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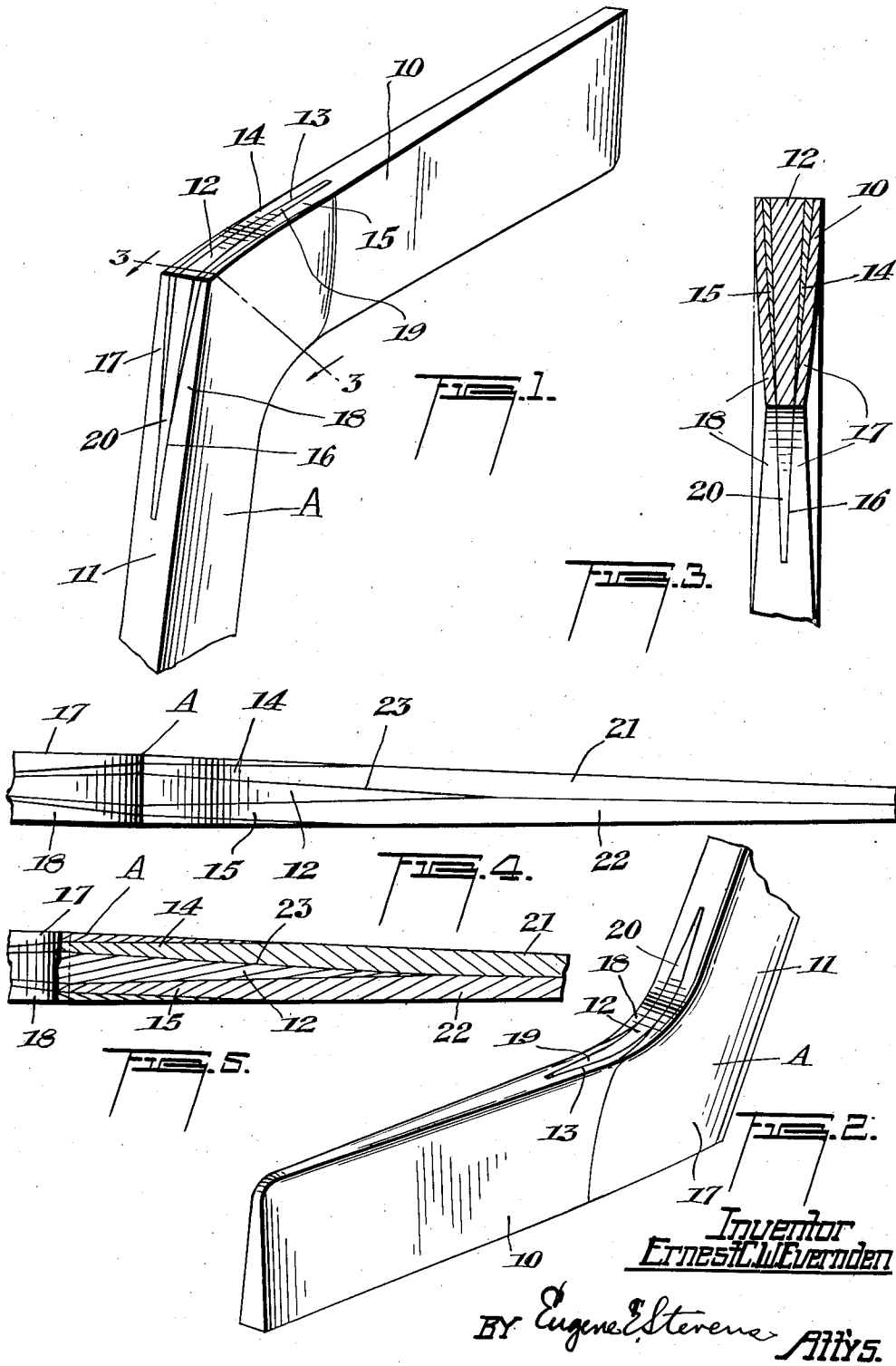
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HOCKEY STICK

