# United States Patent [19]

**Bovee**

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[54] **SKI STOPPING STRUCTURE**


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[52] **U.S. Cl.** ..... **280/11.13 B**

[51] **Int. Cl.** ..... **A63c 7/10**

[58] **Field of Search** ..... 280/11.13 B, 11.13 C, 280/11.37 E



[56] **References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 3,048,418 | 8/1962 | Gertsch | 280/11.13 B |
| 3,195,911 | 7/1965 | Cubberly | 280/11.13 B |



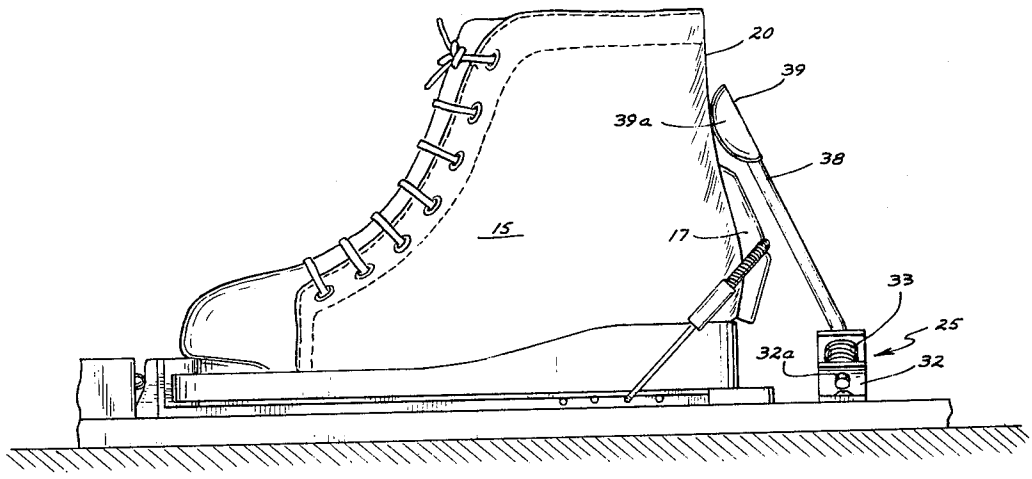
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*Assistant Examiner*—David M. Mitchell
*Attorney*—Leo Gregory



[57] **ABSTRACT**

A stop structure for skis consisting of a plate member secured to a ski adjacent the rear of a ski boot, a spring tensioned arm journaled in said plate member, said arm being adapted to swing forwardly outwardly of the ski in the direction of said boot and said arm in operative cocked position bearing against the upper heel portion of said ski boot.


