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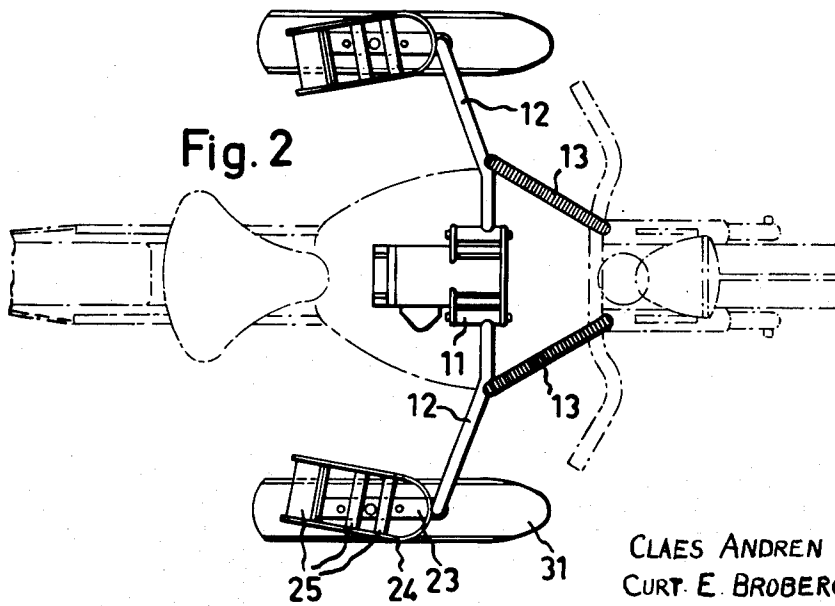
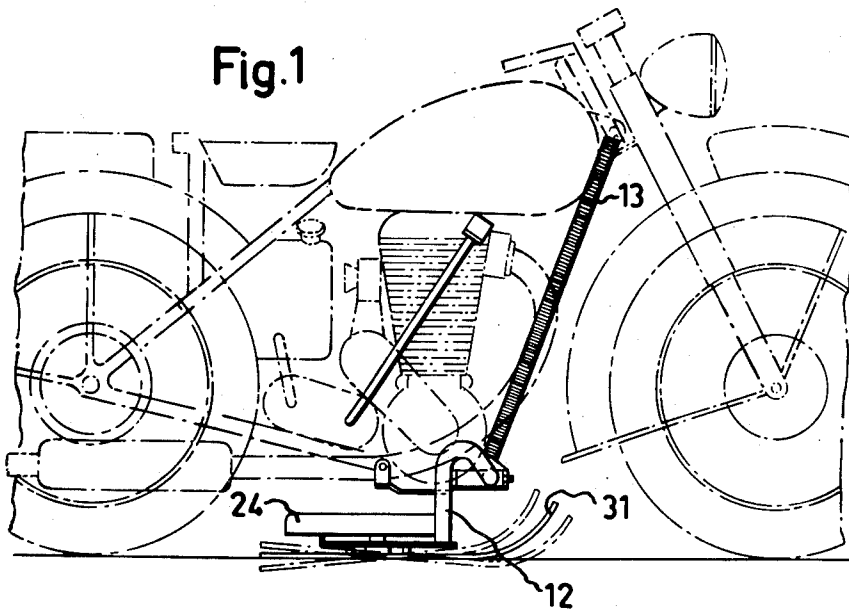
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SKI STABILIZERS FOR MOTOR CYCLES