Filed Dec. 26, 1939

2 Sheets-Sheet 1



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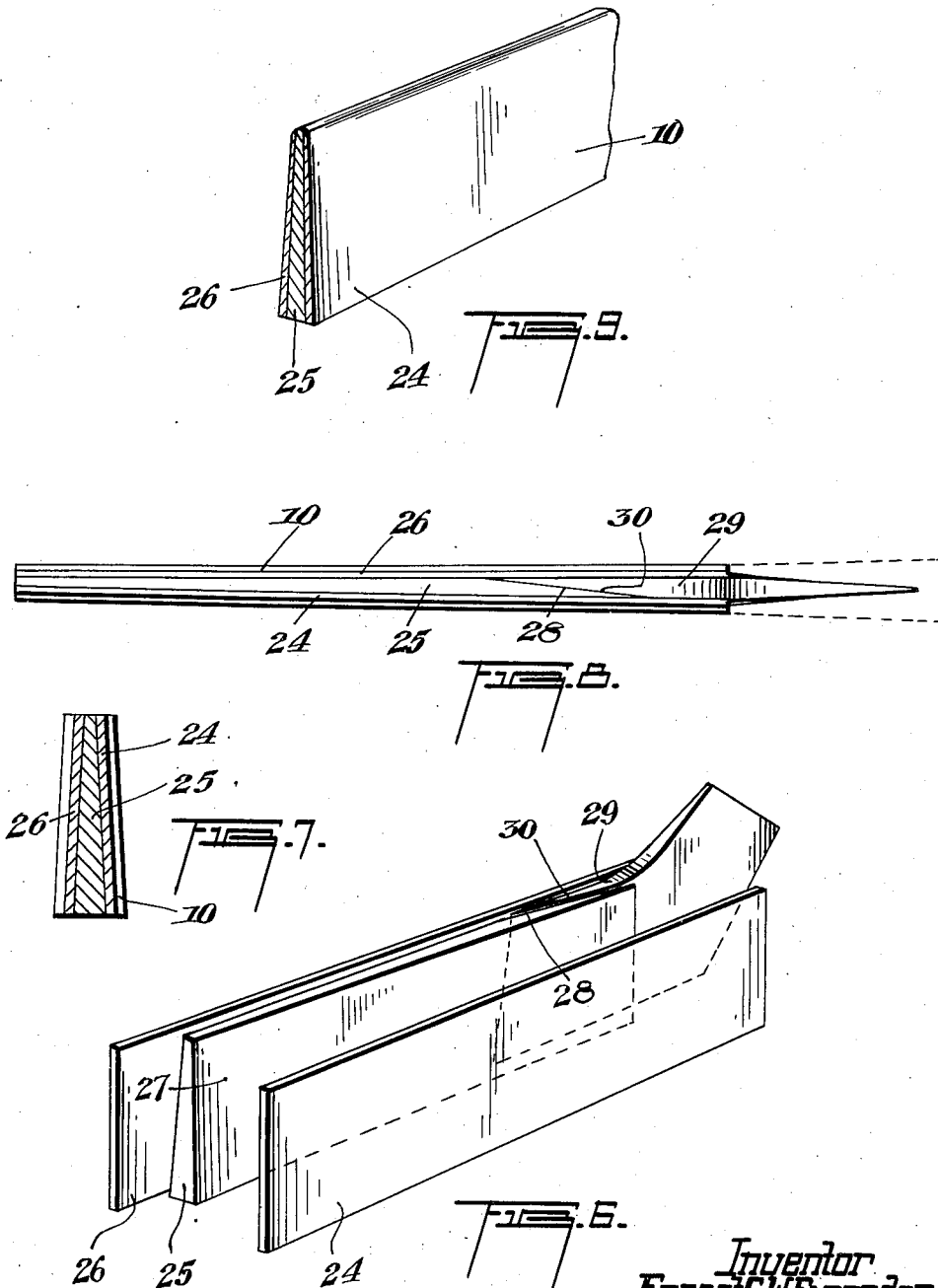
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HOCKEY STICK

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Application December 26, 1939, Serial No. 311,052

7 Claims. (Cl. 273-67)

This invention relates to improvements in hockey sticks.

In my prior United States Patent No. 2,023,728 I have disclosed improved hockey stick construction which involves manufacturing the hockey stick in three pieces, a handle and a blade and an insert interposed between the handle and the blade. In this construction the lower end of the handle and the rearward end of the blade were slotted so as to embrace the opposed ends respectively of the insert. This construction, however, was such that the insert formed a part of the blade having exposed sides which in effect formed a continuation of the blade and the insert itself formed the heel of the hockey stick. While this construction is satisfactory from the point of view of producing a hockey stick which will render good service, there are two possible objections to the structure. The first is that the blade shows a joint line across its outside faces between the heel and toe of the stick which tends to give the impression that the hockey stick is one of patched up construction. The second is that some exception might be taken to the spaced apart joints between the insert and the blade and the handle which might give rise to the impression that it was not particularly strong at this point, even though such joint construction would provide a strong stick. It is possible to improve this construction to obviate both these disadvantages retaining the very desirable construction which includes the use of an insert, and providing a blade of clean cut appearance and a joint effected at the heel of the stick between the three parts which will materially strengthen the stick. It is also possible to produce a blade of greater strength and a structure which simplifies the manufacture and production of a high grade hockey stick employing an insert.

