

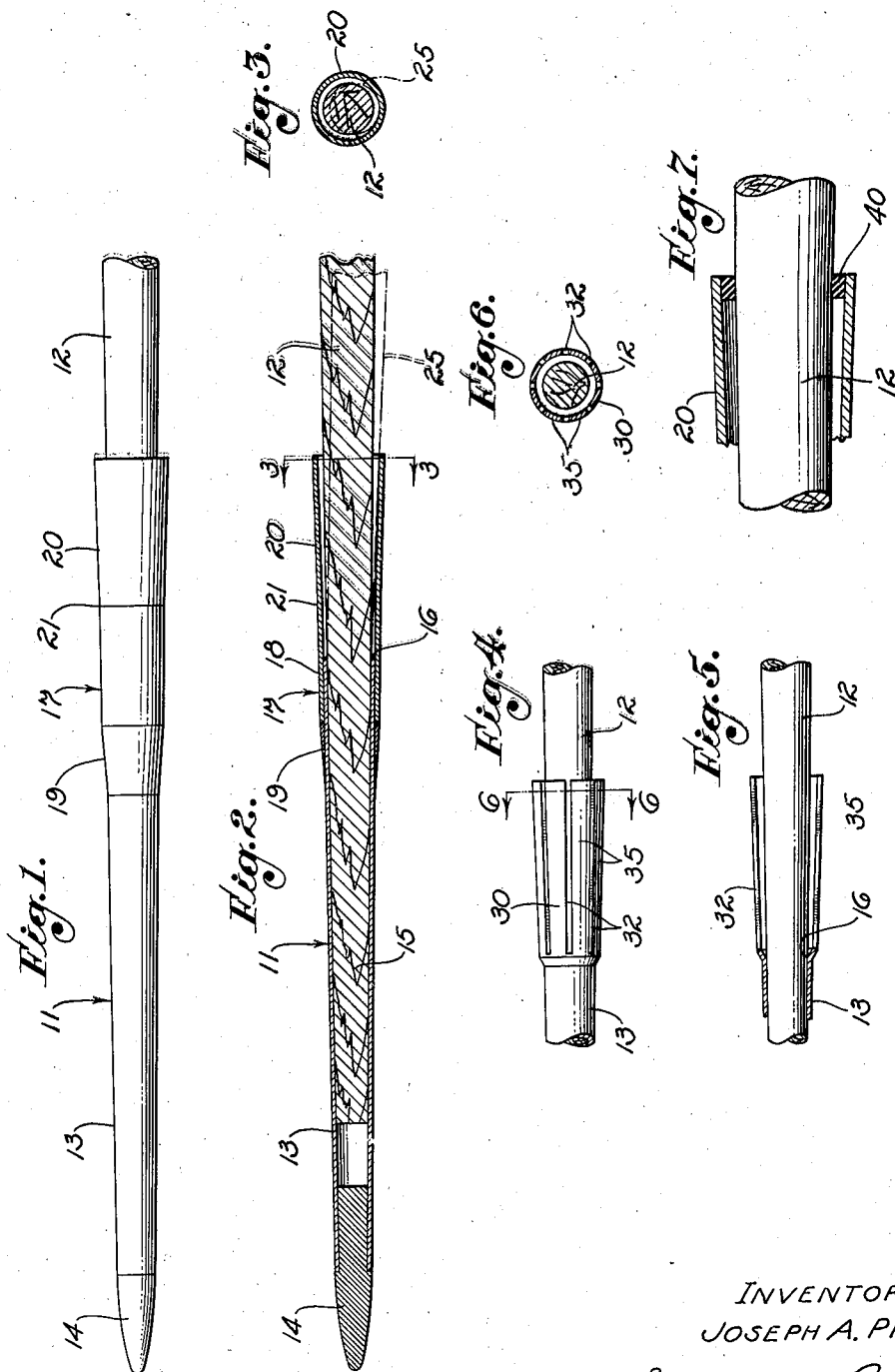
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JAVELIN

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JAVELIN

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9 Claims. (Cl. 272-59)

My invention relates to javelins and the like and more specifically to a means for preventing breakage of the shaft thereof.

It is well known that, in the use of the javelin in competitive sports and in practicing therefor, the ordinary wooden shafts of javelins frequently break. It has been found that in the majority of cases the breakage of the shaft of the javelin occurs at the point where the shaft enters the ferrule of the head. This is evidently due to the fact that when the head of the javelin enters the ground, the movement of the head is suddenly stopped but the inertia in the shaft results in its continued movement and a bending or whipping of the shaft occurs, concentrating the stress occasioned by this bending at the point where the javelin enters the ferrule of the head.

