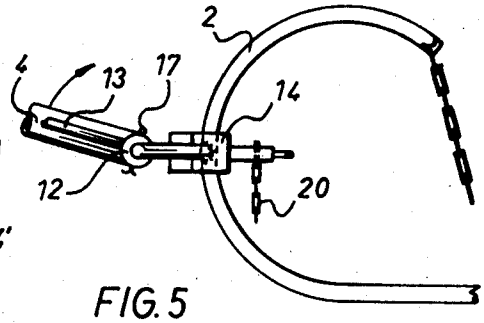


FIG.5

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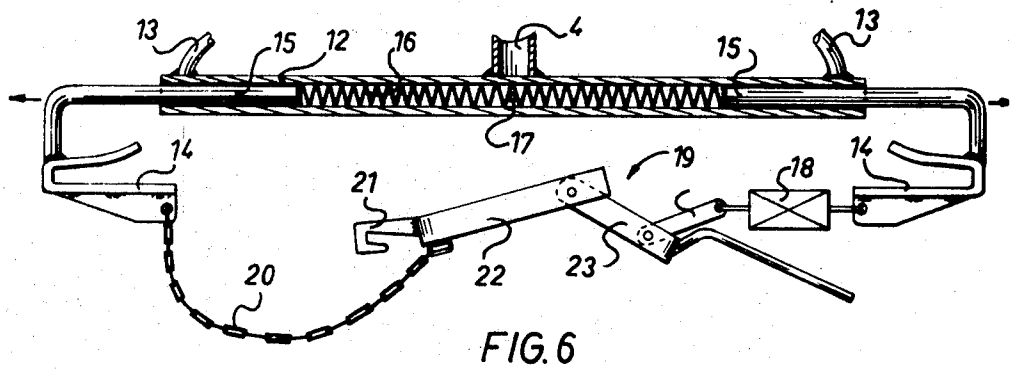


