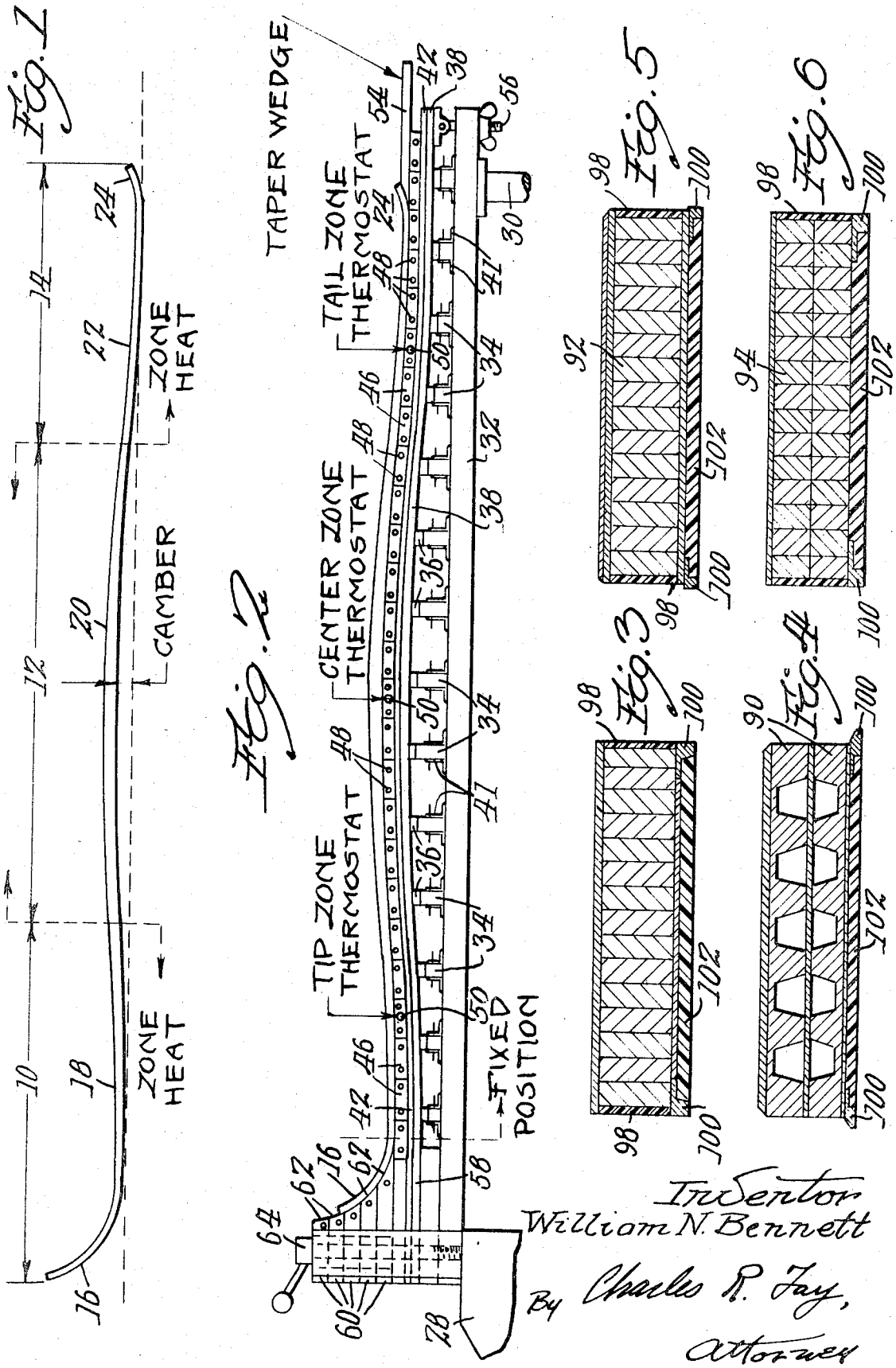
Dec. 22, 1970 W. N. BENNETT 3,549,461

PRESS FOR SKIS

Filed Oct. 19, 1967 2 Sheets-Sheet 1



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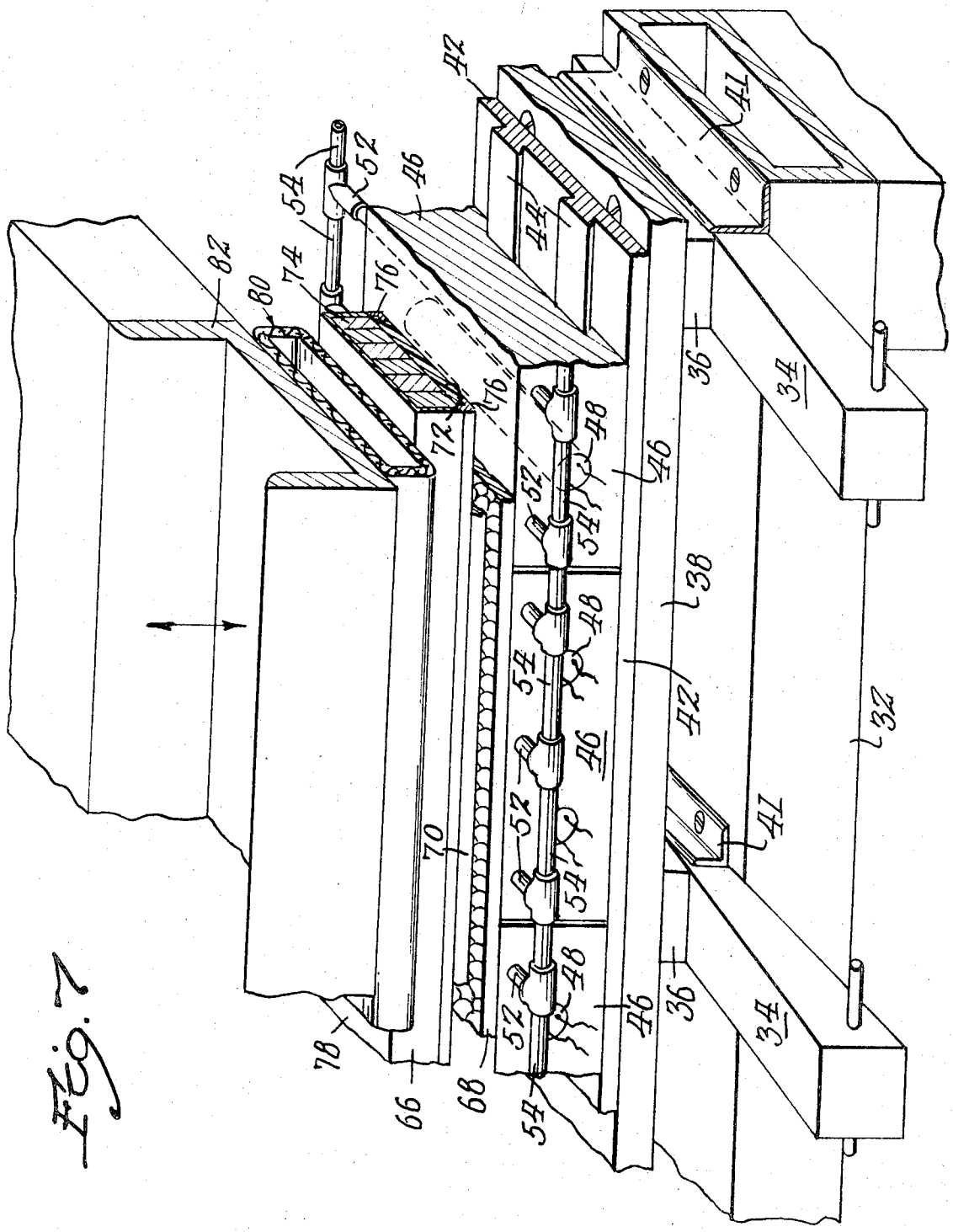


Fig. 7

United States Patent Office 3,549,461 Patented Dec. 22, 1970

3,549,461

PRESS FOR SKIS

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Filed Oct. 19, 1967, Ser. No. 676,520
Int. Cl. B30b 15/34; B32b 31/20; A63c 5/12
U.S. Cl. 156—583 7 Claims

ABSTRACT OF THE DISCLOSURE

A press for applying a plastic base to the bottom of a ski including means for making the press conform exactly to the desired contour of the ski bottom, with a series of adjustable wedge blocks forming the contour from end to end of the ski; and including a separate alignment means for improving the accuracy of the application of the plastic base to the forward tip or shovel of the ski, this being accomplished by a series of sliding tip blocks which are used to press the plastic to the contour of the ski being processed. New and improved heating by zones is also a part of the invention.

