April 17, 1951 J. C. RAMSEY 2,549,235

INTERLOCKED MULTIPLATE ARROWHEAD CONSTRUCTION

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Fig. 1.

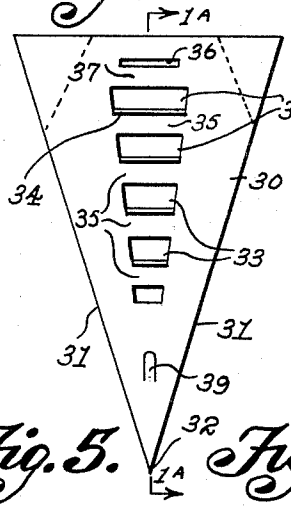


Fig. 2.

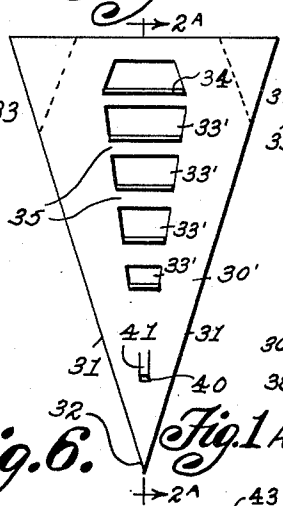


Fig. 3.

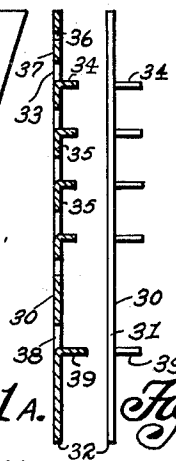


Fig. 4.

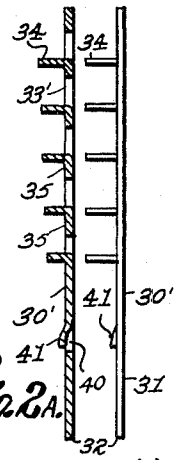


Fig. 5.

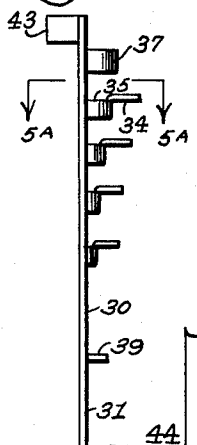


Fig. 6.

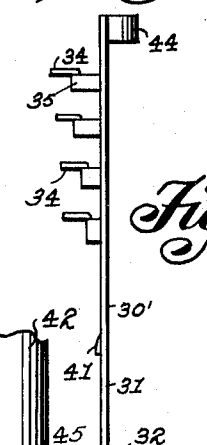


Fig. 1A.

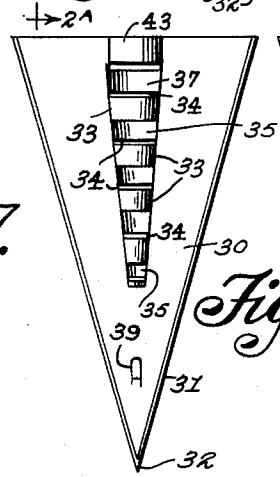


Fig. 2A.

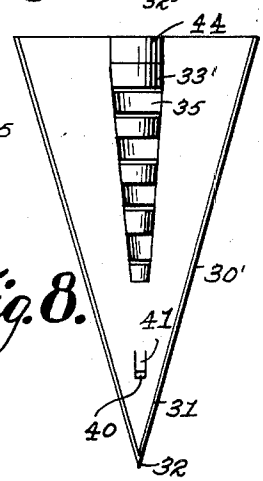


Fig. 7.

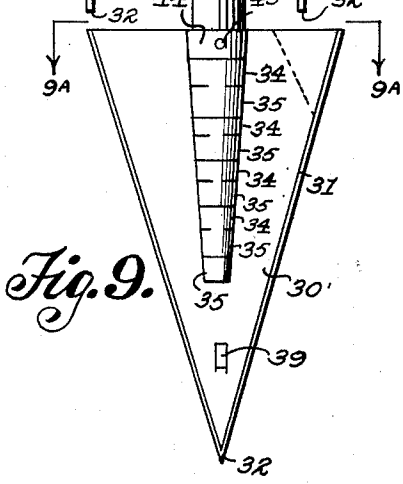


Fig. 8.