FIG. 6

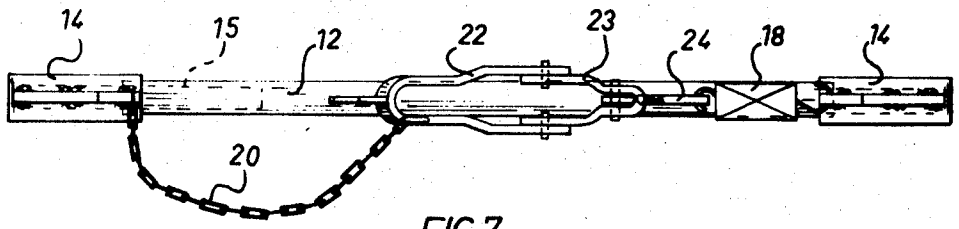


FIG. 7

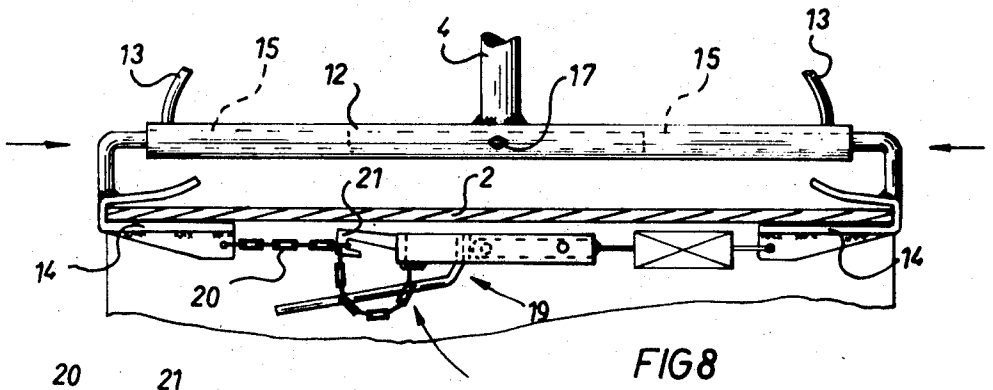


FIG 8

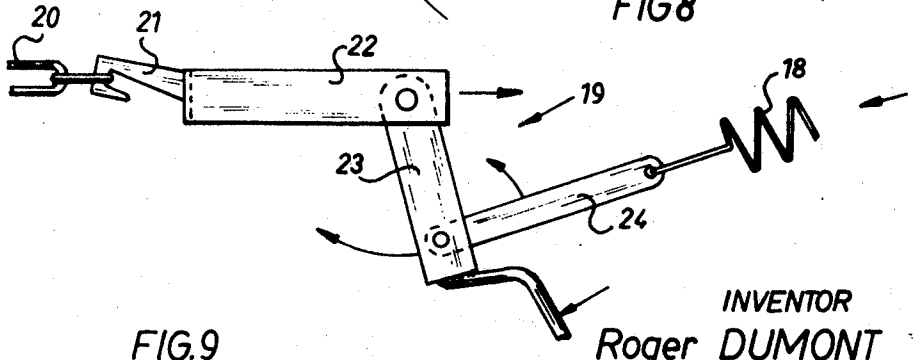


FIG. 9

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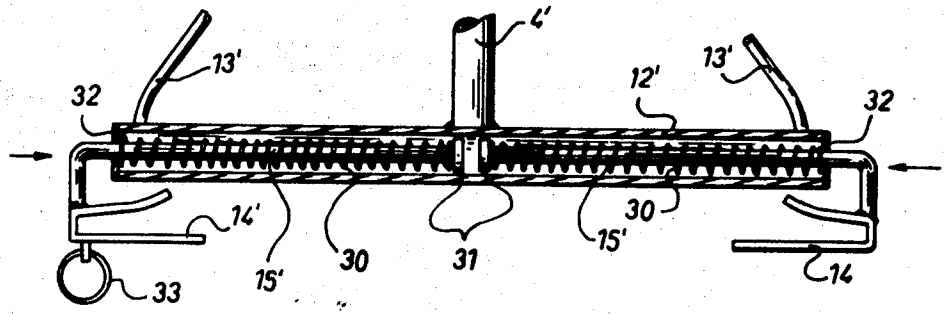


FIG.10

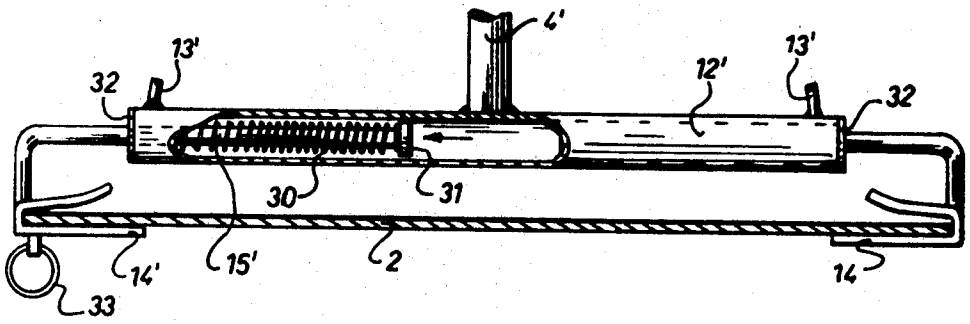


FIG.11

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HITCHING ATTACHMENT FOR A SNOWMOBILE

This invention relates to a hitching attachment and, more particularly, to a hitching attachment for a snowmobile of the type adapted to tow a sled and in particular a toboggan.

The existing towing attachments for snowmobiles to tow a sled and in particular a toboggan are found unsatisfactory and represent safety hazards. This is particularly the case with the use of a flexible line, such as a tow cable, since the latter does not positively tow the toboggan and the latter may, for instance, bump the rear of the snowmobile and may get off the trace thereof and overturn.

It is a general object of the invention to provide a hitching attachment of the above type, which substantially avoids the above disadvantages and which is of generally safe use.

It is another general object of the invention to provide a hitching attachment of the above type which positively tows and stops the associated toboggan or other sled and which allows the latter to follow the trace of the towing snowmobile.

It is another object of the invention to provide a hitching attachment of the above type with a towing bar arranged to be operatively connected to maintain the associated snowmobile and toboggan or other sled in spaced-apart relationship and to allow autonomous pitch, yaw and roll pivoting of one relative to the other.

