QUESTION 1

You have a client who is a very experienced home renovator but who is not a professional builder. He has thought of a combination tool which he believes will be useful for home handypersons.

Your client provides you with a series of drawings of his protoype tool (these are attached as figures 1, 2, 3, 4, 5, and 6). The tool combines a hammer, a claw for removing nails from wood, a small pick, and a file or wood rasp together in one tool. The shaft of the tool, between the handle and the crossbar, is formed into the wood rasp. The claw is positioned so that it is centrally aligned with the shaft and handle of the device and the pick is at the opposite end of the crossbar to the hammer head.

Your client says that it is important for the claw to be positioned as shown as this allows for leverage when removing nails. In addition, as the claw does not extend too far from the side of the crossbar, it does not overly interfere with other usage of the tool.

Your client also points out that the claw is positioned in an elongate recess in one side of the crossbar and that the crossbar itself is curved with the claw at its apex. The elongate recess in the crossbar is a very much preferred feature as it further lessens the ability of the claw to interfere with the usual usage of the hammer, or of the pick. The curved shape of the crossbar as shown is also a preferred feature as it allows greater purchase for the claw on nails and therefore assists in their removal. The crossbar need not have the curved shape shown in the drawings or the elongate recess but these are preferred.

You also observe in the drawings that the side of the crossbar opposite to the claw is flat with the central axis of the crossbar (hammer head to pick) being offset from the plane of the central axis of the shaft or rasp part of the tool. This allows at least one face of the rasp to be readily used without interference from the crossbar (and indeed the claw to some extent). The flat form of one side of the crossbar and the offset nature of the shaft of the device (between the crossbar and handle) is a preferred feature.

You note that the central axis of the hammer head is in the same plane as the central axis of the handle of the tool in order that the balance of the combination tool as a whole is not detrimentally affected.

Your client tells you that possibly the tool could be produced without the shaft of the device being formed as a rasp, although the tool would then be less useful. The tool would always have a claw on one side of the crossbar, and a hammer head. Your client thinks that possibly the pick at the other end of the crossbar to the hammer head could be replaced by another type of tool head such as perhaps a flat small chisel-shaped blade or an axe blade for splitting wood for example.

Your client also considers that another option would be to replace the pick with a fitting enabling interchanging of a different tool ends. In this form the tool would be sold with a number of separate tool end components, such as a pick, chisel or axe head, which could be interchangeably connected to the fitting at the end of the crossbar opposite the hammer head. Your client has not made a prototype of such a version of the tool but wants to cover this in the provisional patent application also.

Your client has completed a patent search himself and has located one piece of prior art, US patent 5315725 (a copy of which is attached – without claims). He instructs you not to do any further searching. He says that, apart from standard claw hammers

that almost everyone has at home, this is the only prior art of any relevance. A copy of US patent 5315725 has been available for inspection by the public at the IPONZ library since three months after its issue date.

Draft a provisional specification for your client. You may use the second copy of figures 1 to 6 provided with this question paper as part of your provisional specification should you wish to do so, & hand these in as part of your answer paper.

(40 marks)