The primary object of the invention is to provide a means for preventing the concentration of the force occasioned by the bending of the shaft at the point where the shaft enters the ferrule of the head.

Specifically, the invention comprises a metallic collar integrally or otherwise secured to the rearward end of the ferrule of the metallic javelin head, this collar being of slightly larger diameter than the shaft of the javelin and extending rearwardly a substantial distance from the rearward end of the ferrule in such a manner as to limit the bending of the shaft at the point where the shaft enters the ferrule.

It is another object of the invention to provide a collar of the type referred to in the above paragraph which includes means adapted to definitely limit the bend of the shaft relative to the head but at the same time provides sufficient resiliency so that the stress occasioned by the bending of the shaft relative to the head is distributed over a substantial portion of the shaft to the rearward of the ferrule. These and other objects will be apparent from a perusal of the following part of the specification and the appended claims in connection with the drawing.

In the drawing:

Fig. 1 is an elevational view of the metallic head of a javelin and a portion of the shaft associated therewith.

Fig. 2 is a longitudinal section through the javelin head illustrated in Fig. 1.

Fig. 3 is a cross-sectional view taken as indicated by the line 3-3 of Fig. 2.

Figs. 4 and 5 are respectively elevational and longitudinal sectional views of an alternative form of the invention.

Fig. 6 is a cross-sectional view taken as indicated by the line 6-6 of Fig. 4.

Fig. 7 is a fragmentary sectional view illustrating still another form of the invention.

Referring to Figs. 1, 2, and 3, I show the forward end of a javelin which includes a metallic

head generally designated by the numeral 11 and a non-metallic shaft 12 which is generally formed of wood.

The head 11 comprises a tubular ferrule 13 which is preferably slightly tapered, converging toward the forward end thereof. Integrally or otherwise fixed to the forward end of the ferrule 13 is a tip 14. The shaft 12 is provided at the forward end thereof with a tapered portion 15 adapted to be received by the tubular ferrule 13 in a press-fit relation therewith substantially in the manner indicated in Fig. 2.

The means for limiting the lateral bend of the shaft 12 at the rear end 16 of the ferrule 13, comprises a tubular collar member 17 having a forward end 18 of such a diameter as to fit over the rearward end of the ferrule 13 substantially in the manner shown and which may be welded or otherwise secured to the ferrule 13, as indicated at 19 in Fig. 2. The rearward end 20 of the tubular collar member 17 extends rearwardly from the end 16 of the ferrule 13 for a substantial distance and surrounds the shaft in relatively spaced relationship therewith. Preferably the rearward end of the collar 17 is slightly tapered so that the space between the collar 17 and the shaft 12 progressively increases toward the rearward end thereof from a point 21 adjacent the rearward end 16 of the ferrule.

When a javelin equipped with this form of head is thrown, and the shaft is caused to whip or bend when the movement of the head of the javelin is suddenly stopped by contact with the ground, the shaft 12 bends laterally until it engages the rearward portion 20 of the member 17 substantially in the manner indicated by dotted lines 25 of Figs. 1 and 2, whereupon the whip of the shaft relative to the head is arrested. By thus allowing a predetermined bend of the shaft to occur but limiting this bend to an amount less than the critical point at which breakage would occur at the point 16, the stress occasioned by the bending of the shaft is distributed over a substantial distance beyond the point 16 and the rearward end of the collar 17 instead of allowing the concentration of this stress at the point 16.

Referring to Figs. 4, 5 and 6, I show in these figures a modification of the collar 17. In this form the collar 17 is shown as being formed integrally with the ferrule 13 in such a manner as to provide a stepped portion at the point 16 terminating rearwardly in an enlarged diameter portion 30.

In order to provide additional resiliency to the collar 30, if desired, so that ample flexing of the shaft is not impaired, I prefer to provide a series of kerfs 32 extending from a point adjacent the point 16 rearwardly to the end of the collar 30 substantially in the manner shown.

It will be seen that in this form the resilient fingers 35 formed by the series of kerf slots 32 serve to absorb sudden shock due to violent impact between the shaft 12 and the collar 30, while at the same time limiting the bend of the shaft sufficiently to prevent breakage at the point 16.

Referring to Fig. 7, I show a form of the invention which includes a ring 40 formed of a compressible material such as rubber, which is adapted to be positioned preferably between the extreme rearward end of the collar 17 and the shaft 12 for the purpose of resiliently absorbing the shock caused by the lateral whipping of the shaft relative to the head 11.