**4 Claims, 4 Drawing Figures**



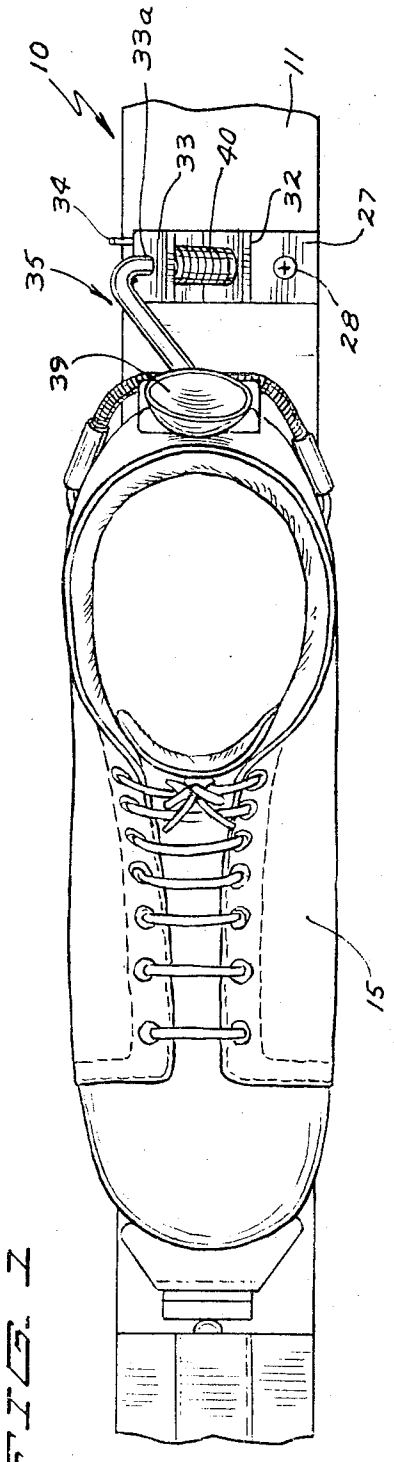



FIG. 1

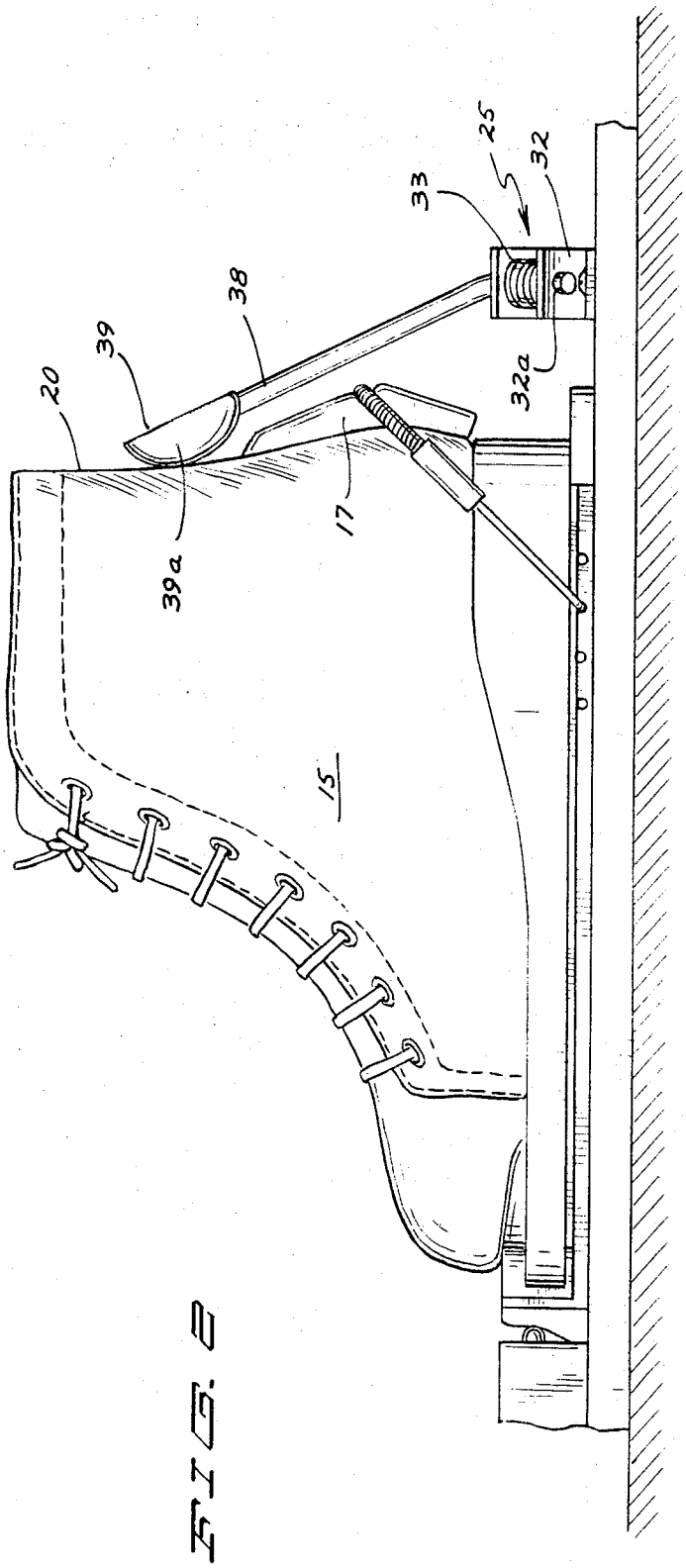



FIG. 2

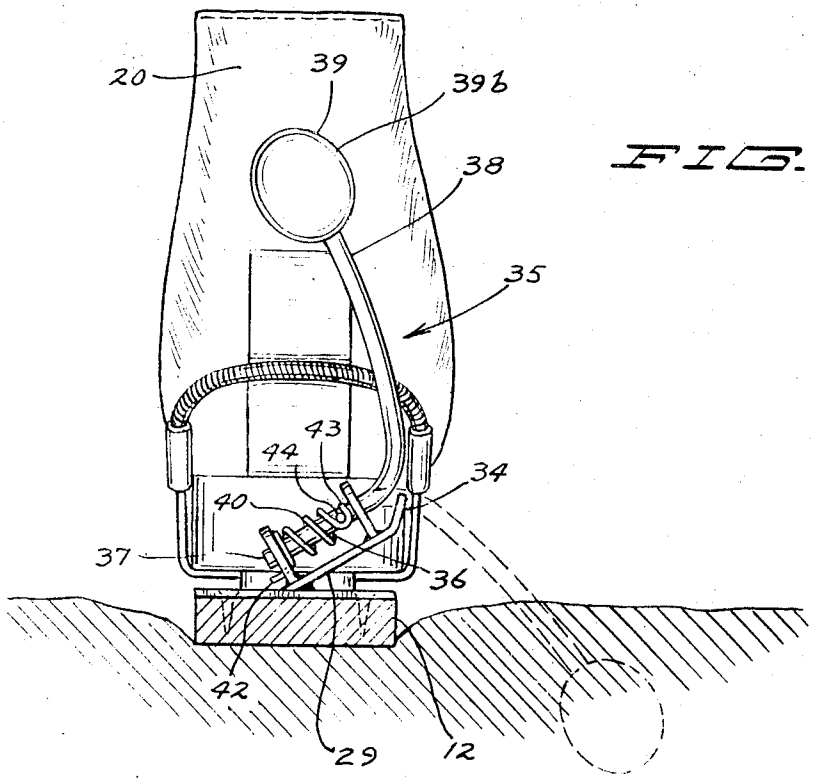

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FIG. 3