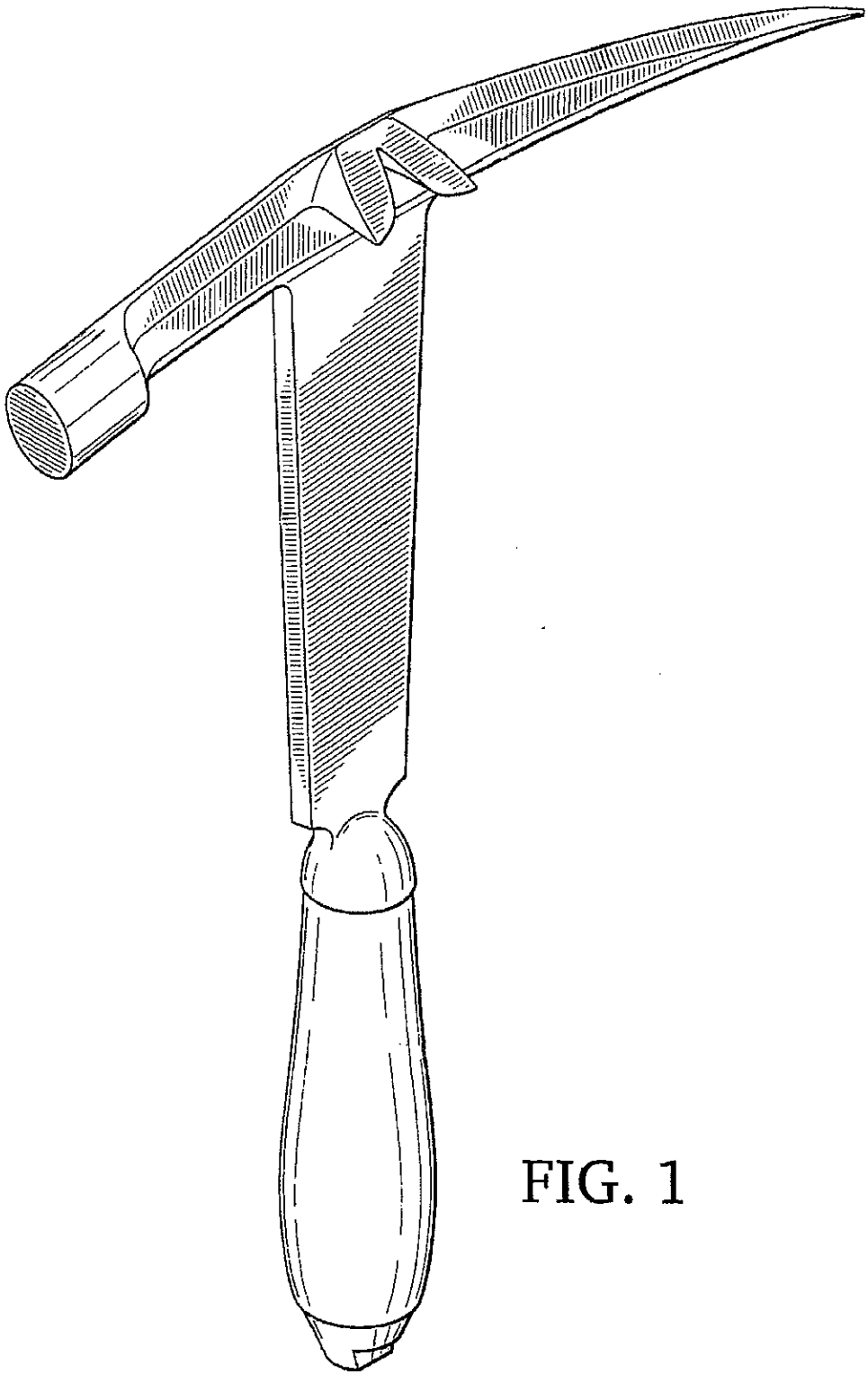


FIG. 1

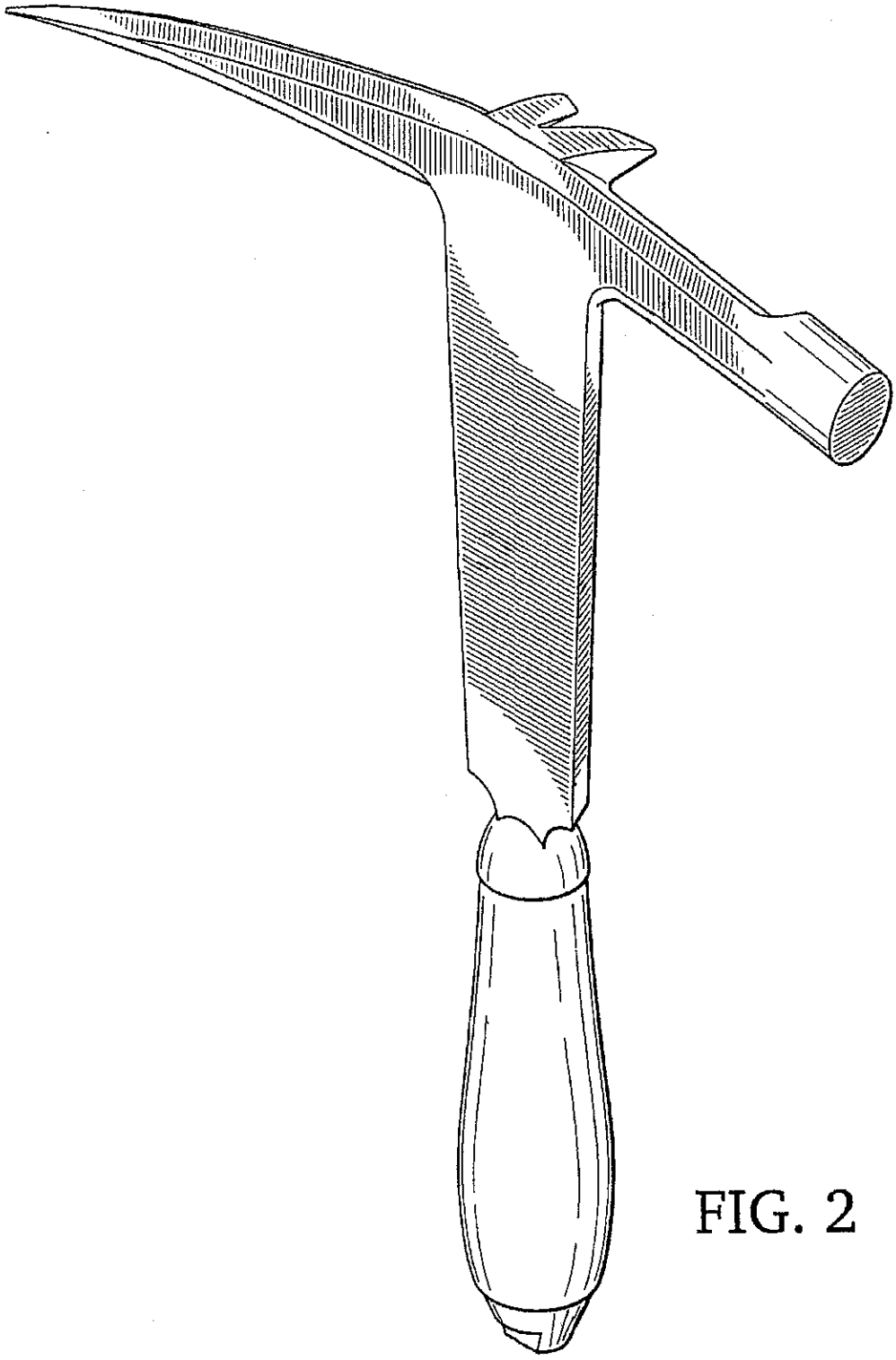


FIG. 2

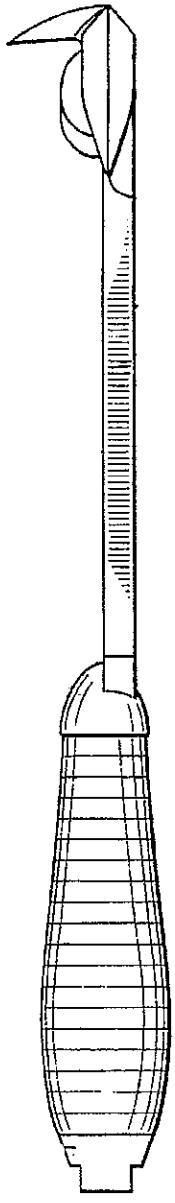


FIG. 3

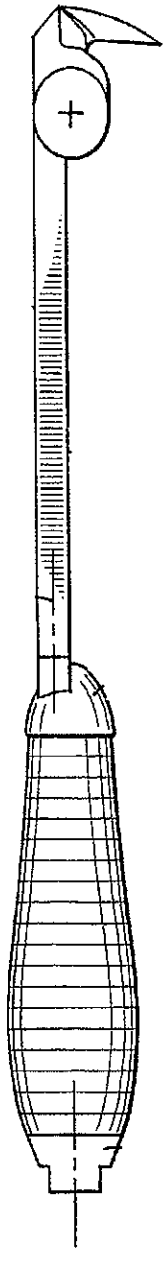


FIG. 4

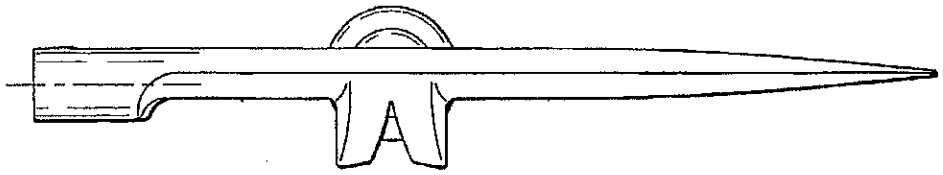


FIG. 5

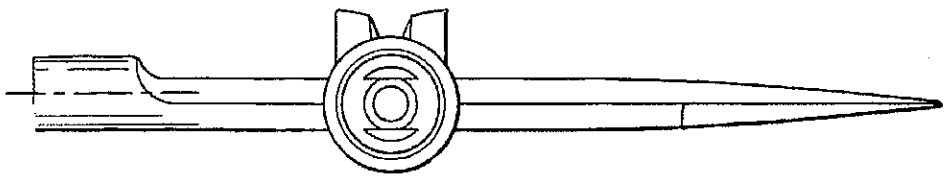


FIG. 6

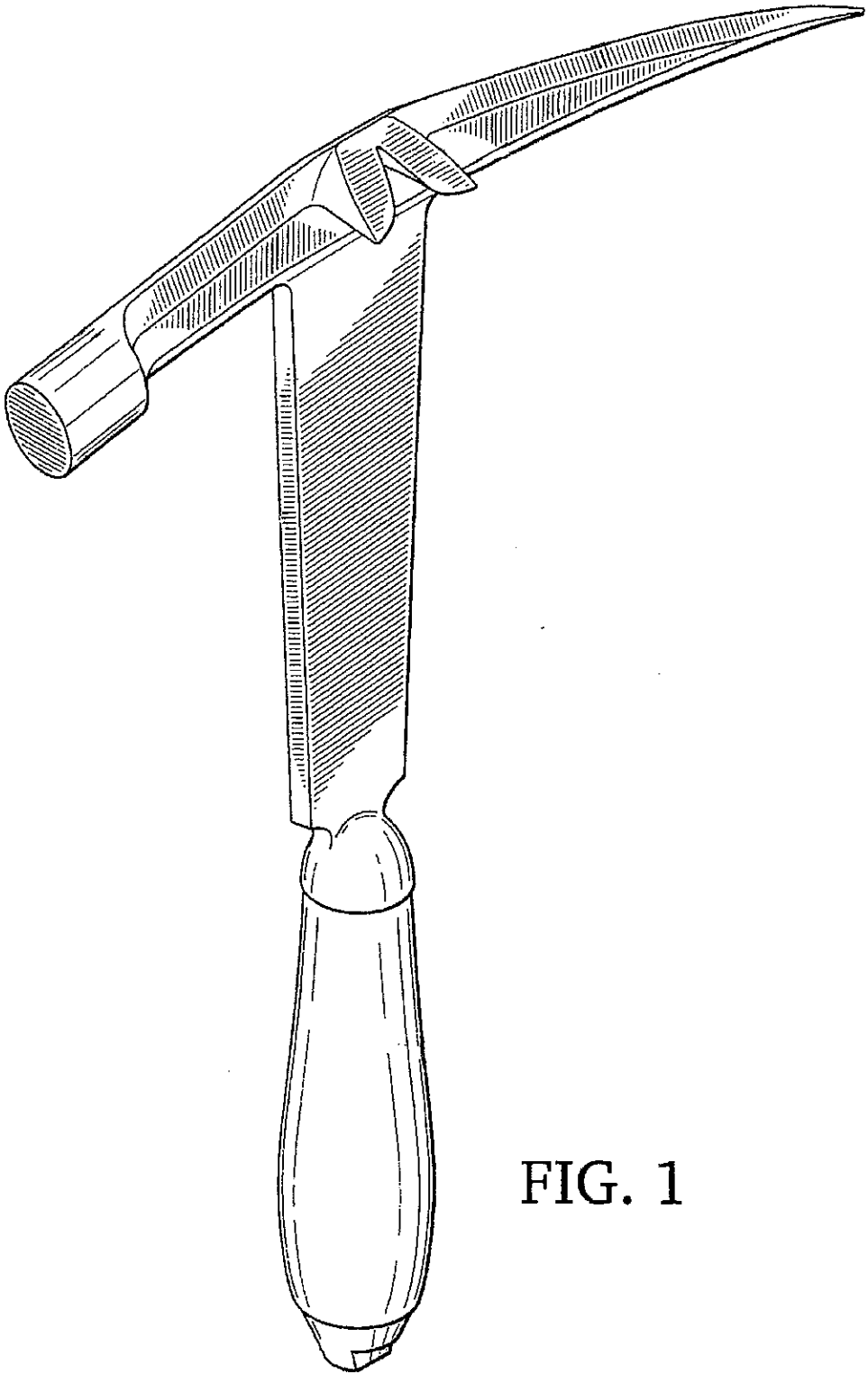


FIG. 1

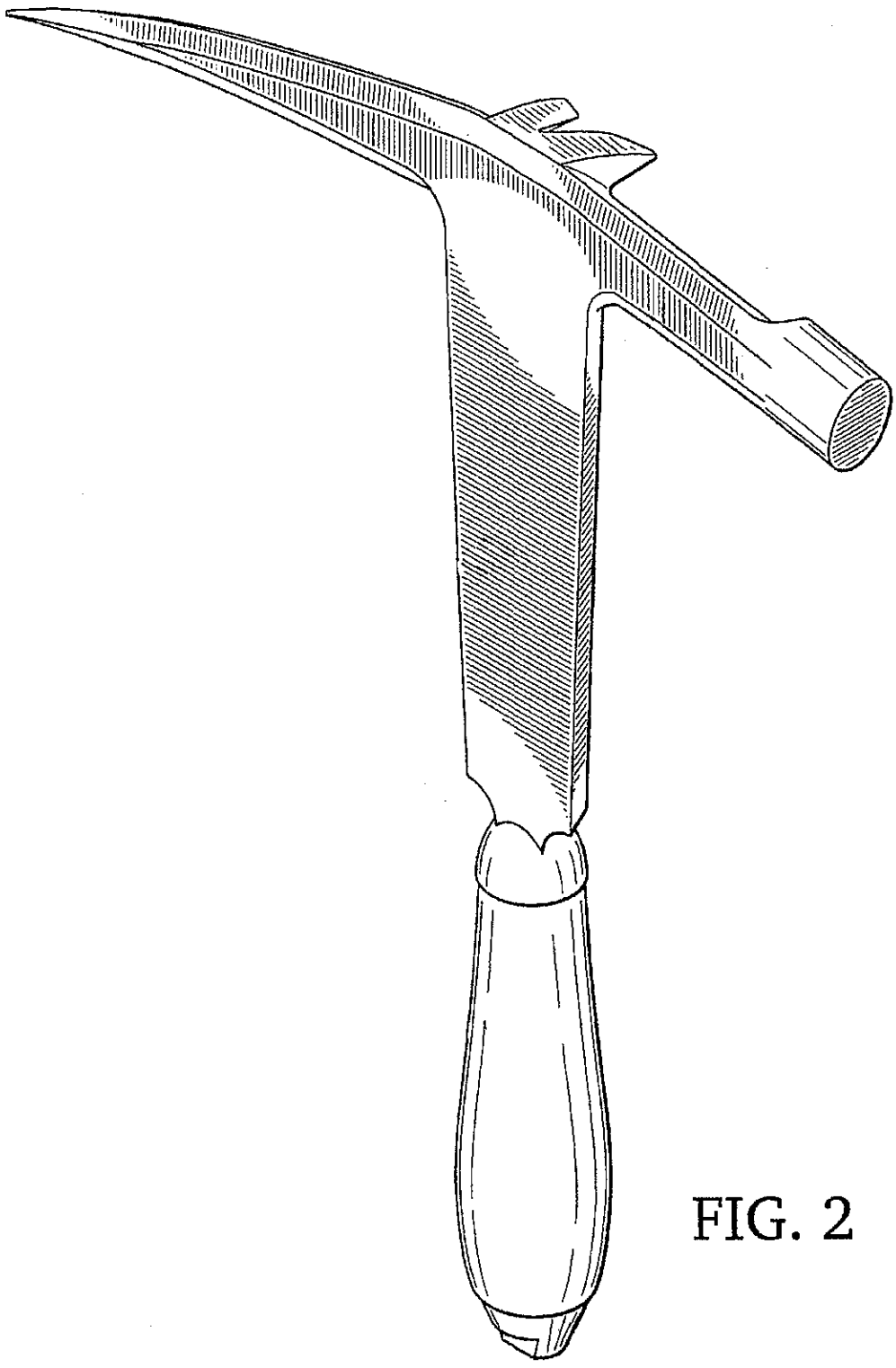
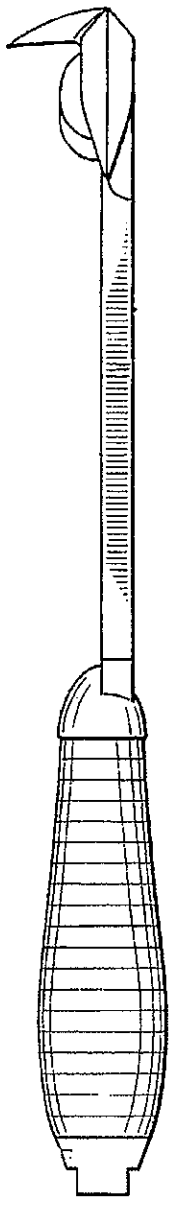


FIG. 2



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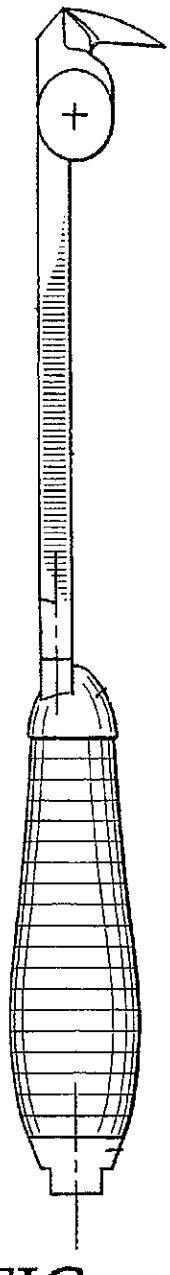

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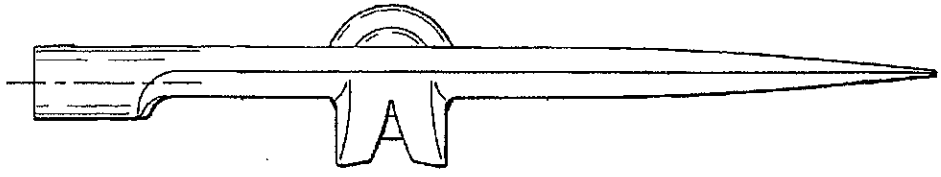

FIG. 5

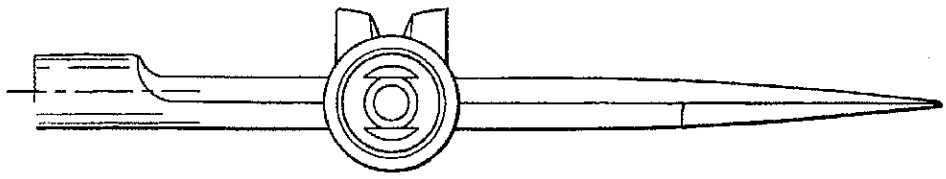

FIG. 6

US005315725A

United States Patent [19]

Vanden Heuvel

[11] Patent Number: 5,315,725

[45] Date of Patent: May 31, 1994

[54] MULTIPURPOSE TOOL

[76] Inventor: Martin K. Vanden Heuvel, R.R. #2, 207 Highway No. 5, Dundas, Ontario, Canada, L9H 5E2

[21] Appl. No.: 49,317

[22] Filed: Apr. 21, 1993

[51] Int. Cl.[5] B25D 1/04

[52] U.S. Cl. 7/145; 7/147; 30/123

[58] Field of Search 7/145–147, 7/158; 30/123

[56] References Cited

U.S. PATENT DOCUMENTS

3,623,173 11/1971 Hagquist 7/145

FOREIGN PATENT DOCUMENTS

94155 4/1959 Norway 7/145

32797 11/1910 Sweden 7/145

Primary Examiner—James G. Smith

Attorney, Agent, or Firm—S. Michael Bender

[57] ABSTRACT

A new and improved multipurpose hand-held tool, especially adapted to be used by rescue workers to extract victims from damaged motor vehicles, includes a handle, a head, a foot, and a saw blade that projects from the bottom of the foot. The head is connected to the handle and includes a first head end, a middle head portion, and a second head end. The foot, which is connected to the handle, includes a first foot end, a middle foot portion, a second foot end, and a bottom side. In a first embodiment, a first cutter, which is pyramidal shaped, is connected to the first head end and has a sharp, pointed edge. A second cutter is connected to the second head end and has a long, flat, axe blade. The first foot end includes a pointed hook edge, especially adapted for prying; and the second foot end includes a hammer head. In a second embodiment, a hammer head is connected to the first head end; and an axe head cutter is connected to the second head end. The first foot end includes a bifurcated claw with two pointed hooked tips, especially adapted for removing nails and prying; and the second foot end includes a pointed, pyramidal end. In both embodiments, the saw blade includes a toothed portion which projects from the bottom of the foot and also includes a portion that passes through the bottom side of the foot and into a slot in the handle to which it is secured by screws.