It is a further object of the invention to provide a hitching attachment of the above type, which has connections which are adjustable for toboggans or other sleds of various widths.

It is another object of the invention to provide a hitching attachment of the above type, which has connections allowing sidewise displacement of the toboggan or other sled independently of the towing snowmobile.

The present invention will now be described in detail with reference to a preferred embodiment illustrated, by way of example only, in the accompanying drawings, in which:

FIGS. 1 and 2 are side and top views respectively illustrating a hitching attachment according to the invention interconnecting a toboggan to a snowmobile;

FIG. 3 is a cross-sectional view as seen along line 3—3 in FIG. 1;

FIG. 4 is a cross-sectional view as seen along line 4—4 in FIG. 3;

FIG. 5 is a side view illustrating the connection of the hitching attachment to a toboggan;

FIG. 6 is a detail view partly in cross-section of a connection at one end of the hitching attachment;

FIG. 7 is an end view of the connection illustrated in FIG. 6;

FIG. 8 is a view showing the connection of FIG. 6 in operative gripping engagement with a toboggan;

FIG. 9 is an enlarged view of a toggle clasp forming of the connection of FIG. 6; and

FIGS. 10 and 11 are partial plan views, partly in longitudinal section, of a modified embodiment of the hitching attachment of the invention, in released position and in attached position, respectively.

As generally represented in FIGS. 1 and 2, the hitching attachment according to the invention is operatively connected to the rear portion of a snowmobile 1 and to the curved front portion 2 of a toboggan 3.

The illustrated hitching attachment includes a tubular towing bar 4 rotatably mounted about its longitudinal axis by a pivot 5 extending axially into one end thereof. The pivot 5 has a collar 5' intermediate its ends. A link 9 is secured to the outer end of pivot 5, while its inner end has a sliding fit within an annular washer 4' protruding inside tubular bar 4 at a distance from restricted head end 4'' of said bar 4.

Compression coil springs 5'' and 5''' surround pivot 5 on each side of collar 5' to abut said collar and head end 4'' for spring 5'' and said collar and washer 4' for spring 5'''. Head end 4'' is normally spaced from link 9. The arrangement forms a shock absorber device to permit easy start of snowmobile 1 and prevent shock transmission between the snowmobile and the toboggan 3. A bracket or support member 6, of any appropriate shape, is fixed against the rear of the snowmobile 1 to form a support for a transversely extending pivot 7. An upright pivot 8 is also provided to interconnect a pair of links 9 and 10, also pivotally mounted on the pivots 5 and 7 respectively. The three pivots are orthogonally arranged relative to each other to allow pitch, yaw and roll displacement of the tubular towing bar 4 relative to the snowmobile 1. A cutter pin 11, retained captive by a chain, is provided to secure the upright pivot 8 against accidental disengagement and to allow connection of the hitching attachment to a snowmobile 1 by the pivot pin 8.

A tubular member 12 is welded, or otherwise fixed, to the other end of the towing bar 4 and extends laterally on both sides thereof. A pair of braces 13 rigidly hold the tubular member 12 relative to the tubular towing bar 4. A grip or hook 14, of suitable shape, is provided on each side of the curved front portion 2 of the toboggan 3 and is arranged to engage the opposite lateral sides thereof, as shown in FIGS. 3, 6, and 8. Each grip or hook 14 has a cylindrical rod portion 15 pivotally and slidably engages into one end of the tubular member 12. A compression spring 16 is inserted inside the tubular member 12 in engagement with the inner ends of the cylindrical rod portions 15 to urge the grips 14 away from each other. A pin 17 extends through the tubular member 12 to engage and retain the spring 16 transversally centered relative to the towing bar 4.

A tension spring 18 is attached to one end to one grip or hook 14 and is attached at its other end to a toggle clasp 19. A chain 20 is attached to the other grip 14 and the clasp 19 includes a hook 21 arranged to engage into one or the other of the chain links to adjust the length of the tying line formed by the tension spring 18, the clasp 19 and the chain 20. The toggle clasp 19 includes a clevis 22, a toggle lever 23 and a traction lever 24, the latter two being constructed and arranged to engage inside the clevis 22 and to thereby lock the grips 14 in engagement against the opposite lateral sides of the curved front portion of a toboggan. Obviously, the grips 14 may be formed to similarly engage the front portion of a different type of sled or the latter may be provided with an upright front board for the engagement of the grips 14 therewith.