Fig. 5A.

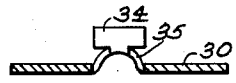


Fig. 9A.

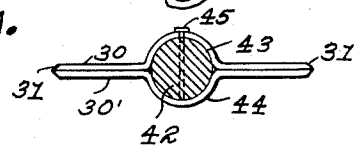


Fig. 9.

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Fig. 10.

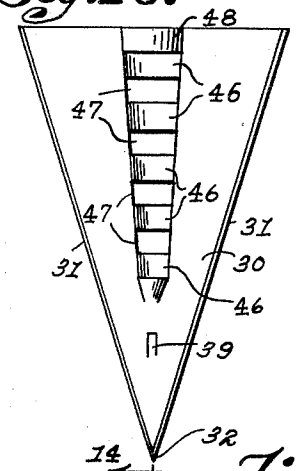


Fig. 11.

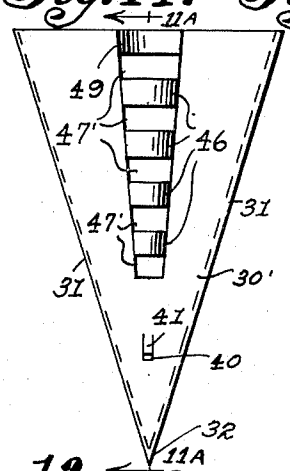


Fig. 12.

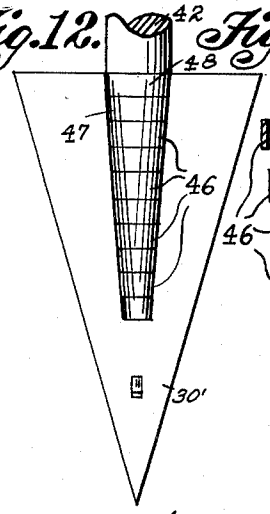


Fig. 11A.

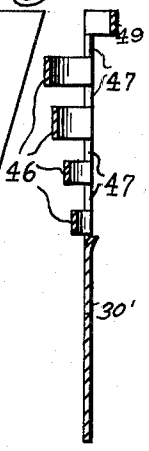


Fig. 13.

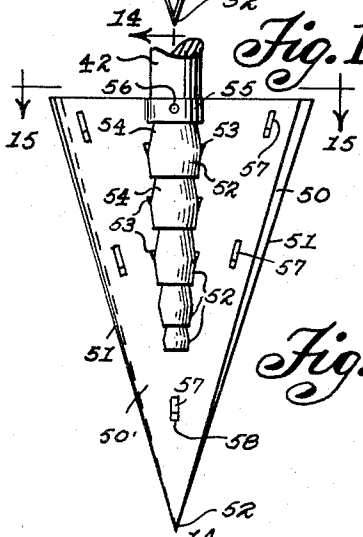


Fig. 14.

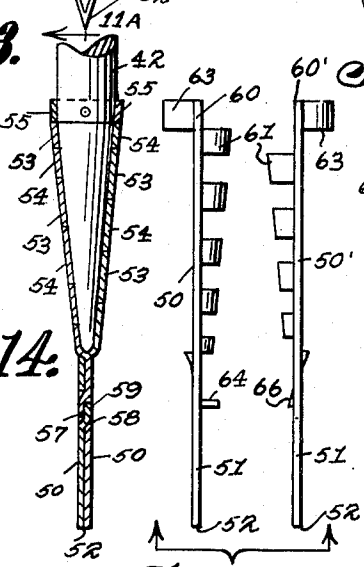


Fig. 17.

Fig. 16.

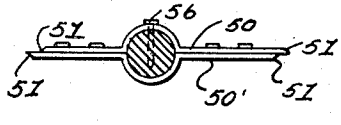


Fig. 15.

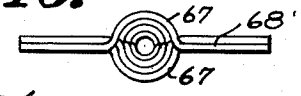


Fig. 18.

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Fig. 19.

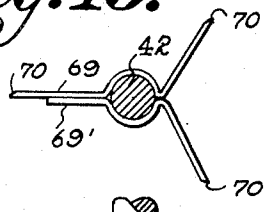


Fig. 21.

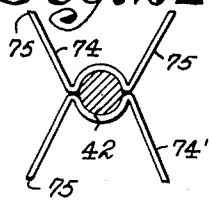


Fig. 23.