11 Claims, 8 Drawing Sheets

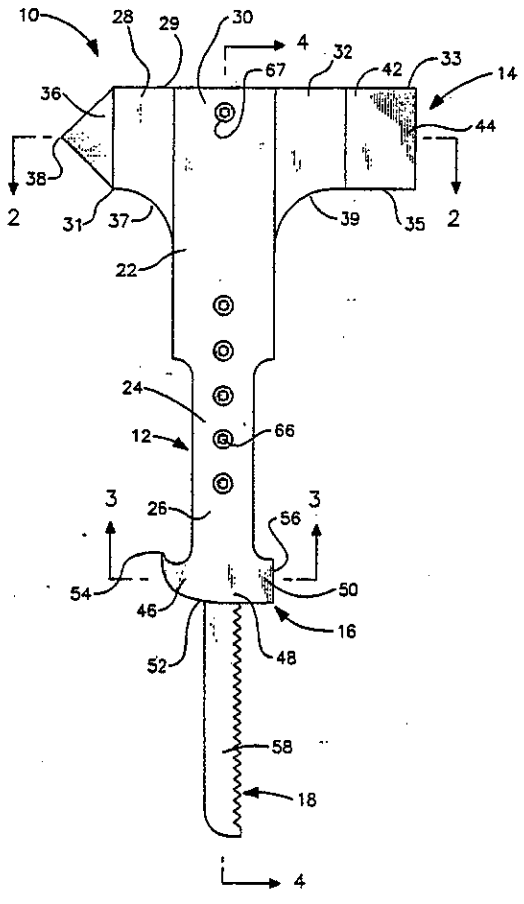

FIG. 1

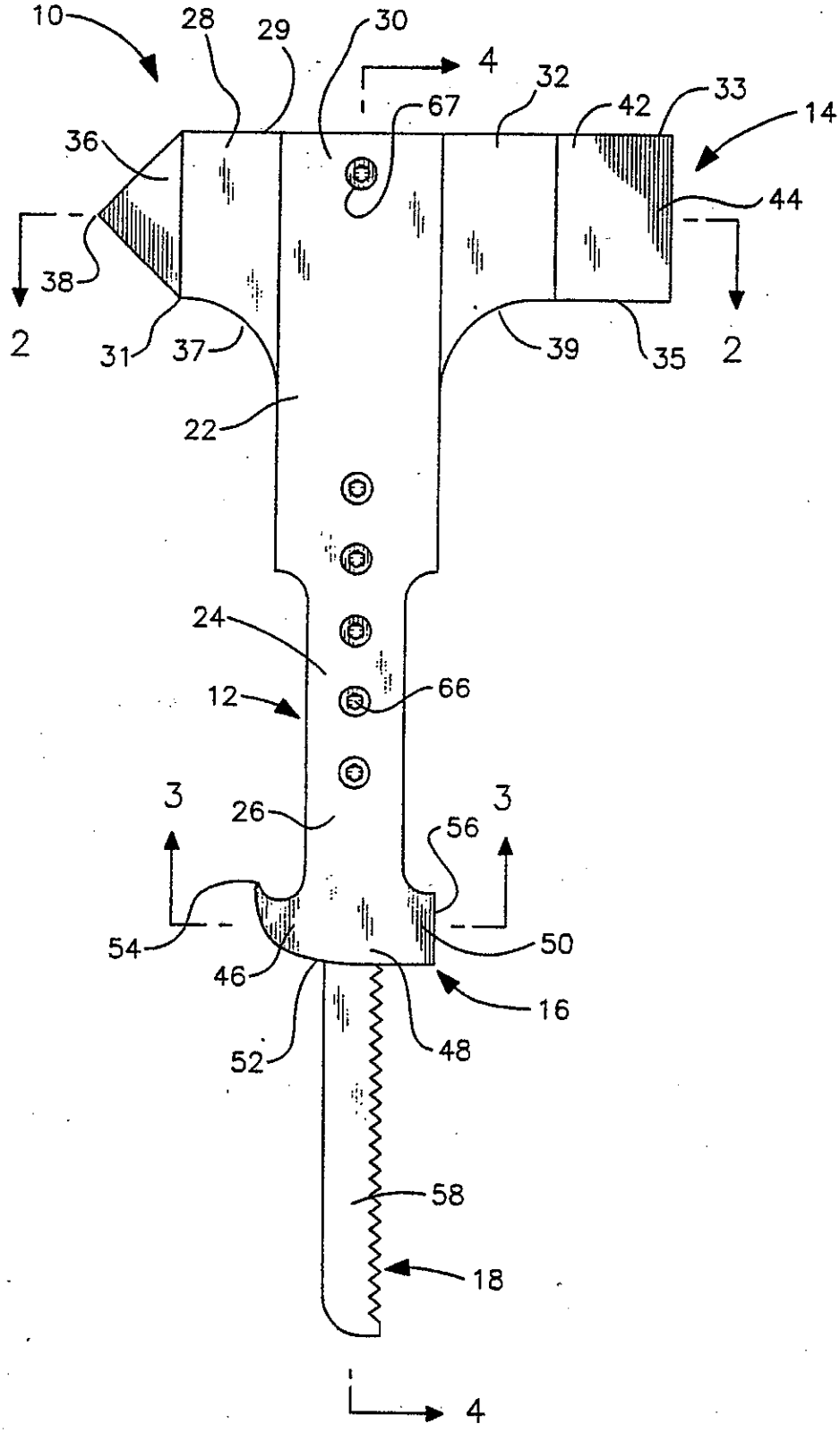
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FIG. 2