It should be noted that the towing bar 4 positively tows the associated sled which is prevented from bumping the rear of the snowmobile or to continue its course upon even abrupt deceleration of the snowmobile.

The sliding arrangement of the cylindrical rod portions 15 into the tubular member 12 allows both, variation of the space between the two grips 14 to accom-

modate toboggans or other sleds of different widths; it also allows transverse lateral displacement relative to the towing bar **4**, of the grips **14** and of the operatively associated sled against action of spring **16**. The hitching attachment urges the sled to follow the trace of the towing snowmobile. The compression spring **16** serves to bias the grips and the associated sled towards a neutral laterally intermediate position, that is the central or mid-point of the tubular member **12**. The cylindrical rod portions **15** are pivotable into the tubular member **12** to allow pivotal pitch movement of the sled relative to the towing bar.

It can therefore be seen that the toboggan, or other sled, is positively and safely towed while permitting autonomous pitch, yaw and roll pivoting thereof.

FIG. **10** shows a modified and simpler embodiment of the invention. In this embodiment, the typing means have been eliminated, that is the tension spring **18**, the toggle clasp **19** and the chain **20**. As in the first embodiment, the rear end of the tubular towing bar **4'** is welded, or otherwise rigidly secured, to the center point of a laterally extending tubular member **12'** and the connection is reinforced by braces **13'** secured to the towing bar **4'** and to the laterally extending tubular member **12'**.

As in the first embodiment, the grips or hooks **14'** are rigidly secured to the outer end of associated L-shaped rod portion **15'** slidably and axially mounted within laterally extending tubular member **12'**. Instead of having a compression spring **16** disposed between the ends of rod portions **15** and urging the same apart, there are provided, in accordance with the second embodiment, two compression springs **30** surrounding the associated rod portion **15'** abutting at one end against the head **31** formed at the inner end of the associated rod portion **15'** and abutting, at the other end, a shoulder **32** formed at each outer end of laterally extending tubular member **12'**. The two compression springs **30** are of substantially equal strength and urge the grips **14'** inwardly towards each other. If desired, a ring **33**, or other handle member, is attached to one of the grips to facilitate pulling the same outwardly relative to member **12'** against the action of the compression spring **30** associated therewith; in practice, the grip **14'** not provided with the handle member **33** is first engaged with the front of the toboggan and then handle **33** is pulled outwardly, so that its associated grip will clear the other side of the toboggan front in order for the grip to engage the latter when the handle **33** is released.

The springs urging the two grips towards each other positively maintain the grips in engagement with the toboggan front portion. The springs being of substantially equal force resiliently maintain the sled in a neutral laterally intermediate position, that is with the long axis of the toboggan substantially coincident with the axis of towing bar **4'**.

The modified embodiment is simpler than the first embodiment in that it eliminates the tying means which have to be provided with the compression spring arrangement **16** is used, because the latter urges the grips away from each other.

I claim:

1. A hitching attachment for a snowmobile comprising a towing bar means having opposite ends, a pivotal connection means provided at one of said ends of said towing bar means and arranged to be detachably connected to a rear portion of a snowmobile, for pivotal movement of the towing bar means relative to the snowmobile, a tubular member open at both ends and fixed intermediate its ends to the other end of said towing bar means and extending transversely of the latter, a pair of laterally spaced-apart sled-engaging members including grips arranged to engage the opposite lateral sides of the curved front of a toboggan and a rod member rigidly secured to each grip and slidably mounted through the open end of said transverse tubular member, whereby said sled-engaging members are laterally displaceable relative to said towing bar means, so that said grip can engage tobaggans of different widths, the inner end of each rod having a head, a compression spring surrounding each rod inside the tubular member, abutting against said head at one end and at the other end against a shoulder formed at the outer end of the tubular member, whereby the two compression coil springs urge the grip members towards each other, said hitching arrangement urging the associated tobaggan to follow into the trace of the towing snowmobile.

2. A hitching attachment as claimed in claim **1**, wherein said two compression springs are of substantially equal force.

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