Filed Feb. 16, 1955

3 Sheets-Sheet 1



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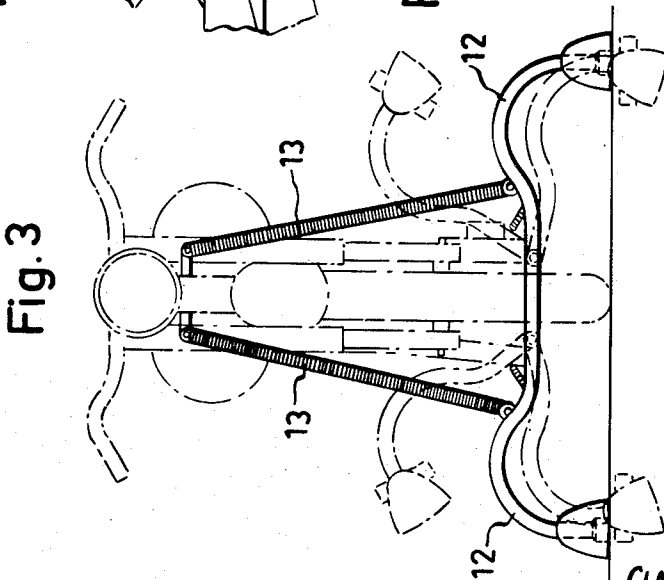
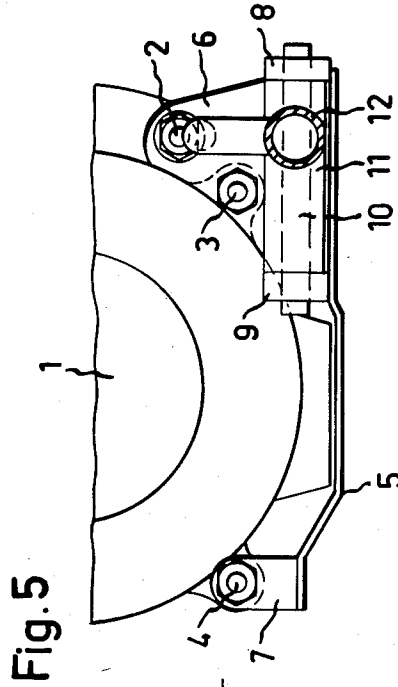
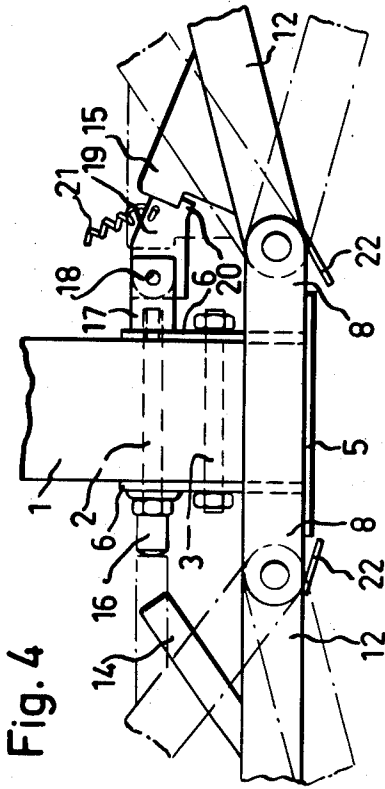
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3 Sheets-Sheet 2



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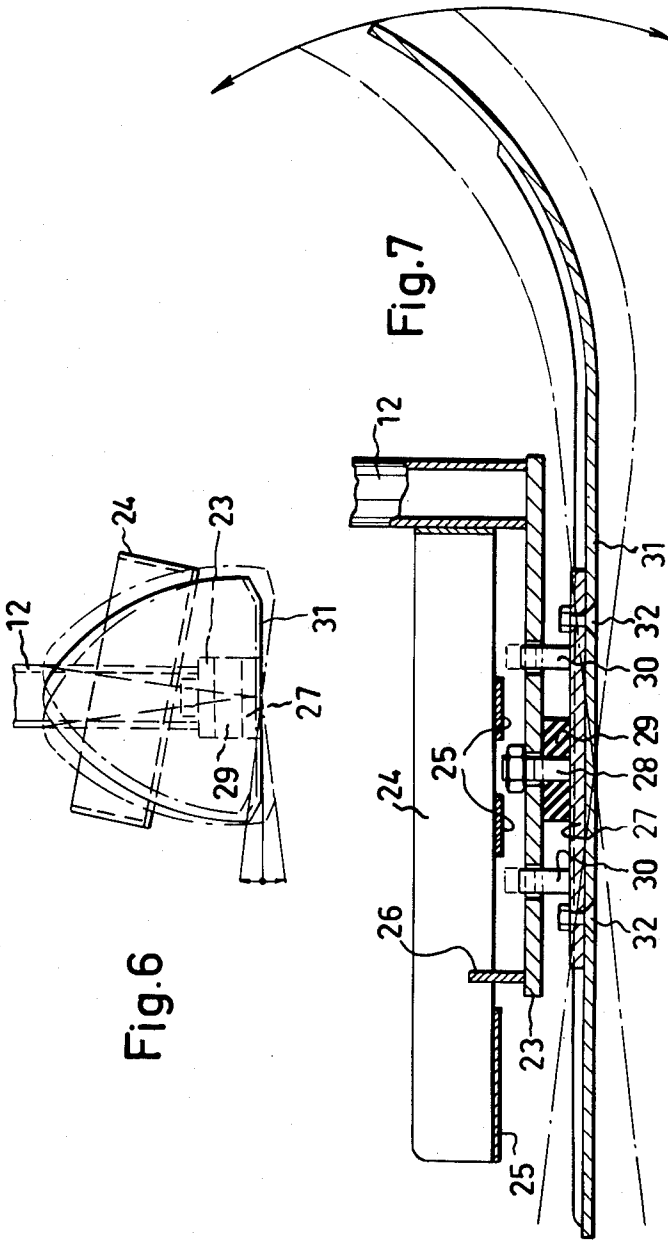


Fig. 6

Fig. 7

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SKI STABILIZERS FOR MOTOR CYCLES

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5 Claims. (Cl. 280—8)

The present invention relates to a stabilizing mechanism for motor cycles having the form of skis movably mounted on the motor cycle to be lowered by means of the foot into contact with the ground to stabilize the motor cycle when it is driven on slippery and winding roads, and to be lifted by means of a spring when the pressure of the foot ceases.