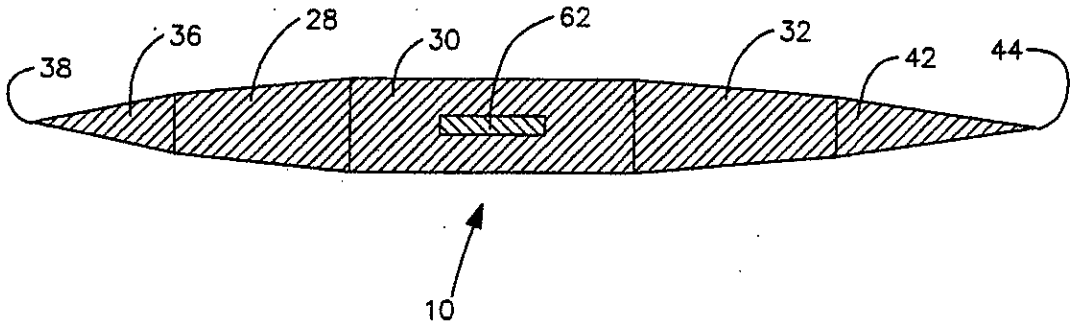

FIG. 3

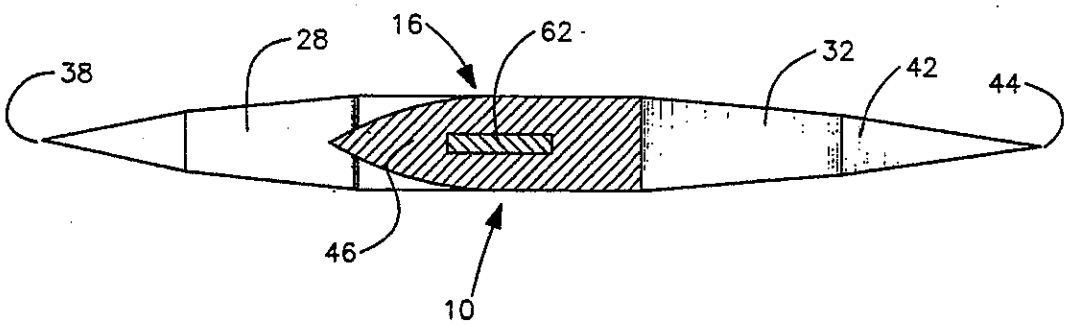

FIG. 4

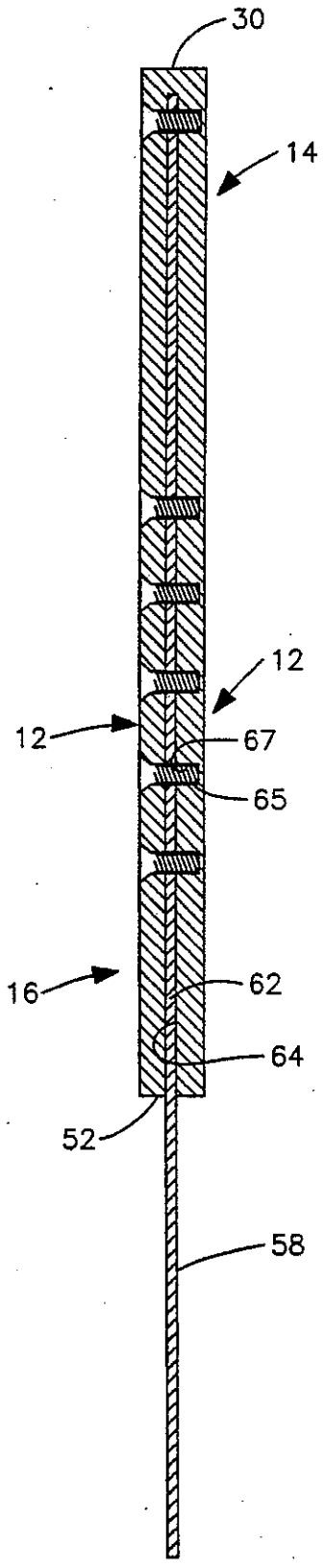

FIG. 5

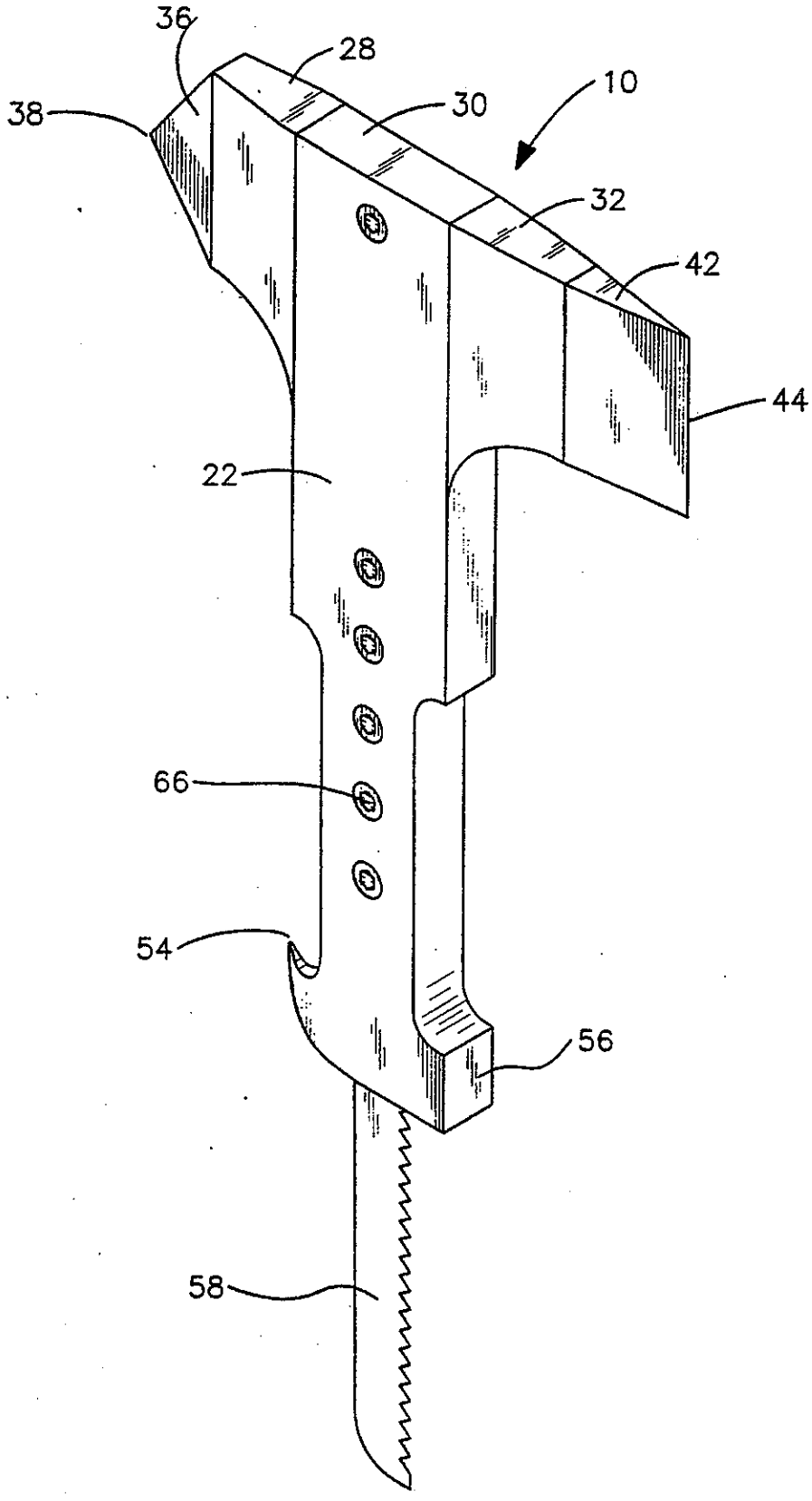

FIG. 6

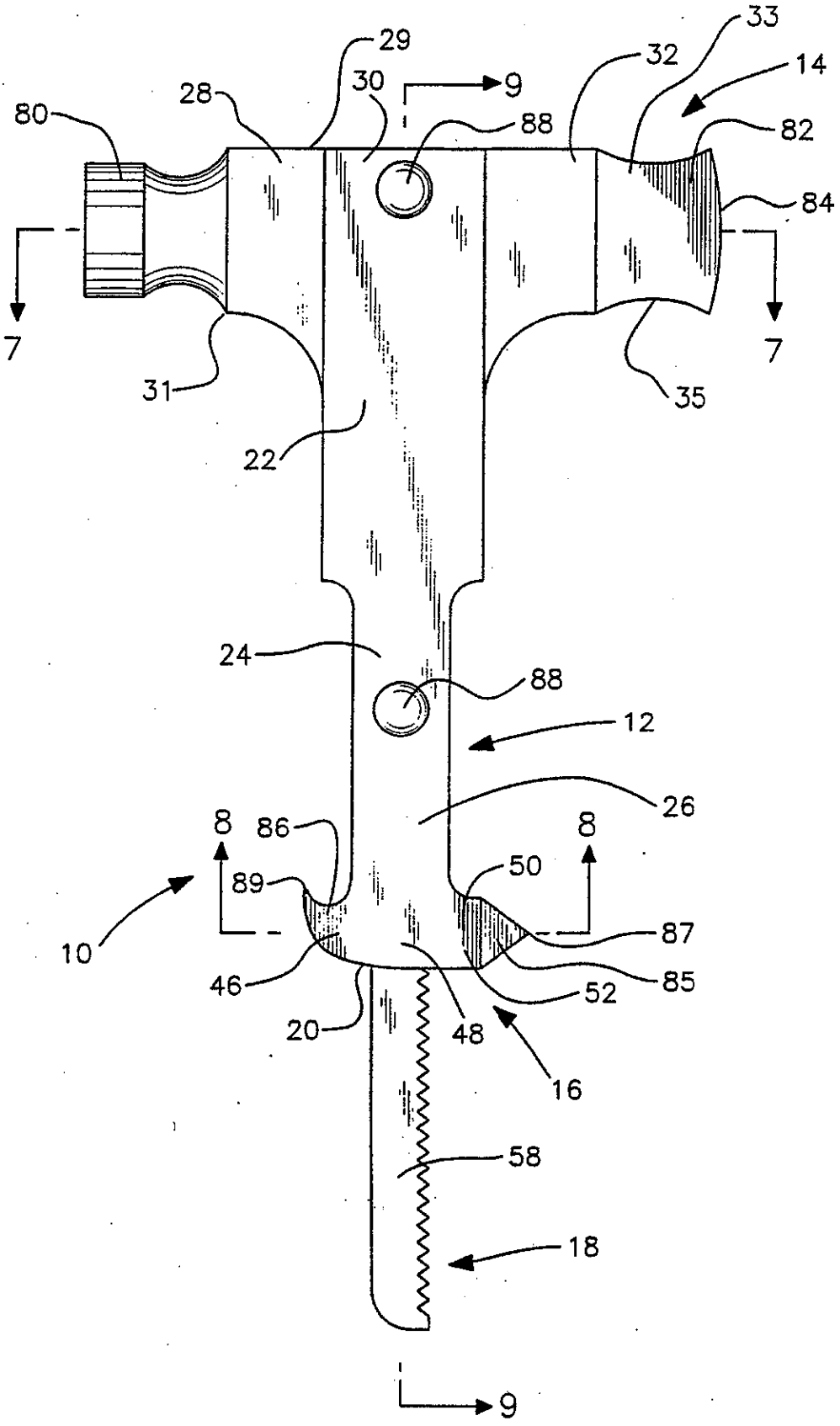
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FIG. 7