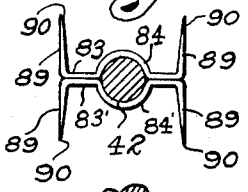


Fig. 20.

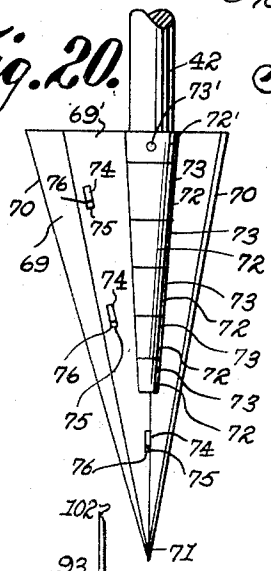


Fig. 22.

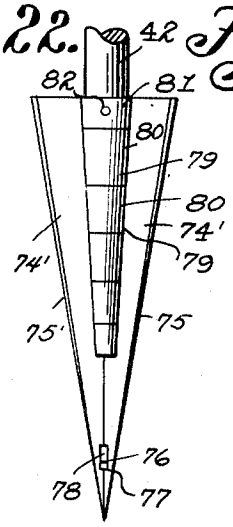
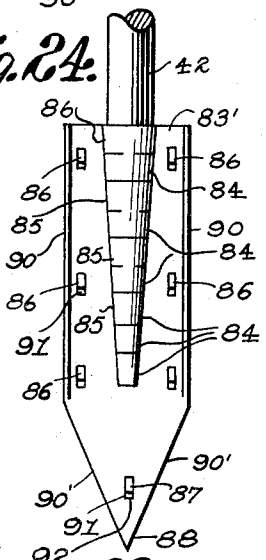


Fig. 24.



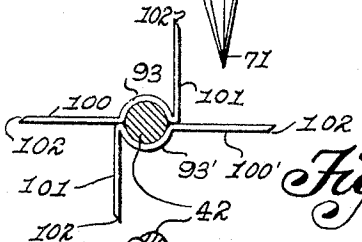
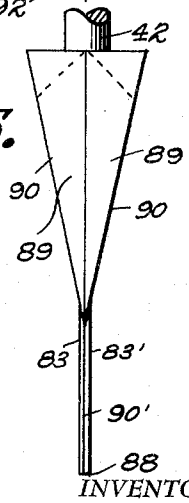


Fig. 26.

Fig. 25.



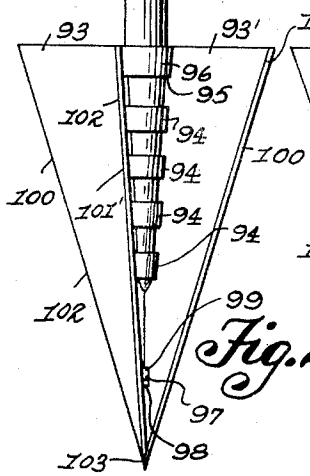


Fig. 27.

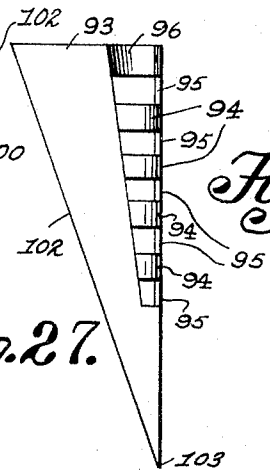


Fig. 28.

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ATTORNEYS

Patented Apr. 17, 1951

2,549,235

UNITED STATES PATENT OFFICE

2,549,235

INTERLOCKED MULTIPLATE ARROWHEAD CONSTRUCTION

James C. Ramsey, Lincoln, N. Mex.

Application December 15, 1947, Serial No. 791,830

8 Claims. (Cl. 273—106.5)

1

This invention relates to improvements in arrow heads which are adapted for use with arrows that are propelled through the air by a bow and reference is hereby made to my previously co-pending application, Serial No. 37,610, now U. S. Patent No. 2,504,449, granted April 18, 1950.

An object of the invention is to provide a sectional arrow head having a unique retaining means incorporated therein, by which means the arrow head is retained on the forward or ferrule end of an arrow shaft.