The invention is concerned with an improvement of this type of motor cycle stabilizing mechanism in the form of skis, said improvement offering several advantages in the use of the skis and implying at the same time a simplification of the way of manufacturing and mounting the mechanism. The characterizing feature of the stabilizing mechanism according to the invention is that each ski is mounted on an arm which is constituted by a rigid rod and pivotally mounted on the lowest part of the motor cycle frame by means of a longitudinally directed pivot pin and which is movable merely in a limited movement about said pivot pin, said arm being provided with a fixed foot rest and the ski being resiliently mounted on the arm so as to be normally held in a normal position with respect to said arm but having a certain freedom of tilting movement as a result of its resiliency in all directions.

Further features and advantages of the invention will appear from the following description, reference being had to the accompanying drawings.

Figs. 1, 2 and 3 are a side view, plan view and front view, respectively, of a complete motor cycle stabilizing mechanism, the skis of the stabilizing mechanism being shown in the position of use.

Figs. 4 and 5 are a front view and side view, respectively, on a larger scale, showing how the skis are mounted on the motor cycle.

Figs. 6 and 7 are a front view and central longitudinal section, respectively, of one ski.

The motor cycle is of an entirely customary type and has a one-cylinder motor, the cylinder of which stands upright on the crankcase 1 which is formed with lugs and clamped to the front portion of the frame by means of two transverse bolts 2, 3 and to the rear part of the frame by means of one transverse bolt 4. Said bolts also serve the purpose of securing mounting means for the skis, which comprises a plate or wide member 5 which has its front portion provided with a pair of large lugs 6 in which holes are made for the bolts 2 and 3, and its rear portion provided with a pair of smaller lugs 7 in which a hole is made for the bolt 4. This plate 5 is of such a width that it covers the crankcase totally from below, and thanks to this width it constitutes a sturdy reinforcement of the frame, especially against horizontal forces and bending stresses, and at the same time it protects the underside of the crankcase.

At its front portion, on each side outside the lug 6, the plate 5 has a further pair of lugs, a front lug 8 and a rear lug 9, for a longitudinally directed pivot pin 10 which between lugs 8 and 9 carries a sleeve 11 which is

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secured to one end of an arm 12, on the other arm of which a ski is mounted. To permit rapid mounting and dismounting of the arm with the ski, the sleeve 11 is preferably fixed to the pin 10 by means of a split pin which is readily removable whereupon the pin 10 can be extracted in a forward direction.

The mounting means thus projects forwards from the crankcase and thereby serves as a deflector in the space between the crankcase and the front wheel whereby the motor cycle is prevented from getting stuck on steep bumps, stubs, tufts and the like which could otherwise constitute obstacles in front of the crankcase after the front wheel has passed over them.

The arm 12 is readily removably connected to the frame at the steering tube by means of a long coil spring 13, so that it is swung in an upward direction when the pressure of the foot on the ski ceases. The upward swinging movement of the arm and thus the inclination of the motor cycle with respect to the ground is limited by stop means 14, 15 on the arm which in a certain position meets an abutment mounted, in the present instance, on the outer side of the respective lug 6.

The abutment on the right-hand side of the motor cycle simply consists of a cap nut 16 screwed onto the extended bolt 2, but on the left-hand side such an improvement has been made that the left ski can also be used as a stand for the parking of the motor cycle. On this side the bolt 2 thus has a nut 17 which is formed with a pair of lugs carrying a pivot pin 18. An oblong abutment block 19 is mounted on said pivot pin and is pivotally movable approximately through 90° to be directed either upwards so as to form a low abutment corresponding to the abutment nut 16 for the stop 15, or outwards so as to form a high abutment for the stop, said stop being arrested in a position in which the motor cycle can be inclined at a suitable angle to rest on the left-hand ski for parking. At its free end the block has a projection 20 engaging under a shoulder of the stop 15 on parking, and a pull spring 21 which is anchored at a higher level on the engine or frame and swings the block 19 upwardly as soon as the driver with his foot on the left hand ski rights the motor cycle so that the projection 20 is disengaged. When the motor cycle is to be parked, the left-hand ski is held pressed down against the ground, while the block 19 is swung outwards with one hand, whereupon the motor cycle is inclined towards the left until it stands by itself. This arrangement is much more reliable than the ordinary parking stands, which have very small feet and therefore easily sink down in snow and loose earth.

