Jan. 9, 1945. N. TUFTS 2,367,157

TOBOGGAN

Filed Feb. 2, 1942 2 Sheets-Sheet 1

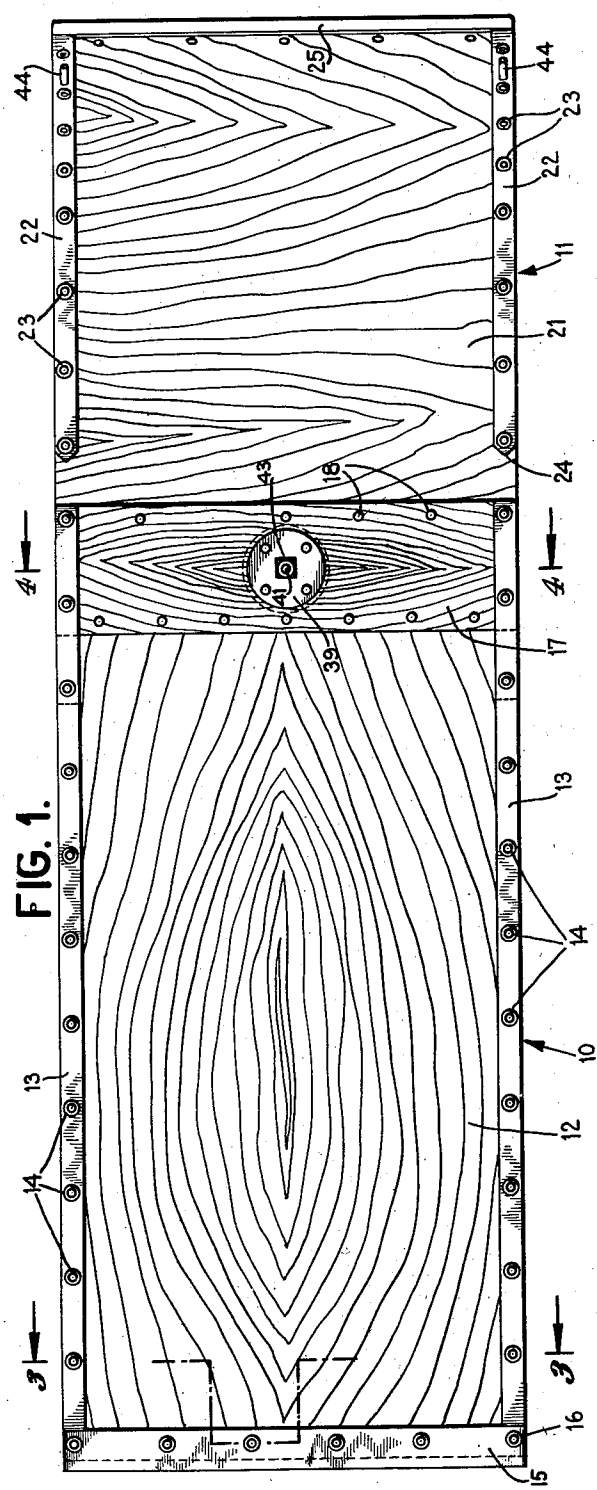


FIG. 1.

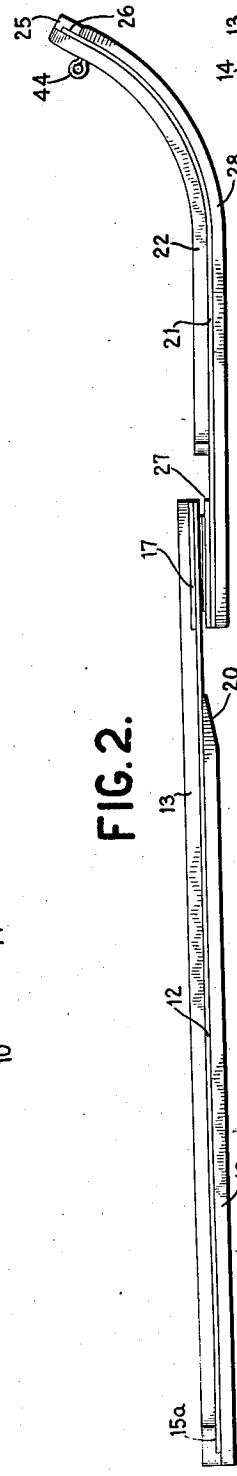


FIG. 2.