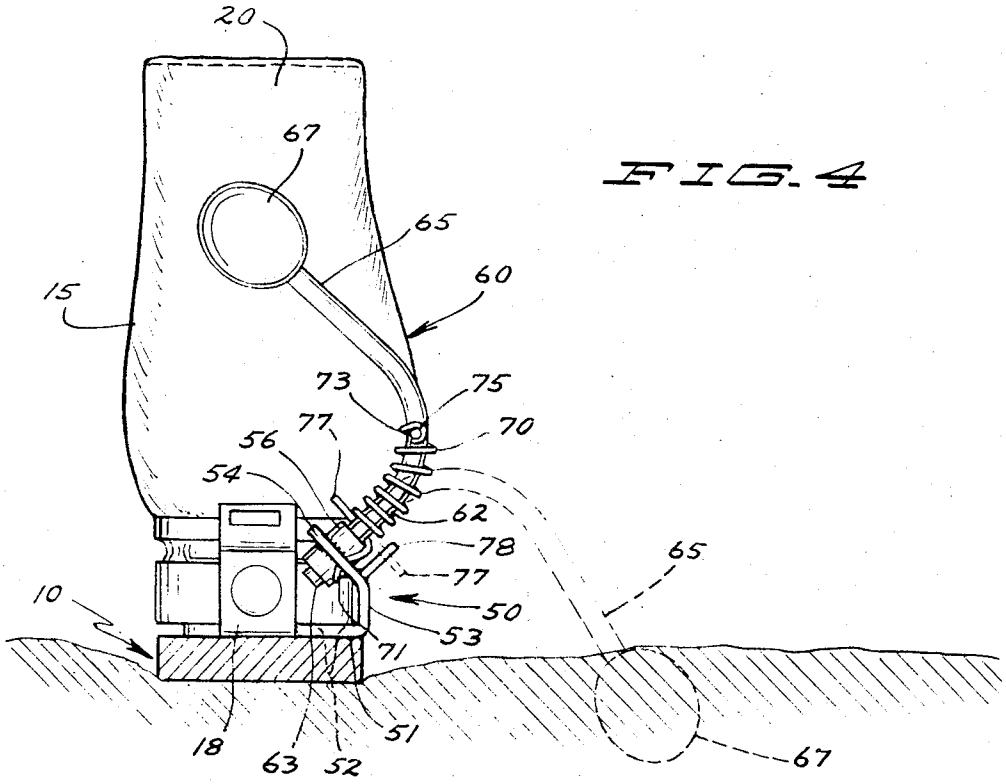

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FIG. 4

# SKI STOPPING STRUCTURE

## BACKGROUND AND SUMMARY OF THE INVENTION

This invention relates to a ski stopping structure to stop the travel of a loose ski.