The downward swinging movement of the skis is likewise limited inasmuch as each arm 12 is provided with a stop 22 which in a given position abuts the mounting means. As a result thereof the driver's possibility of righting the motor cycle with his weight is greatly facilitated.

To deflect too heavy shocks a ski included in the motor cycle stabilizing mechanism has to be somewhat resilient and this desideratum has been provided for in prior art designs in such a way that the mounting members of the ski included in the stabilizing mechanism have been made sufficiently weak and resilient to be able to yield when the ski meets an elevation in the ground. In the design which has merely one arm for supporting the ski such a procedure is, however, less suitable; the supporting arm should be practically rigid and the desired resiliency must therefore be provided for in another manner.

According to the invention, the ski is resiliently mounted on a foot rest which in turn is rigidly fixed to the supporting arm. The outer end of the supporting arm 12 is bent downwardly so that on the application of

the ski against the ground it is approximately vertical, and on that end a heavy, rearwardly directed flat bar 23 is fixed by welding. Secured to said flat bar and to the arm 12 is a U-shaped, rearwardly open bordering 24 with a grid-like bottom consisting of three flat bars 25. At the rear the bordering is welded to a transverse plate 26 which is put on edge and welded to the rear portion of the flat bar 23, said plate 26 forming a support for the heel. At the front the bordering is welded directly to the arm 12. The foot rest thus formed is mounted at a suitable inclination by reason of the natural position of the foot. The flat bar 23 has three holes and in the intermediate hole a fixing plate 27 is clamped by means of a bolt 28 which is welded to said plate, a rubber buffer 29 being arranged around the bolt. Furthermore the fixing plate 27 has two guide pins 30 which project with ample clearance upwardly through the remaining holes in the flat bar 23 so that the fixing plate can always be held correctly positioned but may be tilted to a certain extent in all directions. Finally, the ski 31 proper is attached to the underside of the fixing plate 27 with the aid of a pair of bolts 32.

The ski 31 which is of hardened resilient sheet steel has a smooth underside and its edges are flared up at an obtuse angle so that the ski will easily slide over the irregularities of the ground also in transverse direction. Thanks to its small length and its resilient mounting it can follow the ground very well so as to give at the same time a soft and steady support and does not inconvenience the driver and the motor cycle by shocks and vibrations. Moreover it is uniformly worn so that no material is unnecessarily wasted. When it has been worn out it is removed from the fixing plate and replaced by a new one, maintenance and storage of spare parts thus offering no great problems.

The stabilizing mechanism shown and described may of course be modified within the scope of the invention as to the design of the details inter alia for adaptation to various makes of motor cycles.

What we claim and desire to secure by Letters Patent is:

1. Ski stabilizers for motor cycles comprising for each side of the cycle one rigid arm, means for mounting the arm on the lowest part of the motor cycle frame for swinging movement about an axis parallel to the longitudinal axis of the motor cycle, a spring anchored between the frame and the arm and urging the arm up-

wards, a foot rest secured to the free end of the arm, a ski resiliently attached to the free end of the arm so as to be tiltable in all directions, first abutments on the frame and on the arm, respectively, for limiting upward swinging of the arm, and second abutments on the frame and on the arm, respectively, for limiting downward swinging of the arm.

2. Ski stabilizers according to claim 1, in which on at least one side of the motor cycle said first abutment on the frame is adjustable to a first position to limit the upward swinging of the arm in a position corresponding to the maximum inclination of the motor cycle, and a second position to limit said upward swinging for forming a suitable stand for parking the motor cycle in a partially inclined position.

3. Ski stabilizers according to claim 2, in which said first abutment on the frame is manually adjustable to said second position, and provided with a spring to be automatically moved to said first position, said first abutment on the arm being engageable with said abutment on the frame to retain it in said second position as long as the motor cycle is parked and release it upon the motor cycle being righted with respect to the arm.

4. Ski stabilizers according to claim 1, in which said means for mounting the arm includes a mounting member, front and rear engine supports on the motor cycle frame at the underside of the engine on which said mounting member is clamped, thus forming a reinforcing and engine-protecting part of the frame, and a pair of pivot pins secured to said mounting member and extending longitudinally of the axis of the motor cycle for mounting the arms.

5. Ski stabilizers according to claim 4, in which the mounting member has a forwardly projecting portion carrying the pivot pins and also forming a deflecting means in the space between the engine and the front wheel.

References Cited in the file of this patent

UNITED STATES PATENTS

2,450,979 Moller ----- Oct. 12, 1948

FOREIGN PATENTS

55,624 Sweden ----- Nov. 20, 1923
 541,145 Great Britain ----- Nov. 14, 1941
 936,867 France ----- Feb. 23, 1948
 1,039,069 France ----- May 13, 1953