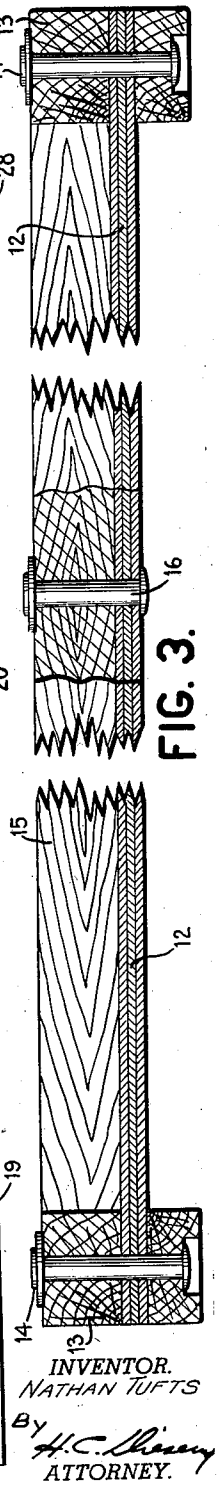


FIG. 3.

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TOBOGGAN

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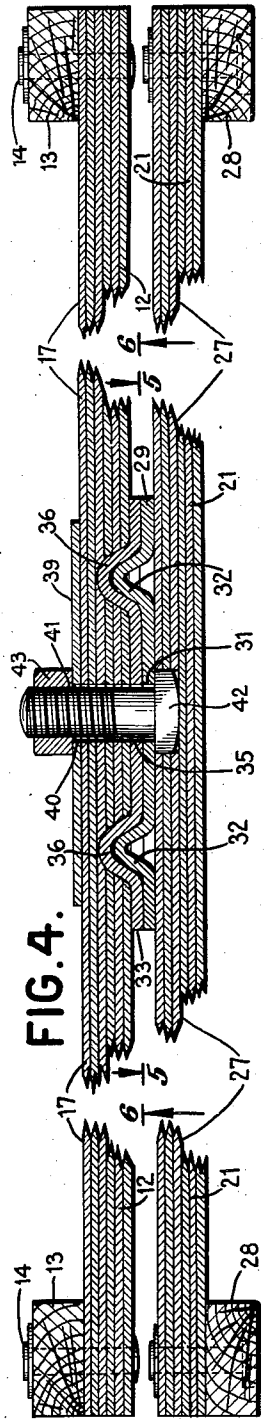


FIG. 4.

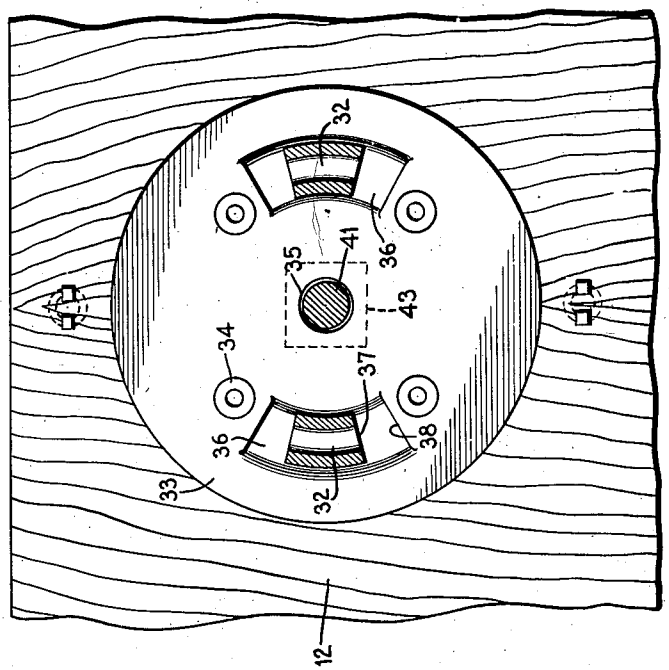


FIG. 6.