It is desirable to have a stop structure for a ski which is free in operation from any engagement with the bindings securing the ski boot thereon or with the sole portion thereof.

The nearest related structure appears to be disclosed in U. S. Letters Pat. No. 3,195,911 dated July 20, 1965, to M. H. Cubberley in which the ski arresting device is mounted in a position forwardly of the toe binding for a ski boot and comprises a bracket plate in an oblique angular relationship to the longitudinal axis of the ski and having an arm parallel to the edge of the ski to underlie the toe portion of the ski boot. There exists a possibility of entanglement between the lever arm comprising the stopping member of the device and the closely adjacent binding structure and such entanglement has been known to occur in actual practice.

It is an object of this invention, therefore, to provide a ski stopping structure which in operative position is free from the possibility of entanglement with a ski binding.

It is another object of this invention to provide a ski stopping structure which is held in a cocked operative position by bearing against a portion of a ski boot remote from any portion of the boot sole.

It is also an object of this invention wherein the size of the ski stopping member is free from any restrictions which might be dictated by the design of the structure of the ski boot bindings.

It is also an object of this invention to provide a ski stopping structure which is situated to be free from being frozen into an inoperative position such as by underlying a sole portion of a ski boot.

More generally it is an object of this invention to provide a ski stopping structure which includes a bracket plate disposed substantially at right angles to the longitudinal axis of the ski, an arm member having a portion journaled in said bracket plate, a helical torsion spring disposed about said journaled portion of said arm, said arm being curved upwardly inboard of said ski having an upper terminal portion which bears against the upper portion of a ski boot to be cocked in operating position and said arm upon removal of said boot from said ski being disposed to swing forwardly to a ski stopping operative positive outboard of said ski.

These and other objects and advantages of the invention will be set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

FIG. 1 is a broken view in top plan showing the structure herein in operating position;

FIG. 2 is a view similar to FIG. 1 in side elevation and FIG. 3 is a view thereof in end elevation; and

FIG. 4 is a view similar to FIG. 3 showing a modification of the structure herein.

## DESCRIPTION OF A PREFERRED EMBODIMENT

With reference to FIGS. 1–3, a broken portion of a ski **10** is shown comprising an upper surface portion **11** and a side edge portion **12** which will be referred to as the outer edge of said ski. Disposed on said ski is a ski boot **15** of a conventional design and securing the same in position is a conventional type of ski binding **17.** Reference is made to a ski binding per se of which there are a variety of designs as to structure and neither the particular design of the ski boot nor of the ski bindings form a part of the structure comprising the invention herein. A type of binding is indicated which has its rear structure closely adjacent the ski boot and this is on the order of a Besser or Gertsch binding which bindings are known in the art. For purpose of reference the upper rear portion **10** of said ski boot is sometimes referred to as the upper heel portion.



The structure comprising the invention herein is indicated generally by the reference numeral **25.** Said structure comprises a bracket plate member **27** extending crosswise of the ski substantially at right angles to the longitudinal axis thereof and is suitably secured thereto as by screws **28.** Said plate is disposed closely adjacent the rear of the ski boot and of the portion of the binding securing the heel portion of said boot.

In the embodiment of the bracket plate member here shown, a plate portion **29** integral therewith is angled upwardly therefrom in the direction of the outer edge **12** of said ski. Said plate portion will be angled upwardly in the direction of the right hand side of the right ski and of the left hand side of the left ski. Said angled portion may be somewhat outboard of the ski but not more so preferably than the width of the ski boot and preferably it may be angled upwardly on the order of 30°–45° to the horizontal.

Said angled portion **29** of said bracket plate member has a pair of upstanding spaced bearing plates **32** and **33** extending inboard of the ski substantially at right angles to said angled plate portion and said bearing plates have aligned bores **32***a* and **33***a* therethrough forming bearings. Said angled portion has a finger like outboard projection **34** forming a stop member as will be further described.

A braking arm **35** is provided having a lower portion **36** thereof journaled in said bearing plates and extending through said plate **32** and having its lower free end flanged as at **37** forming a stop to retain said journaled portion in said bearing plates. A helical torsion spring **40** is disposed about the journaled portion of said arm between said bearing plate members having one end **42** thereof engaging the edge portion of the bearing plate **30** and having its other end **43** secured about a pin **44** disposed through said arm.