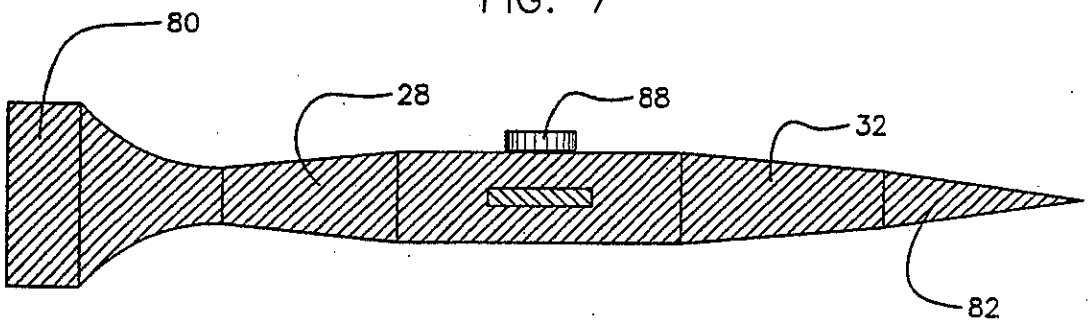


FIG. 8

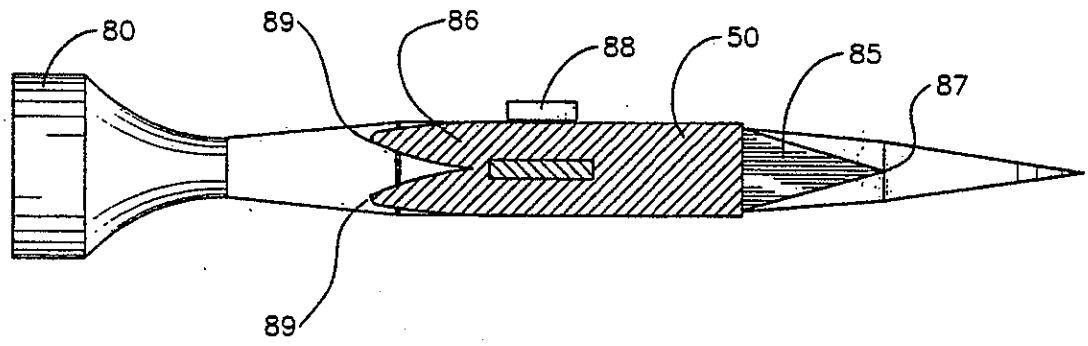


FIG.9

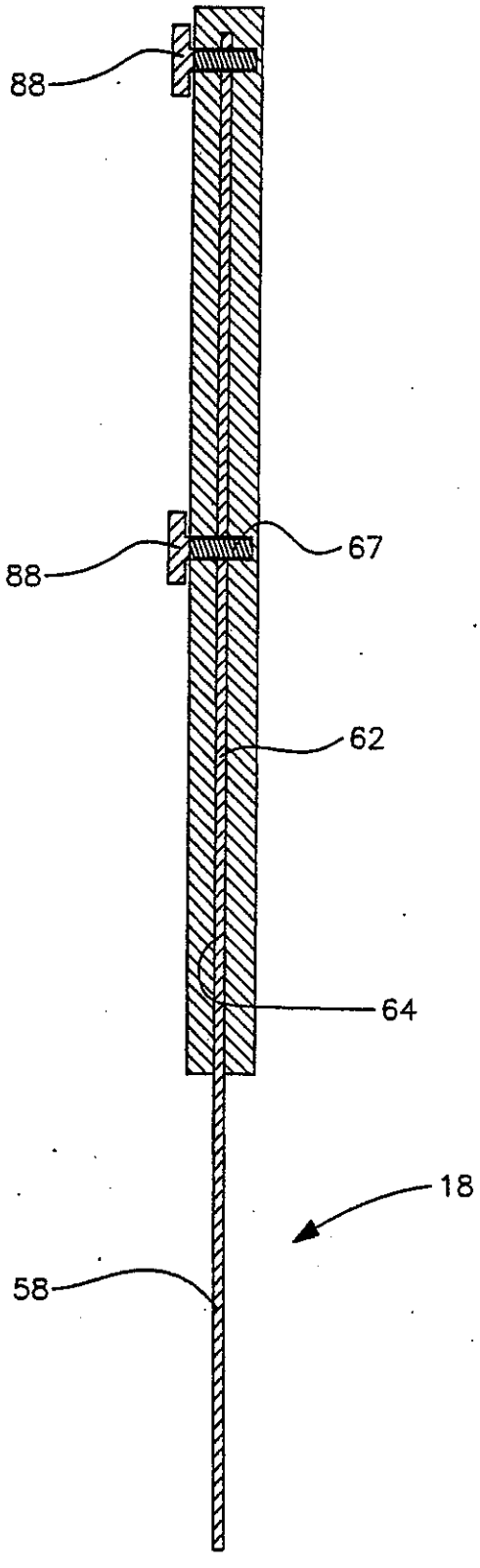
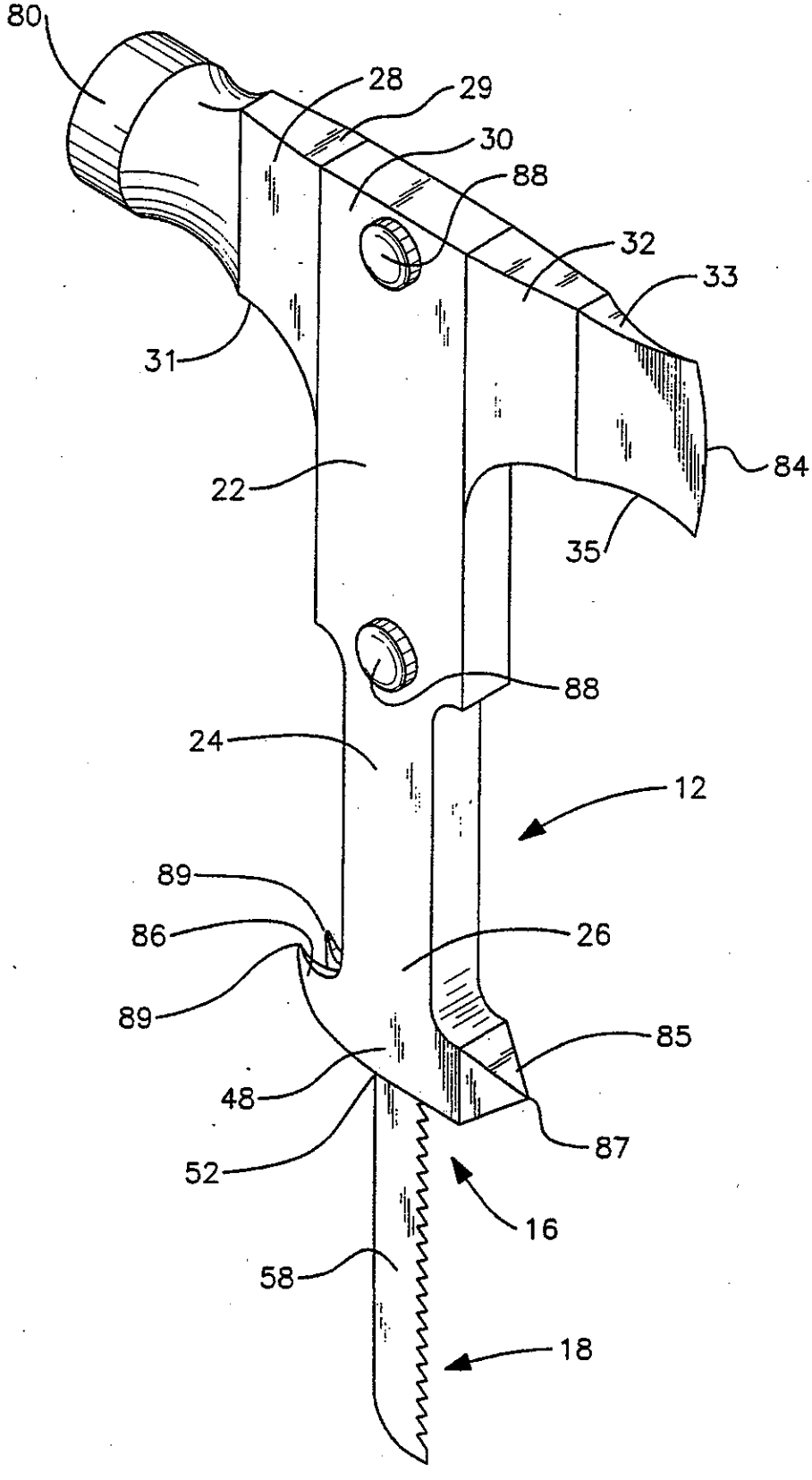


FIG. 10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MULTIPURPOSE TOOL

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to hand-held tools used to pry or break glass and wood and metallic materials, and more particularly, to a tool especially adapted to break into motor vehicles in order to facilitate removal of accident victims.

2. Description of the Prior Art

Often times when motor vehicles undergo accidents, the motor vehicle bodies are bent and damaged so that doors and windows cannot be opened in the normal manner. In such cases, it is necessary for rescue personnel to break into the motor vehicle in order to treat and remove the accident victims.

In order to break into the damaged vehicle, it is often necessary to cut through metal. At other times in order to gain entry in the vehicle, it is necessary or desirable to break glass which is present in the windshield or side windows. Sometimes it is necessary or desirable to both cut metal and break glass.

One often used tool in the prior art for breaking into motor vehicles is the common axe. Although in some ways effective, there is often a very undesirable side effect that accompanies the use of an axe on window glass; and that is that the glass will shatter and spray over the victim and even over a rescue worker who may have already gotten inside the vehicle to tend to the victim. It would be desirable, therefore, if a tool were provided that reduces the amount of glass that may fall upon a victim and/or rescue worker when a glass window is broken.

Moreover, a damaged motor vehicle may present a variety of challenges to a person trying to gain entry into the damaged vehicle. Not only may it be necessary for glass to be broken, but it may also be necessary to pry apart vehicle parts. Cutting by swinging an axe blade may be carried out. At other times, the rescuer may prefer to make a small hole, as opposed to using an axe blade, for beginning a sawing operation. At still other times, a rescuer may prefer to use a blunt tool for, in essence, hammering.

In an emergency rescue situation, it would be difficult and very burdensome for a rescue worker to bring along an assemblage of separate tools for cutting, sawing, piercing, prying, and hammering. Being burdened with a plurality of tools to accomplish these separate functions could slow the rescuer down and undesirably tire the rescuer out. It would also be very inconvenient for a rescuer to place one tool down and pick up another tool in rapid succession at a rescue site. In this respect, it would be desirable if a rescuer had a single tool that could be used to carry out the plurality of functions such as cutting, sawing, piercing, prying, and hammering.

The prior art seems to be deficient in disclosing a single tool that would provide a rescuer with the plurality of functions mentioned above. For example, U.S. Pat. No. 3,680,834 of Holloway discloses a combined pry bar and nail puller, but this tool does not provide components to be used for cutting, sawing, piercing, or hammering. In U.S. Pat. No. 4,625,945 of Hearn et al, there is a disclosure of a pry bar wedge member, but neither does this tool provide elements to carry out the functions of cutting, sawing, piercing, or hammering.