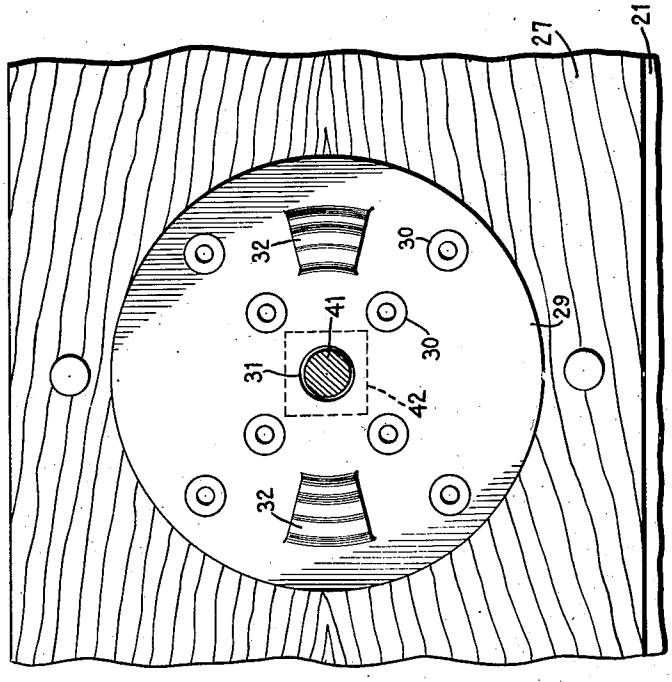


FIG. 5.

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TOBOGGAN

Nathan Tufts, Greenfield, Mass., assignor to The New England Box Company, Greenfield, Mass., a corporation of Massachusetts

Application February 2, 1942, Serial No. 429,145

7 Claims. (Cl. 280—18)

This invention relates to improvements in toboggans. More particularly it relates to an improved, steerable type of toboggan.

As heretofore regularly constructed, toboggans have been formed as one rigid structure with no relative movement between its several parts, except for a possible yielding of the material itself. This yielding of the material has been but slight, furthermore, due to the provision of hand-rails at the sides of the toboggan, and other stiffening members. The conventional toboggan has been dangerous to use under many circumstances because of the inability to direct or steer it. On crowded slopes or toboggan slides, collisions are frequent and accidents, of more or less serious character, often occur when deep pits or other hazards are situated adjacent a course intended to be followed by a toboggan. Only the most skillful maneuvering can avoid these hazards and most persons who engage in the sport of tobogganing do not have this requisite skill.

Furthermore, toboggans as previously constructed have had an objectionable tendency to throw snow or chunks of ice into the faces of the riders. This is because the curvature or roll of the forward end of the toboggan is extended through at least a semi-circular arc. As a result, any loose snow encountered in the descent of the toboggan will pass over the rolled end and will be thrown rearwardly onto the occupants.

A primary object of the present invention has been to provide a toboggan of simple and light construction which is capable of being steered or directed in its descent along a slope or slide. Toward this end the improved toboggan is formed in a plurality of sections so joined as to be capable of limited, pivotal movement with respect to each other in a horizontal direction, i. e., in the plane of the sliding surface of the toboggan. Some flexibility is also provided between the sections in a vertical direction. This permits the toboggan to ride with relative ease and smoothness over bumpy terrain. As a result of the dirigibility of the improved construction, it is much safer in use than prior toboggans. At the same time sufficient skill is required in handling it to retain the zest of the sport.

A further object of the invention has been to devise a construction at the forward end of the toboggan which will overcome, or at least minimize, the tendency of prior devices of this character to throw snow into the faces of the riders. For this purpose the forward section of the toboggan has its free end curved upwardly in a sweeping curve but over an arc of less than 90°. This tends to throw any loose snow and ice forwardly and downwardly away from the rider and tends to pack the snow as the toboggan glides over it.

A special feature is the construction of the toboggan of light but durable and strong plywood in which the grain is disposed in a particular way, to be hereinafter specified, in the several portions. The plywood may be of any number of layers, such as three, five, or more, depending upon the stiffness and strength desired. Various advantages arise from the use of plywood. The plywood conforms readily with the bumps encountered in sliding down a hill and thus insures a smooth sliding action with a minimum of jolts. Due to the lightness of the device as a whole, it may easily be towed or carried uphill. Moreover, the several sections may be readily disconnected for shipping purposes or even for conveying the toboggan to the desired point of use in an ordinary passenger automobile. The construction is strong, even though light in weight, and is relatively inexpensive. The bottom surface of the plywood lends itself to either sticky or fast wax for control of its speed on different types of snow or ice.