Said braking arm **35** has an upper portion **38** curved inboard of the ski from said journaled portion **36** to have its upper terminal portion **39** positioned to be centered upon the upper heel portion **20** of said ski boot. Said terminal portion may be variously formed and it is here shown as being semi-spherical in form having its convex surface portion **39***a* bearing against and engaging said boot and its concave surface portion **39***b* will form a scoop in braking the loose ski to a stop when the arm is in operating braking position.

It will be noted that said torsion spring is secured and disposed to have said arm **35** cocked under spring tension when moved upwardly rearwardly to the rear of the ski boot to bear thereagainst and said arm will be under sufficient operating tension that when said ski boot is broken free from the bindings, said arm will swing forwardly and downwardly outboard of the ski to dig into the snow to stop the sliding movement of the

ski. Reference is had to the illustration shown in FIG. 3 and particularly to the dotted portion thereof.

## MODIFICATION

A modification of the structure above described is provided in which like reference numerals will indicate like elements of structure.

A bearing bracket member indicated generally by the reference numeral **50** comprises a base plate portion **51** extending crosswise of said ski **10** adjacent the rear of said boot **15** and of the bindings **18** thereof and is suitably secured as by screws **52.** Said bracket is formed having an upright wall **53** having as an upward inward or inboard extension thereof a plate portion **54** angled inwardly therefrom and having secured therein and disposed therethrough a bearing sleeve **56** which preferably will be held by said plate portion **54** as by being welded thereto to have its axis disposed on the order of 30°–45° with respect to the horizontal and upwardly in the direction of the outer edge of the ski.

A braking arm **60** is provided having a lower stem portion **62** having its end portion journaled into said sleeve **56** and having its lower free end **63** extending therethrough and being flanged to retain said stem portion within said sleeve.

The upper portion **65** of said arm is curved inboard of said ski and is here shown being curved through a somewhat wider arc than was the case with the arm **38** first above described and said arm is shown having a semi-spherical terminal portion **67** having its convex side engaging the upper end portion **20** of said ski boot.

Disposed about said stem portion **62** above said sleeve **56** is a helical torsion spring **70** having its lower end portion **71** disposed through an accommodating aperture in said plate portion **54** and having its upper end portion **73** secured about a pin **75** disposed through and secured in said arm portion **62.**

Extending from said arm portion **62** adjacent the upper portion of said sleeve **56** is a stop pin **77** which engages a projection **78** extending outwardly somwhat outboard of said ski as being struck from said plate member portion **53** which projection upon engagement by said pin **77** holds said arm **60** in operating braking position as indicated in dotted line in FIG. **4.**

It is believed clear from the description that the modified form of the invention herein like the preferred embodiment permits the braking arm to swing forwardly and downwardly outboard of the ski and in advance of the bindings thereon to dig into the snow to stop sliding ski movement. Said braking arm is free from any contact with the sole of the ski boot and avoids being frozen into such position. Further the design of the braking arm is free from any restriction which might otherwise be imposed by the design of the ski bindings.

It will of course be understood that various changes may be made in form, details, arrangement and proportions of the parts without departing from the scope of the invention herein which, generally stated, consists in an apparatus capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is

**1.** A ski stopping structure for a loose ski in connection with a ski mounted boot secured by a binding having in combination

a bracket member adjacent the rear of said ski boot,

means securing said bracket member to said ski,

a bearing member angled upwardly from said bracket in a direction inboard of said skis,

an arm, a lower stem portion of said arm being journaled in said bearing member, said bearing member being constructed to position the journaled portion of said arm at an oblique angle with reference to the surface of said ski,

an upwardly extending portion of said arm being curved inboard of said ski,

an upper terminal portion of said arm bearing against the upper rear portion of said boot free of any engagement with said binding and swingable forwardly downwardly clear of said ski, and

means in connection with said bracket placing said arm under tension to have the same bear against the rear upper portion of said boot.

**2.** The structure set forth in claim **1,** including

means projecting from said bracket outboard of said ski to limit the swinging movement of said arm.

**3.** The structure set forth in claim **1,** wherein

said bracket comprises

a plate portion being angled upwardly in the direction of the outer edge of said ski, said plate portion supporting said spaced bearing plates, and

said bearing plates having a pair of aligned apertures therethrough receiving said journaled portion of said arm.

**4.** The structure set forth in claim **3,** wherein

a bearing sleeve is carried by said angled plate portion of said bracket.

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