Another object of the invention is to provide a sectional arrow head whose sections may be either left flat to form the less preferred two-edged form of arrow head, or be bent outwardly in angular relation to each other to form the preferred form of arrow head with four cutting edges, or one with three cutting edges, or with six cutting edges, since actual tests in hunting have proven that a strong, well formed arrow head with three or more cutting edges is superior to the ordinary two-edged arrow head as a big game killer, because the pattern of the wound it makes allows the arrow shaft to enter more readily without binding, thereby increasing penetration, which allows more veins and arteries to be severed; and such a wound sags open, causing a much greater hemorrhage internally, as well as spilling more blood externally, which makes trailing wounded game easier.

A further object of the invention is to provide a sectional arrow head having unique retaining means therefor that are so arranged that the arrow head sections are retained as a fixed unit without the disadvantage of having protuberances or spaces formed in the arrow head that will retard penetration of the arrow into tough-skinned big game animals, or that will tend to collect foreign matter that would unbalance the arrow head.

A still further object of the invention is to provide a strong sectional arrow head having a unique latching means incorporated therein by which means the sections are retained firmly in face to face engagement with each other so that the point of the arrow head will not curl or bend, or the sections come apart upon the head striking a large bone or other hard substance.

With the above and other objects and advantages in view, the invention consists of the novel details of construction, arrangement and combination of parts more fully herinafter described, claimed and illustrated in the accompanying drawings in which:

Figure 1 is a plan view of one section of an arrow head forming the preferred embodiment

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of the invention prior to forming the section for assembly with its mating section to form an arrow head, and before the section has been bent to form the preferred form of arrow head with four cutting edges, as shown in Figures 21 and 22;

Figure 1A is a vertical sectional view on the line 1A—1A of Figure 1;

Figure 2 is a plan view of the mating section of an arrow head prior to the forming thereof;

Figure 2A is a vertical sectional view on the line 2A—2A of Figure 2;

Figure 3 is an edge view of the section shown in Figure 1;

Figure 4 is an edge view of the section shown in Figure 2;

Figure 5 is an edge view of the section shown in Figure 1 after it has been bent for assembly with its mating section to form an arrow head, but before the blade has been bent to provide the preferred form of arrow head with four cutting edges shown in Figures 21 and 22;

Figure 5A is a sectional view on line 5A—5A of Figure 5;

Figure 6 is an edge view of Figure 2 in the same condition as shown in Figure 5;

Figure 7 is a plan view of the section shown in Figure 5;

Figure 8 is a plan view of the section shown in Figure 6;

Figure 9 is a plan view of the sections assembled together in flat inner face relation to each other, and applied to the end of an arrow shaft, to show how they would look if thus used in the least preferred form of arrow head, and not bent outwardly in angular relation to each other along the vertical line of the edges of the cutouts to provide the preferred form of arrowhead with four cutting edges shown in Figures 21 and 22;

Figure 9A is a top edge or sectional view on the line 9A—9A of Figure 9;

Figure 10 is a plan view of a modified form of section;

Figure 11 is a plan view of the mating section;

Figure 11A is a sectional view on the line 11A—11A of Figure 11;

Figure 12 is a plan view of the assembled sections, as applied to an arrow shaft;

Figure 13 is a plan view of a modified form of arrow head as applied to the end of an arrow shaft;

Figure 14 is a sectional view on the line 14—14 of Figure 13;

Figure 15 is a sectional view on the line 15—15 of Figure 13;

Figure 16 is the edge view of both sections of a modified form of the invention;

Figure 17 is a vertical sectional view of the form shown in Figure 16 in assembled relation to each other;

Figure 18 is a top edge view of another modified form of arrow head;

Figure 19 is a top edge view of another modified form of arrow head with the arrow shaft in section;

Figure 20 is a plan view of the form shown in Figure 19;

Figure 21 is the top edge view of the preferred form of arrow head with the arrow shaft in section;

Figure 22 is a plan view of the preferred form of arrow head shown in Figure 21, as constructed from the preferred form of sections shown in Figures 1 and 2;

Figure 23 is a top edge view of another modified form of the invention with the arrow shaft in section;

Figure 24 is a plan view of the form shown in Figure 23;

Figure 25 is a side view of the form shown in Figure 23;

Figure 26 is a top edge view of another modified form of the invention with the arrow shaft in section;

Figure 27 is a plan view of the form shown in Figure 26 and

Figure 28 is an elevational view of one of the sections of the form shown in Figure 26.