Other objects, features and advantages of the invention will appear from a detailed description of an illustrative form of the same which will now be given in conjunction with the accompanying drawings, in which:

Fig. 1 is a top plan view of an illustrative form of the improved toboggan.

Fig. 2 is a side elevation of the toboggan.

Fig. 3 is an enlarged cross-sectional view along the broken line 3—3 of Fig. 1, portions being broken out at the points indicated.

Fig. 4 is a view similar to Fig. 3 taken along the line 4—4 of Fig. 1.

Fig. 5 is a detail view in section along the line 5—5 of Fig. 4, looking in the direction of the arrows, showing a portion of the swivel connection between the sections of the toboggan, and

Fig. 6 is a similar, enlarged detail view in section along the line 6—6 of Fig. 4, taken in the direction indicated by the arrows.

Referring now to the drawings, the improved toboggan may consist of two sections designated generally by the reference numerals 10 and 11. The rear section 10 is somewhat longer than the forward section 11. In a typical unit the rear section may be 3 feet long and the forward sec-

tion 2 feet long. The two sections overlap to a certain extent, say over a section about 6 inches long, and are swiveled together by a connection to be hereinafter more fully described.

The rear section 10 of the toboggan has a main body portion 12 formed of water-proofed plywood, preferably of three layers, the top and bottom layers having the grain extending longitudinally of the section. This tends to stiffen the construction against curling upwardly at the ends. At each side of the main body portion is provided a top rail 13 which may be secured by rivets 14 or otherwise to the plywood. These rails add to the rigidity of the construction and provide hand grasps for the occupants of the toboggan. If desired, special handles, formed of web material or the like, may be secured to the rear section at appropriate points to serve as hand grips. These may be secured by portions extending beneath the top rails or by separate rivets. In a typical unit the top rails may be about ¾ of an inch wide and half an inch deep. They are preferably formed of good hardwood, although, if desired, they may be formed of other material, such as metal or the like. At the rear end of the section 10 a cross member 15 is provided, this being similarly secured by rivets 16, or the like, to the main plywood body. This rear reinforcing member or rail may, if desired, be simply of the same width and depth as the side rails but it is preferably of somewhat heavier construction. It may, for example, be about ¾ of an inch deep and 1½ inches wide and may be formed of the same materials as the side rails. On its under side, it is preferably rabbeted, as indicated at 15a in Fig. 2, to provide a rear portion which overhangs the rear edge of the plywood body to protect the latter. This places the top surface of the member 15 flush with the tops of the side rails 13.

At its forward end the section 10 is reinforced on its upper surface by a cross strip 17 of plywood of the same character as the main body portion 12 but preferably having the grain extending transversely of the toboggan. This section may be 6 or 8 inches wide, i. e., lengthwise of the toboggan, and preferably extends beneath the side rails 13 at both sides. These rails, for this purpose, are under-cut slightly at their forward ends. If desired, the cross strip could be applied to the under surface rather than the top surface of the main body 12. Any suitable means, such as rivets 18, may be provided for securing the reinforcing strip to the main body. It serves not only to reinforce the forward end of the rear section in the region where swiveling takes place but it also stiffens this end against bending in a transverse direction.

On the under side of the main plywood body 12, and preferably at its edges directly beneath the top rails 13, there is provided a pair of runners 19 which may be secured to the plywood body by the same rivets 14 which secure the top rails. The runners are preferably recessed or counter-sunk to receive the heads of the rivets, the construction being such that nothing projects downwardly below the sliding surfaces of the runners. The runners extend all the way to the rear end of the section 10 but at their forward ends terminate somewhat in rear of the reinforcing section 17. This is to avoid interference with the swiveling action of the section 11. The forward ends 20 of the runners are preferably beveled on their undersides, as indicated in Fig. 2.