According to the invention I form the forked portion at rearward end of the blade and the lower end of the stick so that the forked sections of the blade, which receive the insert therebetween, extend completely to the heel of the finished stick to completely embrace the lower end of the insert and I form the forked sections of the handle, so as to completely embrace the upper end of the insert and extend down to the bottom of the finished stick to overlie and embrace portions of the blade which embrace the lower portion of the insert. Through this construction I provide a hockey stick which has a five ply heel and in which the blade is free from joint markings between the toe and the point where the handle is attached. The construction may be

effected using a one piece blade but I prefer to employ a blade made up of more than two plies of material which has the effect of strengthening the blade and which lends itself readily to the formation of the type of joint described while making it possible to manufacture a high grade hockey stick in a simplified manner obviating some of the precision work necessary when employing a one-piece blade. A particularly efficient construction may be produced employing a blade made up of three plies wherein the centre ply is constructed to co-operate particularly with the insert, which construction obviates fine precision work ordinarily necessary in the manufacture of a hockey stick of this general type employing a one piece blade and a slot cut in the rearward end which must accurately mate with the forward end of the insert.

The invention will be described in detail in the following specification in conjunction with the accompanying drawings.

In the drawings,

Figure 1 is a perspective view of the lower end of a hockey stick illustrating the heel arrangement of the stick in particular.

Figure 2 is a similar perspective view with the stick reversed showing the upper edge of the stick in particular.

Figure 3 is a section taken on the line 3-3 of Figure 1.

Figure 4 is a fragmentary bottom plan view of a hockey stick in which the blade is made from two plies of material joined in the plane of the blade.

Figure 5 is a fragmentary longitudinal section taken through the blade heel of a hockey stick of the type illustrated in Figure 4.

Figure 6 is a schematic view of the parts and the arrangement in the manufacture of a blade made up of three plies of material.

Figure 7 is a transverse section taken through a blade made up of three plies prior to final formation.

Figure 8 is a top plan view of a three ply blade and the manner in which it is mated with an insert.

Figure 9 is a fragmentary view partly in section of a three ply finished blade.

Referring to the drawings, and particularly to Figures 1 and 3, A indicates a hockey stick which is formed in three pieces, a blade 10, a handle 11 and an insert 12. The blade 10, as shown is a one piece blade in the rear end of which a slot 13 is cut, the slot being tapered inwardly so as to have a larger cross-sectional width at the heel

of the blade than inwardly thereof. This provides the blade with a rearward forked end forming spaced apart portions 14 and 15. The lower end of the handle 11 is likewise formed with a slot 16 which is gradually tapered in thickness so as to provide a slot of greater cross-sectional width at the lower end of the handle than inwardly thereof. Thus the lower end of the handle is also forked which results in the spaced apart arms or portions 17 and 18. The insert is shaped to provide opposed sections 19 and 20 at an angle to one another so as to conform with the general shape of the heel of the stick. The opposed sections are tapered so as to fit with the tapered slots of the blade 10 and handle 11. In contradistinction to my prior construction the sides of the insert are designed to be wholly embraced by the blade and the handle of the stick.

It will be noted upon reference to Figures 1 and 2 particularly that the forked portion of the blade is designed to receive the section 19 of the insert and to completely embrace the lower portion of the insert. On the other hand the forked portion of the lower end of the handle is designed to receive and completely embrace the upper portion of the insert and in addition to extend to the base of the stick and overlies and embrace portions of a forked part of the blade which embraces the lower portion of the insert. Thus an extremely strong construction is produced wherein the heel of the stick at the joint is reinforced to a maximum extent having a five ply heel. Moreover, except for the line of juncture between the lower end of the handle and the blade, the latter is clean cut throughout its extent without the occurrence of a joint anywhere along the length of the blade.

In constructing the stick the insert may be fitted in the slot 13 of the blade and the rear end of the blade overlying the insert may be undercut and tapered rearwardly so as to merge neatly with the overlapping portions of the handle, thus to provide a neat joint and a final thickness of heel corresponding to the usual thickness of a finished stick after the blade and handle have been shaped and finished to produce the final article.

This construction may be further improved by forming the blade in sections. One form of construction of this character is shown in Figures 4 and 5 wherein the blade is made up of two pieces of material 21 and 22 disposed parallel to the plane of the blade and joined together. This will provide for a stronger blade and, moreover, tends to simplify the construction of the stick. For instance, the slot 23 which is produced in the blade may be readily formed by chamfering each piece of material 21 or 22 before they are united together and thus the slot 23 finally formed may be produced without the precision work which is necessary in forming a corresponding slot in a one piece blade. The outside of the arms 14 and 15 of the forked portion of this blade may likewise be tapered on the outside as shown and the corresponding parts of the handle fitted in the same manner as described. As a result an even stronger hockey stick is produced since it has the strong interlocked five ply reinforced heel, while in addition it includes a stronger blade made of laminations which involve simpler processing steps.