Referring more in detail to the drawings, and especially to Figures 1 to 4, inclusive, there are shown two similarly shaped blanks 30 and 30' respectively that are co-operatively assembled after forming to provide an arrow head embodying the invention, especially the preferred form with four cutting edges shown in Figures 21 and 22.

In this instance, as in all the forms to be later described, the blanks are made of material suitable for the purpose desired, and may be either pretreated to prevent corrosion thereof, or untreated, as may be convenient or desirable.

The blanks shown in Figures 1 and 2 are stamped in the shape of a conventional arrow head having two cutting edges and a base. However, since the arrow heads embodying this invention may be either barbed or unbarbed at the base, and unbarbed heads are usually preferable, since the hunting laws of many of the states prohibit the use of barbed heads in hunting, the blanks may vary somewhat from the triangular shape shown. The sharp corners where the cutting edges and the base meet may be rounded off, or cut away to form unbarbed blades, or the base of each blank may be so cut as to form barbs. The blanks have cutting edges 31 terminating in a point 32, and the cutting edges may be of any configuration suitable for the purpose for which they are to be used. The blanks may be wide or narrow, long or short, or a variation of either, and the point 32 may be of any shape desired for the purpose to which it may be put.

When the blanks are stamped, cutouts 33 and 33' are formed in the blanks and the material left over by the cutouts is bent at right angles to the surface of the blanks to form flanges 34.

The cutouts are so spaced along the vertical center of the blanks that the flanges 34 of the cutouts 33' will interfit within the cutouts 33,

and vice versa the flanges 34 of the cutouts 33 will interfit with the cutouts 33'.

The portion of the blanks lying between the cutouts will be referred to as bands 35 and their purpose will be later described. Above the uppermost cutout 33 in the blank 30, there is provided a slot 36 which forms the band 37 above the uppermost cutout 33.

A cutout 38, adjacent the point 32 of the blank 30 forms a tongue 39 which, extending at right angles from the blank, interfits with a cutout 40 formed in the blank 30'. The cutout 40 forms the keeper or lip 41 for a purpose to be later described.

In Figures 5 to 8, inclusive, the blades have been formed for assembly together, but have not been bent to form the preferred form of arrow head with four cutting edges, as shown by Figures 21 and 22. They have been left unbent to show how they look when assembled together in flat inner face relation to each other, to be later applied to an arrow shaft 42, as in Figure 9, in which less preferred form of arrow head they may be used for small game hunting and practice shooting and in this form, will be referred to as blades 30 and 30' respectively.

When this preferred form of the two blanks is used to make the preferred form of arrow head with four cutting edges, as shown in Figures 21 and 22, or any of the modified forms of arrow heads in which they may be used, they and their various parts assume the numerals used to indicate them in the figures illustrating said succeeding forms.

The edges 31 have been formed but these are simply blunt edges, not yet having been sharpened and fashioned into actual cutting edges, as the actual cutting edges may be of any configuration which is suitable for the purpose for which they are to be used. The bands 35 and 37 have been curved inwardly to fit through corresponding cutouts in the mating blank as the two sections are fitted together, and the flanges 34 have been turned as shown in Figure 5A.

The band 43 of the blade 30 is formed by the material of the blade, outwardly of the slot 36, and this band is bent outwardly of the blade 30. The band 44 formed on the blade 30' outwardly of the uppermost cutout 33' is also bent outwardly of the blade 30' in opposed relation to the band 43. The purpose of the band 43 and the band 44 is to provide an even brim for the arrow head socket, so that the base of the finished arrow head will be evenly balanced and have an even appearance.

The blades, either bent to provide the preferred form of arrow head with four cutting edges shown in Figures 21 and 22, or one of the modified forms with three, or four, or six cutting edges, or else left flat in the less preferred forms shown in Figures 9 and 13, are assembled in inner face relation to each other and held clamped tightly together, preferably in some sort of a proper arrow head forming machine or device. A strong metal core or shaft, which may be a part of the device, the end of which is conical in formation and of exactly the same shape and size as the arrow shaft 42 that the head is intended to be later applied to, is forced down into the socket formed by the bands 35, 37, 43 and 44 to mold it to perfect shape and bind the blades in the closest possible engagement with each other. Since the intended arrow shaft 42 will extend to terminate within the last band on each section, this metal internal socket forming core will like-

wise extend in that far during the process of making the arrow head.