The forward section 11 of the toboggan has its main body 21 similarly formed of three-ply, water-proof plywood but the grain of the top and bottom layers in this section is extended transversely of the length of the toboggan to enable the plywood to be readily bent into the curvature indicated in Fig. 2. This curvature is of substantial radius but extends over an arc of less than 90° so that the tendency of the entire forward portion is to throw loose snow and ice downwardly and to pack it beneath the toboggan, thus forming a track over which the balance of the toboggan may readily glide. At the side edges of the section 11 there are provided top rails 22 of a construction similar to the top rails 13 but having their forward ends curved upwardly to conform with the curvature of the main body 21. Rivets 23, or other securing means, may be provided for fastening the top rails to the body 21. The forward ends of the rails 22 preferably extend to the extreme forward end of the section 11 but the rear ends 24 terminate some distance in advance of the rear edge of the section 11. This, as indicated in Figs. 1 and 2, provides a clearance from the forward end of the section 10 and enables the desired, relative angling movements between the two sections. At the forward end of the section 11 a transversely extending member 25 is provided, this having a rabbeted portion 26 which receives the end of the main body 21. Member 25 thus serves the double function of reinforcing and stiffening the forward end of the section 11 and of protecting the free edge of the plywood. The top of the member 11 in advance of the rabbeted portion is preferably flush with the surface of the body 21 and at its extreme ends underlies the top rails 22. At the rear end of the section 11 a transversely extending strip 27 of plywood, similar to the strip 17 on the rear section, is provided. This serves to reinforce and stiffen the construction at the point of swiveling. Runners 28 are provided at the two side edges of the section 11, these being curved at their forward ends to conform with the main body 21. They are preferably secured to the latter by the rivets 23, which may be counter-sunk in a manner similar to the rivets 14. The forward ends of the runners may abut against the edge of the member 25.

We come now to the connections between the two sections which permit the swivel action previously described. A metal plate 29 (Fig. 5), preferably of circular form, is secured to the top of the forward section 11 of the toboggan by means of rivets 30, or the like. This plate is located centrally of the transverse reinforcing strip 27 and, in the typical construction, may be, say, 3 or 4 inches in diameter. At its center it is provided with an aperture 31. Intermediate the center and the circumference of the plate, it is provided with two or more upward projections 32 equally spaced, these preferably being of V-shaped or arcuate cross-section in a radial direction and being simply struck up from the main body of the disc. The ends of these struck-up projections preferably provide radially extending shoulders. A substantially similar plate 33 (Fig. 6) is secured by rivets 34 to the under surface of the rear section 10 of the toboggan. This plate, which is of the same diameter as the plate 29, is positioned centrally of the transverse reinforcing strip 17. A central aperture 35 through the plate 33 is adapted to be alined with the aperture 31 of the plate 29 and with corresponding apertures through the plywood

members 12 and 17. At the opposite sides of the aperture 35 arcuate depressions 36 are formed in the plate 33, these being adapted to receive the projections 32 of the plate 29. They are V-shaped or arcuate in radial cross section, as indicated in Fig. 4, and arranged to snugly receive and guide the projections 32 with the balance of the adjacent faces of the two plates in substantially full surface contact. Depressions 36 are of substantially greater length than the width of the projections 32, so as to permit the latter to slide through a desired arc of movement. This may be sufficient to permit the forward section to angle through an arc of about 10° or 15° in either direction horizontally with respect to the rear section 10 of the toboggan. The ends 38 of the depressions are preferably radial and the engagement therewith of the ends 37 of projections 32 will positively limit the relative angling movement between the sections. As best shown in Fig. 4, the plywood of the main body 12 of the rear section and the lower layer of the reinforcing strip 17 are recessed sufficiently to receive the depressed portions 36 of the plate 33, which are stamped in the plate and, therefore, project at the opposite side. Vertically alined with the plate 33 there is secured to the upper surface of the reinforcing strip 17 a flat metal plate 39 which may be secured by the same rivets 34 which hold the plate 33. Plate 39 is likewise provided with a central aperture 40 alined with the apertures 31 and 35. A bolt 41 has its head 42 held against turning in a square recess formed in the plywood body 21 of the forward section beneath the plate 29 in alinement with the aperture 31 therein. The shank of the bolt extends through the apertures 31, 35 and 40 and is adapted to receive at its upper end a nut 43. This serves to secure the two sections of the toboggan together. A lock nut or lock washer may be provided in addition to the nut 43, if desired.