U.S. Pat. No. 4,811,440 of Scott discloses a combination hood support, jack crank, lug wrench, and wheel cover apparatus. However, this combination tool does not provide means for cutting, sawing, piercing, or hammering as would be desirable for a rescue worker. U.S. Pat. No. 5,044,033 of Fosberg discloses a forcible entry tool which includes an elongate pry bar having at one end a cutting section which includes a pivoted gripping block and a cutting blade. The device disclosed in this patent is not designed for sawing, piercing, and hammering.

The following design patents disclose pry bars: U.S. Des. No. 277,359 of Schiller; and U.S. Des. No. 301,301 of Buckley. Neither of these designs discloses a tool that can perform all of the functions of cutting, sawing, piercing, prying, and hammering that may be necessary in a rescue operation.

Thus, while the foregoing body of prior art indicates it to be well known to use hand tools for cutting and prying, the provision of a simple and cost effective device is not contemplated which can perform all of the operations of cutting, sawing, piercing, prying, and hammering in a single tool. The foregoing disadvantages are overcome by the unique multipurpose tool of the present invention as will be made apparent from the following description thereof. Other advantages of the present invention over the prior art also will be rendered evident.

SUMMARY OF THE INVENTION

To achieve the foregoing and other advantages, the present invention, briefly described, provides a new and improved multipurpose hand-held tool, especially adapted to be used by rescue workers to extract victims from damaged motor vehicles, and this tool includes a handle, a head, a foot, and a saw blade that projects from the bottom of the foot. The head is connected to the handle and includes a first head end, a middle head portion, and a second head end. The foot, which is connected to the handle, includes a first foot end, a middle foot portion, a second foot end, and a bottom side.

In a first embodiment, a first cutter, which is pyramidal shaped, is connected to the first head end and has a sharp, pointed edge which is especially adapted to puncture through glass windshields. A second cutter is connected to the second head end and has a long, flat, axe-like blade and performs functions similar to that of an axe. The first foot end includes a pointed hook edge, especially adapted for prying; and the second foot end includes a hammer head that can be used as a conventional hammer.

In a second embodiment, a hammer head is connected to the first head end. An axe head cutter is connected to the second head end and has an axe blade and performs functions similar to that of an axe. The first foot end includes a bifurcated claw having two pointed hooked tips, especially adapted for removing nails and for prying; and the second foot end includes a pointed, pyramidal end that can be used which is especially adapted to puncture through glass windshields.

In both embodiments, the saw blade includes a toothed portion which projects from the bottom of the foot and also includes a portion that passes through the bottom side of the foot and into a slot in the handle to which it is secured by screws.

The above brief description sets forth rather broadly the more important features of the present invention in

order that the detailed description thereof that follows may be better understood, and in order that the present contributions to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will be covered by the claims appended hereto.

In this respect, before explaining a preferred embodiment of the multipurpose tool of the invention in detail, it is understood that the invention is not limited in its application to the details of the construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood, that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which disclosure is based, may readily be utilized as a basis for designing other structures, methods, and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

Further, the purpose of the foregoing Abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially the scientists, engineers and practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. Accordingly, the Abstract is neither intended to define the invention or the application, which only is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

It is therefore an object of the present invention to provide a new and improved multipurpose tool which has all of the advantages of the prior art and none of the disadvantages.

It is another object of the present invention to provide a new and improved multipurpose tool which may be easily and efficiently manufactured and marketed.

It is a further object of the present invention to provide a new and improved multipurpose tool which is of durable and reliable construction.

An even further object of the present invention is to provide a new and improved multipurpose tool which is susceptible of a low cost of manufacture with regard to both materials and labor, and which accordingly is then susceptible of low prices of sale to the consuming public, thereby making such multipurpose tool available to the buying public.

Still yet a further object of the present invention is to provide a new and improved multipurpose tool that reduces the amount of glass that may fall upon a victim and/or rescue worker when a glass window is broken in rescuing a victim from a motor vehicle.

Yet another object of the present invention is provide a rescuer with a single tool that could be used to carry out the plurality of functions such as cutting, sawing, piercing, prying, and hammering in a rescue operation.

These together with still other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the claims annexed to and form a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and the above objects as well as objects other than those set forth above will become more apparent after a study of the following detailed description thereof. Such description makes reference to the annexed drawing wherein:

FIG. **1** is an elevation view showing a first preferred embodiment of the multipurpose tool of the invention.

FIG. **2** is a cross-sectional view of the embodiment of the multipurpose tool of the invention shown in FIG. **1** taken along line **2—2**.

FIG. **3** is a cross-sectional view of the embodiment of the multipurpose tool of the invention shown in FIG. **1** taken along line **3—3**.

FIG. **4** is a cross-sectional view of the embodiment of the multipurpose tool of the invention shown in FIG. **1** taken along the line **4—4**.

FIG. **5** is a perspective view of the embodiment of the invention shown in FIG. **1**.

FIG. **6** is an elevation view of a second preferred embodiment of the multipurpose tool of the invention.

FIG. **7** is a top view of the second embodiment of the invention shown in FIG. **6**.

FIG. **8** is a bottom view of the second embodiment of the invention shown in FIG. **6**.

FIG. **9** is a cross-sectional view of the embodiment of the invention shown in FIG. **6** taken along the line **9—9** thereof.

FIG. **10** is a perspective view of the second embodiment of the invention shown in FIG. **6**.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the drawings, a new and improved multipurpose tool embodying the principles and concepts of the present invention will be described.

Turning initially to FIGS. **1–5**, there is shown a first preferred embodiment of the multipurpose tool of the invention generally designated by reference numeral **10**. In its preferred form, multipurpose tool **10** includes a handle **12**, a head **14**, a foot **16**, and a saw blade **18** that projects from the bottom **20** of the foot **16**.

The handle **12** includes an upper handle portion **22**, a middle handle portion **24**, and a lower handle portion **26** where the middle handle portion **24** is grasped by a hand of a user.

The head **14** includes a first head end **28**, a middle head portion **30**, and a second head end **32**. The middle head portion **30** is connected to the upper handle portion **22**. The first head end **28** has a topside **29** and a bottom side **31**. The second head end **32** has a top side **33** and a bottom side **35**. A first cutter **36**, which is pyramidal shaped, is connected to the first head end **28** at a location **40** which is centrally located between the top side **29** and the bottom side **31** of the first head end **28**. The first cutter **36**, which is pyramidal shaped, has a sharp, pointed edge **38** and is especially adapted to puncture through glass windshields.

A second cutter **42** is connected to the second head end **32** at a location spanning from the top side **33** to the bottom side **35** of the second head end **32**. The second cutter **42** has a long, flat, axe-like blade **44** and performs

functions similar to that of an axe. The axe-like blade **44** is readily capable of cutting through metal.

The foot **16** includes a first foot end **46**, a middle foot portion **48**, a second foot end **50**, and a bottom side **52**. The middle foot portion **48** is connected to the lower handle portion **26**. The first foot end **46** includes a pointed foot edge **54**, especially adapted for prying; and the second foot end **50** includes a hammer head **56** that can be used as a conventional hammer.

As shown in FIGS. **1, 4, 5, 6, 9,** and **10**, the saw blade **18** includes a sawing portion **58** which projects from the bottom **52** of the foot **16** and also includes a connecting portion **62** that passes through the bottom side **52** of the foot **16** and into a slot **64** in the handle **12**.

In the first embodiment of the invention shown in FIGS. **1–5**, screws **65** with Allen heads pass through holes **67** in the handle **12** and holes in the saw blade **18** to secure the saw blade **18** to the tool **10**. In the second embodiment of the invention shown in FIGS. **6–10**, thumb screws **88** pass through holes **67** in the handle **12** and holes in the saw blade **18** to secure the saw blade **18** to the tool **10**.

The views shown in FIGS. **2** and **3** further illustrate the first preferred embodiment of the multipurpose tool **10** of the invention.

Turning to FIGS. **6–10**, there is shown a second preferred embodiment of the multipurpose tool of the invention generally designated by reference numeral **10**. In this preferred form, multipurpose tool **10** includes a handle **12**, a head **14**, a foot **16**, and a saw blade **18** that projects from the bottom **20** of the foot **16**.

The handle **12** includes an upper handle portion **22**, a middle handle portion **24**, and a lower handle portion **26** where the middle handle portion **24** is grasped by a hand of a user.

The head **14** includes a first head end **28**, a middle head portion **30**, and a second head end **32**. The middle head portion **30** is connected to the upper handle portion **22**. The first head end **28** has a topside **29** and a bottom side **31**. The second head end **32** has a top side **33** and a bottom side **35**. A conventionally-shaped hammerhead **80** is connected to the first head end **28**.

An axe head cutter **82** is connected to the second head end **32** at a location spanning from the top side **33** to the bottom side **35** of the second head end **32**. The axe head cutter **82** has an axle blade **84**, with a curved top side **33** and a curved bottom side **35**, and performs functions similar to that of an axe. The axe blade **84** is readily capable of cutting through metal.

The foot **16** includes a first foot end **46**, a middle foot portion **48**, a second foot end **50**, and a bottom side **52**. The middle foot portion **48** is connected to the lower handle portion **26**. The first foot end **46** includes a bifurcated claw end **86** having two pointed hooked tips **89** for pulling nails and for prying; and the second foot end **50** includes pyramidal-shaped end **85** that has a pointed tip **87**.