The tongue 39 having entered and extended through the cutout 40 as the blades were assembled together is now bent over, the tip rearwardly of the blade, to mesh with lip 41 to bind the points 32 firmly together and form a smooth surface on both sides of the blades.

The flanges 34 are then bent upward into contact with the metal internal socket forming shaft and shaped thereto, as in Figures 9, 13, 20, 22 and 24, wherein a wooden arrow shaft 42 has been fitted into the finished socket after the removal of the metal forming shaft.

Thus a smooth exterior surface is formed on the socket wall that will not catch or drag and retard penetration of the arrow into animal tissue, or collect foreign matter that would tend to unbalance the arrow head.

The two blades are not welded securely together at all places where they fit face to face against each other, especially along the line of contact from the very tip of the point 32 up to the fore end of the socket, tongues and lips being welded together the same as the rest, to make it a stronger, more rigid, more efficient arrow head.

A regular metal arrow pile or ferrule, such as are used on the fore end of arrow shafts may, if desired, be fitted into the socket formed by the bands and flanges and welded or soldered in place, to make it even a more stronger arrow head.

The entire arrow head may now be solder-dipped, or otherwise similarly treated to give it a better appearance.

The completed arrow head is now ready to be applied to an arrow shaft 42 when desired. The arrow head may be fixed on the arrow shaft 42 by a small pin 45 driven through a small hole in one of the rearmost bands of the arrow head.

It is not the purpose of the arrow shaft 42 to hold the blades together in any of the forms of this invention. The tongues and the welding and soldering are supposed to do the holding of the blades together. But in case the welding and tongue should burst loose upon impact of the arrow head against some solid object, the wedging tendency of the arrow shaft in the socket will still bind the blades together.

In Figures 10 to 12, inclusive, the blades 30 and 30' are similiar in shape, having the cutting edges 31 and point 32. However, the bands 46 formed by the cutouts 47 and 47' respectively do not have flanges formed thereon as previously described. These bands are all bent inwardly of the inner face of the blades while the band 48 on the blade 30 and the band 49 on the blade 30' are bent outwardly of the outer face of the blades in opposed relation to each other. With the exception of flanges these blades are assembled together and formed into finished arrow heads with two, three, four or six cutting edges just as were the form of blades previously described.

The two blades formed into the arrow head shown in Figures 13 to 15 inclusive is somewhat different in formation.

The blades 50 and 50' respectively having edges 51 and points 52 are placed in contact with each other so that one edge of each overlaps one edge of the other, as shown in Figure 15. The edge that extends out beyond the other becomes the actual cutting edge, and may be of any configuration desired for the purpose, and may be sharpened so as to provide the proper efficiency. The edge that lies more inward serves as a brace or stiffener, to make the arrow head more rigid. Thus only one edge of each blade is actually a cutting edge in this arrow head.

The bands 52, formed by cutous 53, have flanges 54 formed thereon so that the flanges contact the arrow shaft 42, when it is later fitted into the socket of the finished arrow head, to form a smooth exterior surface on the outer faces of the blades. These bands extend inwardly while the top bands 55 of each blade extend in the opposite direction. A pin 56 driven through a small hole in one of the top bands 55 secures the finished arrow head on the shaft 42.

This form of the invention uses a plurality of spaced tongues 57 entering the cutouts 58 to have the lip 59 pressed therein to form a smooth surface.

This form of the invention provides a stiff, rigid, strongly-made two edged arrow head suitable for hunting big game, and is the preferred form of the flat, two-edged arrow head forms, the less preferred forms being those shown in Figures 9 and 12.

In Figures 16 and 17, the blades 60 and 60' are similar to blades 50 and 50' having bands 61 formed by cutouts 62, but these bands have no flanges thereon as in Figures 13 to 15, inclusive. The top bands 63, in like manner, extend in the opposite direction, similar to the previous forms described. Tongue 64 entering cutout 65, is depressed together with the lip 66 to form a smooth surface.