The construction of the swivel devices is such that the forward section of the toboggan may turn freely with relation to the rear section through an angle of between 10° and 15° in either direction. This is adequate for the desired steering purposes. The limiting means, however, definitely prevent any attempt to make a turn sharper than that which the toboggan is capable of negotiating properly. In making a turn, it is necessary or desirable to throw one's weight toward the side of the toboggan forming the inside of the turn, thus requiring a certain amount of skill and imparting a corresponding thrill to the ride. Turning of the forward section is accomplished with comparative ease, since the only contact between the two sections is that provided between the adjacent surfaces of the plates 29 and 33. If desired, heavy grease may be provided between these surfaces to reduce the friction. Enough play is provided between the connection in the two sections to permit a slight vertical tilting of the forward section 11 with respect to the rear section 10 as the toboggan slides over bumpy terrain. Any suitable means, such as eyelets 44 secured to the forward ends of the top rails 22, may be provided for receiving the ends of a rope to be attached to the eyelets for towing purposes.

While an illustrative embodiment of the invention has been described in considerable detail, it will be understood that various changes may be made in the construction and arrangement of the several parts without departing from the general principles and scope of the invention. The terms and expressions used herein have been employed as terms of description and not of limitation.

What I claim is:

1. A toboggan comprising a plurality of alined, separable sections arranged in tandem, each of said sections extending substantially the full width of said toboggan and being formed of thin wood arranged for flat surface engagement with the snow and having longitudinally extending cleats along the side edges thereof, and swivel means connecting said sections directly together for relative horizontal angling.

2. A toboggan comprising a plurality of alined, separable sections arranged in tandem, each of said sections extending substantially the full width of said toboggan and being formed primarily of plywood arranged for flat surface engagement with the snow and having hardwood runners extending along the longitudinal edges thereof, and swivel means connecting said sections directly together for relative horizontal angling.

3. A toboggan comprising a plurality of alined, separable sections arranged in tandem, each of said sections extending substantially the full width of said toboggan and being formed primarily of plywood arranged for flat surface engagement with the snow and having hardwood runners extending along the longitudinal edges thereof, the grain of the outer layers of plywood in the forward section extending transversely thereof and in the rear section extending longitudinally thereof, and swivel means connecting said sections directly together for relative horizontal angling.

4. A toboggan comprising a plurality of alined, separable sections arranged in tandem, each section extending substantially the full width of the toboggan, the main body portion of each section being formed of plywood arranged for flat surface engagement with the snow, shallow runners secured directly to the under faces of said main body portions and extending longitudinally thereof, and swivel means connecting said sections directly together for relative angling movements in a horizontal plane.

5. A toboggan comprising a plurality of alined, separable sections arranged in tandem, each section extending substantially the full width of the toboggan, the main body portion of each section being formed of plywood arranged for flat surface engagement with the snow, shallow runners secured directly to the under faces of said main body portions and extending longitudinally thereof, shallow rails secured directly to the upper faces of said main body portions and extending parallel with said runners, and swivel means connecting said sections directly together for relative angling movements in a horizontal plane, the forward end of the front section being curved upwardly along a sweeping arc of less than 90°.

6. A toboggan comprising a plurality of alined, separable sections arranged in tandem, the main body portion of each section being formed of plywood arranged for flat surface engagement with the snow, shallow runners secured directly to the under faces of said main body portions and extending longitudinally thereof, and swivel means connecting said sections for relative angling movements in a horizontal plane, said swivel means including a metal plate on each of said sections arranged to cooperate in bearing re-

lation with a similar plate on another section, said plates having cooperating formations thereon adapted to limit the extent of relative angling between said sections.

7. A toboggan comprising a plurality of alined, separable sections arranged in tandem, the main body portion of each section being formed of plywood arranged for flat surface engagement with the snow, shallow runners secured directly to the under faces of said main body portions and extending longitudinally thereof, and swivel means connecting said sections for relative angling movements in a horizontal plane, said swivel means including a metal plate on each of said sections arranged to cooperate in bearing relation with a similar plate on another section, said plates having cooperating formations adapted to limit relative angling between said sections, each of said sections being reinforced by a transversely extending, extra layer of plywood in the region of said plates.

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