This invention relates to a new and improved press for securing a plastic base to the bottom of a ski regardless of differences in contour, degree of curve, and thickness, etc., and simultaneously forming a three-dimensional effect thereto. It is recognized that manufacturers make skis of different contours as well as with different curves at the forward ski tip or shovel, etc., and it is the object of the present invention to provide for a more exact conformation of the press to the ski shape, through the use of individual wedges which are quickly and easily adjusted to make the press conform to the desired contour of the ski; to provide for more even and controlled heat for the operation of pressing the plastic base to the ski bottom; to provide certain definite degrees of heat in different zones along the ski according to the thickness of the ski; and the provision of a new and improved alignment frame with sliding tip blocks to conform to the desired curvature of the ski tip or shovel.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

FIG. 1 is a view in edge elevation showing the general conformation of an Alpine ski,

FIG. 2 is a view in elevation partly in section illustrating the press of the present invention and its relation to the ski of FIG. 1.

FIGS. 3, 4, 5, and 6 show on an enlarged scale cross-sectional views of different forms of ski cores, etc., and

FIG. 7 is an enlarged perspective view partly in section illustrating the construction of the present invention in detail and showing the method of application of the base plastic to the ski.

Referring now to FIG. 1 the ski of the Alpine type is shown divided into three zones which are thermostatically and differently controlled for applying plastic foil to the ski bottom as will be described hereinafter. These zones are indicated generally as at the tip and forward section **10**, the center portion at **12**, and the tail section **14**. It will be noted that the zones at **10** and **14** use less heat than the center zone **12**, the ski of course being considerably thicker in the central or camber zone.

The ski is divided into the tip or shovel **16**, forward section **18**, camber section **20**, tail section **22**, and tail **24**. The center of the ski is the balance point and binding mounting area and is thicker than any other section because of the necessity for mounting the bindings for

rigidity and safety. The tail section **22** is almost as thin as the forward section **18** but is usually more rigid. In addition the tail at **24** is usually in a boat-tail shape with a metal protected top and bottom, and is slightly curved upwardly as shown in FIGS. 1 and 2.

Referring now to FIG. 2 there is shown a front support **28** and a rear support like **30** of any convenient construction, upon which is mounted a box frame **32**. This frame carries a series of adjustable wedge blocks **34** each of which comprises a top wedge **36**, see particularly FIG. 7, mounted directly on a contour bar **38** which is flexible. For each fixed wedge **36** there is a movable wedge **34** and these are individually moved i.e., adjusted laterally, by appropriate handles or pins to determine the contour of the contour bar **38** which in turn determines or conforms to the contour of the particular ski which is being processed. Appropriate guides **41** are used to maintain alignment.

Directly mounted on the contour bar there is an insulator board **42** which is dovetailed at **44** in order to correctly align the heater blocks generally indicated at **46** in FIG. 1, and to provide a breather recess between the dovetails. Each heater block has a plurality of heater cartridge holes for the reception of heater cartridges generally indicated at **48**. The individual sections are provided with thermostats **50** for their entire section as for instance see FIG. 2, these thermostats controlling the complete tip zone, center zone, and tail zone, independently of each other.

Also there are provided tube inserts and connections as indicated at **52** and **54**, FIG. 7, for cooling purposes. At the tail end of the ski there is a taper wedge **54** as shown in FIG. 2 and the contour bar is here held adjustably by means of a screw or the like **56**, being held fixed at the forward end as at **58**.

Individual adjustment of the wedge parts **34—34** is important inasmuch as it is desirable to obtain as accurate a conformation to the desired contour in respect to the ski as is possible. The ski tip is especially variable as made by different manufacturers and of course it is important for the plastic base to adhere to this tip or shovel. In the present invention there are provided a series of sliding tip blocks generally indicated at **60** and these may be also provided with heat cartridges. Each block has an arced or curved edge at **62** to contact the ski tip, and each block is provided with a central slot by which means it is adjustable relative to a fixed position stud **64** mounted in the support **28**. When these tip blocks have been moved to conform to the contour of ski tip **16**, the stud is turned as for instance by a handle to clamp the blocks in position ready for the pressing operation.