In Figure 18, the bands 67 of both blades 68 and 68' respectively all extend in the same direction, and are formed in the same manner, as previously described. The two blanks of this form are the simplest and easiest of all the forms to make, and can be used for a two-edged arrow head, or for one having three cutting edges, or four cutting edges, or six cutting edges.

The form of the invention shown in Figures 19 and 20 is similar to the form shown in Figures 13 to 15 except that the blades 69 and 69' have been bent outwardly in angular relation to each other along the vertical line formed by one edge of the cutouts to provide an arrow head having three cutting edges 70. The point 71 is, therefore, formed by the termination of three cutting edges instead of two. The bands 72 have flanges 73 thereon, while the tongues 74, cutouts 75 and lips 76 are only formed where the two blades contact. The bands 72' are bent in opposite direction to the bands 72, and the pin 75' retains the finished head on the shaft 42.

The preferred form of my invention is shown in Figures 21 and 22. The two blanks shown in Figures 1 and 2, and designated here as blades 74 and 74' respectively are bent outwardly in angular relation to each other along the vertical line of the edges of the cutouts to provide four cutting edges 75. The point 75' is, therefore, formed by the termination of four cutting edges. Near the point 75', tongue 76 fits through cutout 77 and meshes with lip 78 to hold the blades firmly together there. More tongues and cutouts and lips may be used to hold the blades together from the point up to the forward end of the socket if deemed necessary. The uppermost bands 81 are oppositely bent and the bands 79 have flanges 80. Since this preferred form of the invention is composed of the preferred form of blades shown in Figures 1 and 2, its assembly and finishing has been earlier described in connection with the description given of Figures 1 to 9, inclusive. Along the line of contact of

the two blades from the point to the forward end of the socket the blades are welded securely together. When finished, the arrow head may be secured in place on an arrow shaft 42 by a pin 82 driven through a small hole in one of the uppermost bands 81.

Figures 23 and 25, inclusive, show how the two blanks of Figures 1 and 2 are used to make a modified form of the invention. The blades 83 and 83' have bands 84 with flanges 85, while bands 84' extend in the opposite direction to these bands. The tongues 86 are formed in rows on each side of the socket in parallel relation to the vertical center of the socket, while the tongue 87 is formed adjacent the point 88 of the blades. The blades are then bent in opposite directions at right angles to the blades to form wings 89. These wings lie in the same vertical planes at right angles to the blades and form four cutting edges 90, while the blades themselves form two additional cutting edges 90'. Thus an arrow head having six cutting edges is provided.

The tongues all fit in cutouts 91 and lips 92 formed by the cutouts are pressed together to form a smooth exterior surface, as previously described. In addition the blades are welded or soldered firmly together, the entire arrow head being finished just as in any of the other forms described.

In Figures 26 to 28, the blades 93 and 93' respectively are a variation of the form shown in Figures 10 to 12, inclusive, and form a modified form of the arrow head shown in Figures 21 and 22. Here the bands 94 of the blades are without flanges formed by cutouts 95. The top bands 96 are bent in the opposite direction to the band 94. One or more tongues 97 are used to hold the blades together from the point to the fore end of the socket, and are received in cutouts 98 with lips 99, all compressed together in the assembled head as previously described.

In this form, the blade 93 and the blade 93' have a portion 100 and 100' respectively lying in the same plane, but extending in opposite directions from the socket containing the shaft 42. The other portions 101 and 101' extend at right angles to the blades in opposite directions to each other. Thus four cutting edges 102 are formed, and the point 103 is formed by the termination of the four cutting edges.

This form of arrow head may also be made of the blades shown in Figures 1 and 2, in which case it will have the addition of flanges to contact the arrow shaft 42.

In all instances, the blades are welded securely together from the very tip of the point up to the forward end of the socket, and also may be welder or soldered together at any other place desired, to make a firmer, stronger, more rigid arrow head. As a finishing touch, the arrow head may be solder-dipped, or otherwise similarly treated, if desired, to give it a better appearance.

The two blades in contact along the edges make a very strong and rigid two-edged arrow head, suitable for hunting and for practice shooting. But when the blades are bent outwardly in angular relation to each other as desired, more cutting edges are provided, which makes a very strong and rigid and superior arrow head for hunting that assures deeper penetration of the arrow into big, tough-skinned game animals, which in turn quickly causes the death of the animal, because more veins and arteries are severed, and the wound sags open, inducing greater internal hemorrhage as well as causing more spillage of blood externally, which latter makes the trailing of wounded game much easier.