A preferred construction is illustrated in Figures 6-9 wherein the blade is made up of three main plies of material 24, 25 and 26; the blade 25 forming a core and the three parts

glued together or secured in a desired manner. In this construction the core first of all is shaped in a general manner corresponding to the final shaping of the stick by tapering it inwardly from the bottom to the top, as indicated at 27, and also tapering it longitudinally from the heel to the toe, if desired, substantially as shown in Figure 8. The core is shorter than the outer pieces 24 and 26 and its rearward end is chamfered on one side, as indicated at 28 (see Figure 6) whereas the forward end 29 of the insert is correspondingly chamfered, as at 30. Thus these two parts may be fitted together so that the insert in effect constitutes a continuation of the core 25 or conversely the core forms an extension of the insert. In this case also it will be appreciated that the fine precision work necessary to cut the groove in a single piece blade is not necessary since the core 25 and the insert may be chamfered with accuracy in a simple operation. Thus, upon fitting the core and the insert together, it is only necessary to apply and fasten the plies 24 and 26 to the outside of the core and the rearward ends of the pieces 24 and 26 form a forked end on the blade which embraces the lower end of the insert beyond its point of juncture with the core so as to produce in effect the structure shown in Figure 8. At this point it will be realized that the blade so formed has the rough general shape of the final blade in view of the tapering of the core and it will be particularly appreciated that when the outer plies of material 24 and 25 are processed to produce the desired fine taper of the blade cut down to an extent to expose the core at any point. Moreover this provides a substantial amount of material in the blade to permit the removal of some of it from the outer face to give the necessary shape in forming a right hand or left hand stick without impairing the strength of the blade.

The handle may be applied in the manner previously described in connection with other forms of construction illustrated. In this connection the rearward ends of the outer plies may be undercut and tapered to receive the forked end of the handle and provide a finished article which is of the desired size and shape as well as of fine workmanship. A particularly strong construction is provided by this form of structure.

From the foregoing it will be appreciated that I have produced an improved type of structure which in any of its forms will produce an extremely strong and durable blade while permitting fine workmanship consistent with the high standards required in the manufacture of high grade hockey sticks. Moreover, in those forms of construction employing a multi-ply blade, in addition to added strength I am able to obtain the advantage of a saving in wood costs.

What I claim is:

1. A hockey stick comprising a blade, a handle and an insert interposed between the blade and handle in the heel area of the stick, said blade and handle being formed to receive the insert between their sides, the blade embracing the lower portion of the insert, the handle embracing the upper portion of the insert and overlapping and embracing the portions of the blade which embrace the lower portion of the insert.
2. A hockey stick comprising a blade, a handle and an insert interposed between them in the heel area of the stick, said blade being formed of

a plurality of plies of material disposed parallel to the plane of the blade and joined together, two of said plies being separate from one another at the rear end of the blade to receive therebetween and embrace the lower portion of the insert, the lower end of the handle being forked to receive and embrace the upper portion of the insert and overlap and embrace portions of the blade which embrace the lower portion of the insert.

3. A hockey stick as claimed in claim 2 in which the blade is made up of two plies of material, the inner surface of the rearward end of each ply being chamfered to form with the other ply a tapered slot for receiving the insert.

4. A hockey stick as claimed in claim 2 in which the blade is formed with three plies of material, the centre ply forming an extension of the insert and being shorter than the outer plies, the rearward end of the centre ply being chamfered to merge with the insert, the longer outer plies forming a forked end on the blade to receive the insert.

5. A hockey stick comprising a blade and a handle and an insert interposed between them in the heel area of the stick, said blade being formed of three plies of material disposed parallel to the plane of the blade and joined together, the centre ply being tapered to approximate the final general shape of the blade, said centre ply being shorter than the outer plies and terminating a distance inwardly from the rearward end of the

blade and cut to engage with the insert, the portions of the outer plies extending beyond the centre ply forming a forked end on the blade to receive the insert, said handle being connected to the stick by said insert.

6. A hockey stick comprising a blade and a handle and an insert interposed between them in the heel area of the stick, said blade being formed of three plies of material disposed parallel to the plane of the blade and joined together, the centre ply being tapered to approximate the final general shape of the blade, said centre ply being shorter than the outer plies and terminating a distance inwardly from the rearward end of the blade and cut to engage with the insert, the portions of the outer plies extending beyond the centre ply forming a forked end on the blade to receive the insert and extending to completely embrace the lower portion of the insert, the handle being forked to receive and completely embrace the upper portion of the insert and overlap and embrace portions of the blade which embrace the lower portion of the insert.

7. A blade for a hockey stick comprising three plies of material secured together, the centre ply being shaped substantially to conform to the final shape of the blade and disposing the outer plies in planes substantially coinciding with the final shape of the blade.

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