Referring now to FIG. 7 the ski to be processed is indicated at **66**. There is a bottom die **68** having a configuration which is to be impressed in the plastic material **70** which is to form the bottom surface of the ski in the area **72**. The core of the ski is shown at **74** by way of illustration and the steel edges are indicated at **76** it being understood that this is merely illustrative of one form of ski. The ski top is at **78**.

Above the ski there is provided an air bag at **80** which will of course conform itself to the shape of the ski and then a clamp of the usual kind as indicated at **82** provides the pressure so that the process of applying the ski base to the ski will take effect.

In carrying out the invention i.e., in applying the method to the ski, it is first necessary to pull out the wedge blocks **34** to allow the contour bar to drop to horizontal position. The ski is then placed on the contour bar i.e., on the heating blocks, and the ski is moved forwardly until the tip is in the position shown in FIG. 2. The blocks **60** are loosened and rearranged to conform to the ski tip as

closely as possible and they are then clamped in position. The wedge block **34** that is nearest the high point of the ski in the center zone is pushed in until the contour bar touches the ski base, and then the tail adjustment made to cause the entire contour bar to touch the ski base. Then the remaining wedge blocks are moved in without pressure until a solid foundation is created between the contour bar and the box frame support.

The ski is then removed and the die shown at **68** in FIG. 7 is placed in position, the plastic material is placed on the top surface of the die, and the ski is replaced on the plastic in correct alignment at tip, center and tail. The clamp is then slowly and carefully brought down to apply the pressure, air pressure is turned on for the cooling pipes and then the heating (and cooling cycle) is carried out until the plastic base conforms to the die **68** and adheres to the bottom of the ski.

This method is the same whether the ski itself is made by different methods or different manufacturers and as in FIGS. 3–6 inclusive illustration is made of various types of cores, i.e., rods, tubing, etc., or even aluminum castings as indicated at **90** in FIG. 4. Different forms of laminated bases are shown at **92, 94** and **96** together with the fiber glass or plastic sides **98**, steel edges **100** and the plastic base **102**. It will be noted that it is located between steel edges **100**.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. A press for applying a moldable base to an elongated member having a surface of varying curvature longitudinally thereof, said press comprising a support, an elongated contour bar thereon, said contour bar being flexible and adapted to conform to the said surface of said member, a series of spaced adjustable supporting elements on the support arranged to maintain the contour bar in flexed condition corresponding to the curvature of the said surface, a series of independent heating elements along the contour bar, thermostats controlling certain of said heating elements in groups to provide different heats at different areas along the elongated member, an elongated die plate between the heating elements and the surface of the elongated member to which the base is to be applied, the base being adapted to be placed between the die plate and said surface, and means to press the elongated element and base with respect to the die.

2. The press of claim **1** including cooling means for the heating elements operating in a timed relation thereto for faster setting of the base.

3. The press of claim **1** wherein the adjustable supports each comprise a pair of relatively movable wedges in opposed relation extending transversely relative to the longitudinal dimension of the contour bar.

4. The press of claim **1** including an insulator between the heating elements and contour bar.

5. The press of claim **1** including an insulator between the heating elements and contour bar, and interengaging means between the insulator and the heating elements.

6. The press of claim **1** including an insulator between the heating elements and contour bar, and interengaging means between the insulator and the heating elements, and means forming an elongated breather recess in the insulator extending across certain of the heating elements longitudinally of the series of heating elements.

7. The press of claim **1** wherein said elongated member is also of varying thicknesses along its length and the heating elements provide less heat in the thinner areas of said member under control of the thermostats.

References Cited

UNITED STATES PATENTS

1,106,661	8/1914	Martin	249—155X
2,519,661	8/1950	Johnson	100—211X
2,714,567	8/1955	Cravener	100—93X
3,393,292	7/1968	Ritscher	100—93X
3,434,910	3/1969	Kannegiesser et al.	156—583

FOREIGN PATENTS

86,289	8/1955	Norway	280—11.13

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U.S. Cl. X.R.

100—93; 280—11.13