Due to their manner of construction, these arrow heads are very strongly and rigidly made, and will not curl, bend or come apart upon striking a bone or other hard substance.

There has thus been provided an arrow head formed of two mating blades that can be bent in any desired angular relation to each other to form a plurality of cutting edges, and are provided with unique means for retaining the head on the arrow shaft. Means also is provided for retaining the blades in close contact with each other.

The shaping of the two mating blades in angular relation to each other to form a 3-edged, or a 4-edged, or a 6-edged arrow head may be imparted during the process of stamping out the blades and the forming of the bands and cutouts, or it may be done after the blades are assembled together and securely tongue-latched and welded in place. Even the person purchasing the arrow head may, if he so desires, bend the blades to suit his own particular fancy.

It is believed that the foregoing description will clearly set forth the structure and advantages of the invention to those skilled in the art. It is also to be understood that changes in the minor details of construction, arrangement and combination of parts may be resorted to, provided they fall within the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. An arrowhead comprising a body formed of a plurality of sheet material elements, each of said elements being partially of an arcuate configuration in transverse section, and each of said elements having a plurality of connecting bands formed integrally therewith along said arcuate portions and offset therefrom, said bands of one element intermeshing respectively with said bands of another element whereby a tapered shaft receiving socket is formed and whereby the shaft when in said socket will have in connection with said elements a binding action to tightly bind said elements together and whereby impact force of said arrowhead will tend to more firmly hold said elements and shaft together and a flange carried by each band having a width equal to the space between each pair of bands for closing said space and forming a closed shaft socket.

2. An arrowhead of the type described, comprising a plurality of similarly shaped blades, each of said blades being formed with a plurality of struck-out spaced apart arcuate portions, said arcuate portions on each of said blades being staggered relative to said arcuate portions on the other of said blades and adapted to extend through said other of said blades between the arcuate portions thereof whereby said arcuate portions co-act to provide a shaft receiving socket and a flange carried by each arcuate portion engaging in the space between a pair of said arcuate portions.

3. An arrowhead of the type described comprising a plurality of similarly shaped blades, arcuate means formed on each of said blades adapted to extend through the other of said blades and to intermesh with the arcuate means thereon for providing a shaft receiving socket and a flange carried by each arcuate means en-

gaging in the space between a pair of said arcuate means.

4. An arrowhead of the type described comprising a pair of confronting blade members, each of said members being formed with arcuate means thereon adapted to extend through the other of said blades and to intermesh with the arcuate means thereon for providing a shaft receiving socket and a flange carried by each arcuate means engaging in the space between a pair of said arcuate means.

5. An arrowhead of the type described comprising a pair of confronting elongated blades each having cutting edges formed on the periphery thereof, each of said blades being formed with arcuate means extending transversely therefrom and adapted to extend through the other of said blades and to intermesh with the arcuate means thereon for providing a shaft receiving socket and a flange carried by each arcuate means engaging in the space between a pair of said arcuate means.

6. An arrowhead as set forth in claim 5 in which each of said pair of blades is bent along the longitudinal axis thereof for disposing the opposite side edges of each of said blades in spaced apart relation relative to the corresponding side edges of the other of said pair of blades to form an arrow-head having four cutting edges.

7. An arrowhead of the type described comprising a pair of sheet material elements, each of said elements being formed with a plurality of spaced apart struck-out arcuate transversely extending portions, the arcuate portions on each of said elements being positioned in staggered relationship relative to the arcuate portions on the other of said elements, said arcuate portions on each of said elements extending through said other element and intermeshing with the arcuate portions thereof to provide a shaft receiving socket, a member extending from a side edge of each of said arcuate portions and adapted to close the space between adjacent arcuate portions for providing a smooth outer surface on said socket.

8. An arrowhead comprising pairs of outwardly divergent blades, spaced arcuate bands connecting the blades of each pair together at the inner convergent edges of said blades, the bands of one pair of blades projecting through the spaces of the bands of another pair of blades, the bands of each plate being of gradually smaller radius extending from the rear of each pair of blades to thereby form a tapering shaft socket, and a flange carried by each band having a width equal to the space between each pair of bands, said flanges closing the spaces between said bands to thereby form a closed shaft socket.

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