The rubber ring 40 is preferably used in conjunction with a collar of the type disclosed in Fig. 2, but may, if preferred, be used in connection with the collar 30 which provides the resilient fingers 35.

From the foregoing it will be evident that the various forms of the invention provide a means for distributing the force, occasioned by the bending of the shaft which in turn is caused by impact of the javelin with the ground, over a substantial length of the shaft, thus preventing the breakage of the shaft. The importance of this function will be realized in that a great majority of the frequent breakages of javelin shafts occur at the point where the shaft enters the ferrule of the head and that when this breakage occurs the shaft can no longer be utilized. Even though only a comparatively small portion of the shaft is broken off, the shaft cannot be tapered off to fit the ferrule 13 and reused for the reason that the balance and weight of the javelin would not be correct. Therefore, this high rate of breakage of the shafts of javelins used in competitive sports and the practice therefor, amounts to a very material cost.

Actual tests which I have made of my invention show that by the use thereof approximately 90% of the breakage of javelin shafts in organized competitive meets and in practice is eliminated.

It should be understood that I am aware that the invention is capable of a wide variety of mechanical expressions and that the forms of the invention herein shown and described are to be taken merely as the preferred examples of the same and that such minor changes, arrangement and construction of parts may be made as will remain within the spirit and scope of the invention, the same to be interpreted by the appended claims.

I claim as my invention:

1. In a javelin or similar device of the character described, the combination of: a head providing a bore; a shaft seated in said bore; and means associated with said head and said shaft for limiting the amount said shaft may bend laterally at the point said shaft enters said bore.

2. In a javelin or similar device of the character described, the combination of: a head providing a bore; a shaft seated in said bore; and means rigidly carried by said head and engageable with said shaft at a substantial distance from said head to limit the amount said shaft may bend at the point said shaft enters said bore.

3. In a javelin or similar device of the character described, the combination of: a head providing a bore; a shaft seated in said bore; and a

collar secured to said head adjacent the end of said bore operable to limit the amount said shaft may bend laterally relative to said head at the point said shaft enters said bore.

4. In a javelin or similar device of the character described, the combination of: a head terminating in a tubular ferrule; a shaft seated in said ferrule; and a member secured to and extending rearwardly from the end of said ferrule, said member having a rearward portion extending around said shaft in relatively spaced relationship therewith at a substantial distance rearwardly from the end of said ferrule, said rearward portion being adapted to limit the amount said shaft may bend laterally relative to said head intermediately of the rearward end of said ferrule and said rearward portion of said member.

5. In a javelin or similar device of the character described, the combination of: a head terminating rearwardly in a tubular ferrule; a shaft seated in said ferrule; and a collar carried by said head and having a rearward portion extending around said shaft at a substantial distance rearwardly from the end of said ferrule, said collar being operable to allow said shaft to bend a predetermined amount but limiting said bend of said shaft to distribute the stress occasioned by said bending over a substantial length of said shaft rearwardly from said ferrule.

6. In a javelin or similar device of the character described, the combination of: a head terminating rearwardly in a tubular ferrule; a shaft seated in said ferrule; and a collar extending co-axially with said ferrule in relatively spaced relationship with said shaft a substantial distance rearwardly from the end of said ferrule, said collar engaging said shaft when said shaft is bent to prevent breakage of the shaft at the point said shaft enters said ferrule.

7. In a javelin or similar device of the character described, the combination of: a head terminating in a tubular ferrule; a shaft seated in said ferrule; a collar associated with said ferrule and having a rearward portion surrounding said shaft in relatively spaced relationship therewith a substantial distance rearwardly from the end of said ferrule; and resilient means associated with said collar engaging said shaft to resiliently limit the amount said shaft may bend at the point where said shaft enters said ferrule.

8. In a javelin or similar device of the character described, the combination of: a head terminating in a tubular ferrule; a shaft seated in said ferrule; and a collar associated with said head and resiliently engaging said shaft at a substantial distance rearwardly from the end of said ferrule to resiliently limit the amount said shaft may bend laterally relative to said head at the point where said shaft enters said ferrule.

9. In a javelin or similar device of the character described, the combination of: a head terminating in a tubular ferrule; a shaft seated in said ferrule; a ring of compressible material surrounding said shaft at a substantial distance rearwardly from the end of said ferrule; and means rigidly secured to said head operable by engagement with said ring to resiliently limit the amount said shaft may bend at the point said shaft enters said ferrule.

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