As mentioned above, the embodiments of the multipurpose tool **10** of the present invention are especially useful to rescue workers who wish to enter damaged motor vehicles involved in accidents and to extract victims from the motor vehicles. The pointed edge **38** can be in the form of a pointed tip which can be used to pierce a hole in a windshield to provide an opening for a saw blade **18**. The saw blade **18** can be stored in the interior slot **64** of the handle **12** until ready for use.

Preferably, the saw blade **18** has its teeth pointing toward the handle **12** so that when glass is cut by the saw blade **18**, pieces of glass will tend to be moved toward the person using the tool and doing the cutting and away from the windshield being sawed and therefore away from any victim trapped inside the motor vehicle and away from any emergency personnel who may be treating the victim. In this respect, it would be desirable for the person who is doing the sawing to wear full eye protection and gloves to be protected from flying glass.

It is noted that the first foot end **46** and the second foot end **50** can serve as a hand guard to protect a person's hand while gripping the handle **12** when using the saw blade **18**. In addition, bottom curved portions **37** and **39** are provided to increase the strength of the multipurpose tool of the invention.

The axe-like edge **44** of the first embodiment and the axe head cutter **82** of the second embodiment can be used to penetrate steel on car bodies and can be used break windows and pry off hub caps and trim. Also, the axe-like edge **44** can also be used to make holes or spaces in door frames for inserting another tool which includes expandable jaws and which is called "jaws for life". The pointed foot edge **54** of the first embodiment is in the form of a hook that is especially useful as a pry hook for prying and pulling off chrome trim.

The slot **64** that receives the saw blade **18** can be formed by machining it into a steel plate. Alternatively, the middle handle portion **24** can include a removable plate that can be used to secure the saw blade **18** to the handle **12**. As another alternative, the handle **12** can be welded together instead of being screwed. The saw blade **18** can be a heavy duty hacksaw blade. The head, the handle, and the foot can be fabricated from a hard metal (such as stainless steel) and be formed into a unified, integrated structure.

It is apparent from the above that the present invention accomplishes all of the objects set forth by providing a new and improved multipurpose tool that is low in cost, relatively simple in design and operation, and which may advantageously be used by a rescue worker that reduces the amount of glass that may fall upon a victim and/or another rescue worker when a glass window is broken and a may provide a rescuer with a single tool that could be used to carry out the plurality of functions of cutting, sawing, piercing, prying, and hammering.

With respect to the above description, it should be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, form function and manner of operation, assembly and use, are deemed readily apparent and obvious to those skilled in the art, and therefore, all relationships equivalent to those illustrated in the drawings and described in the specification are intended to be encompassed only by the scope of appended claims.

While the present invention has been shown in the drawings and fully described above with particularity and detail in connection with what is presently deemed to be the most practical and preferred embodiments of the invention, it will be apparent to those of ordinary skill in the art that many modifications thereof may be made without departing from the principles and concepts set forth herein. Hence, the proper scope of the present invention should be determined only by the broadest interpretation of the appended claims so as to encompass all such modifications and equivalents.

QUESTION 2

You have met with a new client who owns a garden centre in Christchurch and who has developed a new form of garden edging. Eleven months ago today she filed a patent application relating to the garden edging, accompanied by a provisional specification. She prepared the application and provisional specification herself. She now wishes to file a complete specification.

She provides you with a copy of the provisional specification she filed which is attached marked "PROVISIONAL SPECIFICATION – QUESTION 2".

After filing the provisional patent application she began making the garden edging product as described in the provisional specification and shown in the drawings, and selling it through her garden centre. She sells the garden edging in rolled lengths. It has sold well due to certain attributes of the garden edging which are referred to below.

Prior to filing the provisional patent application she was aware of an existing type of garden edging which also consists of short upright wood pieces connected together side by side. This is the garden edging referred to in the second paragraph of the provisional specification. It has been widely sold in New Zealand for many years. It is also sold in rolled lengths.

Your client tells you that after filing the provisional patent application and after beginning to sell her new edging she then saw another garden edging product, of which she was not previously aware, at a garden show in Auckland. She has ascertained that this garden edging product has been on sale for about eighteen months, through an Auckland chain of retail garden centres.

This edging also comprises short upright wood pieces connected together side by side, but in this case by a length of rope. The rope fully encircles the row of wood pieces, creating the impression from the exposed front face of the edging when installed that the rope holds the wood pieces together. Your client tells you that the rope looks like rope of natural fibres but is in fact plastic rope. The rope is attached to each wood piece, at the rear by two spaced apart staples driven through the plastic rope into the wood piece. The staples are positioned close to the vertical edges of each wood piece. Your client states that during manufacture the rope is pulled tight across the back of the wood pieces which are at the same time pushed tightly together, prior to insertion of the staples. The finished edging has flexibility enabling the edging to be rolled up, and curved around garden beds on flat ground, but no other flexibility. After reading quickly over the provisional specification and while your client is describing this edging to you, you note that for each section of this edging, because the rope length goes right along the back of the series of wood pieces (where it is stapled to each wood piece) and then along the front of the same series of wood pieces, the overall length of the rope must be longer than the length of the edging section.

Your client says that a visible length of wire or rope along the exposed front face of the installed edging is definitely a disadvantage as it is unattractive. She prefers not to do this. It would not be attractive to her customers in Christchurch in particular.

She also says that conventional rope, whether natural or plastic, is not suitable for use in her edging for another reason. Her edging requires wire that will hold its form once bent. No. 8 wire has this property and works well. Some type of stiff plastic strip with a narrow width could possibly be used instead, provided it can be bent to a shape which it will then hold. An important advantage of her edging is that it can be unrolled and then readily shaped by the person installing the edging to follow not only horizontal curves

around a garden but also vertical ground contours, so that the garden edging can be used on uneven ground. The individual pieces can be moved on the wire and re-positioned relative to each other, both vertically and horizontally. It is essential however that the wire is longer than the section of edging so that the timber pieces can be moved relative to each other as described in the provisional specification.

Another advantage is that the stiff wire because the stiff wire will hold its shape, it will help hold the wooden pieces in position once bent.

One feature she noticed in the edging she saw at the garden show in Auckland which she would like to incorporate in her garden edging is a groove in the back face of all or some of the wood edging pieces. The idea is that, with the grooves, the pegs or stakes which hold the edging in place can be more easily inserted between the wire and the wood pieces. Also the grooves will help more securely locate the wood pieces relative to the pegs or stakes against sideways movement after installation, if a ball is kicked into the edging or a lawn mower hits the edging for example. She gives you a drawing showing her edging incorporating these grooves which is attached labelled "Edging with Grooves". Of course the grooves need not be in all the wood pieces of the edging and such a groove could be formed in the back of only every third wood piece for example. If you consider it possible she would like to cover this in her patent application.

After meeting with your client you make a patent search and locate US patent 4747231 (a copy of which is attached – without claims). A copy of this US patent has been available for inspection by the public at the IPONZ library since three months after its issue date. You are not aware of any other prior art.

Prepare a complete-after-provisional specification for your client's patent application. Should you wish to do so you may use in preparing your complete specification, all or part of the text and figures from the second copy of "PROVISIONAL SPECIFICATION – QUESTION 2" provided with this question paper. You may also use the additional drawing page labelled "Edging with Grooves – QUESTION 2". If so you should:

- Mark up in clear handwriting any additions or deletions to the provisional specification page(s) or figure(s) you use.
- Write the rest of your complete specification on separate new pages of your answer paper.
- Assemble all of the pages and figures of your complete specification, both handwritten and from the second copy of the provisional specification (if used) into the correct order, and return this as your answer to this Question 2.

(60 marks)

PROVISIONAL SPECIFICATION - QUESTION 2

This invention is a pre-formed garden edging.

A garden edging is available in which short upright pieces of timber are connected together by a metal strip nailed by two nails to the back of each wood piece. The edging is sold in flat lengths. A number of lengths of the edging can be be used to define a square or rectangular garden bed. The lengths of edging can be bent to define a garden having a curved shape if necessary.The edging is only suitable for use on flat ground.

The invention is a garden edging having pieces of timber connected together by wire.

Each piece of timber in the garden edging should be connected by two lengths of stiff wire.

The two lengths of wire should be attached to the pieces of timber so that they are parallel with each other.

Staples can be used to attach the wire to the timber.

Stakes, pegs, pins, etc can be inserted between the timber pieces and the wires.

Two sets of garden edging can be joined together.

The garden edging can be reused.

The Figures show the garden edging of this invention including how it can be stored and stacked.

The timber can be replaced by plastic, metal or other material suitable for use in garden edging but it must be able to be attached to the wires.

The wires can be replaced with plastic or other material capable of being bent to allow movement of the individual pieces of timber relative to one

another.

Lengths of the garden edging can be stacked or rolled to provide for convenient storage or transportation.

The garden edging can be reused, but may need some reinforcement.

Figure 1; shows pieces of timber referenced by (1) joined together by parallel wires (2) in which the overall length of the wire is greater than the overall length of the section of timber or material means. Also the timber pieces should not be immovably fixed on the wires. These are very important as this allows the movement of the timber pieces in 3 dimensions. If the wire is the same length then movement is restricted and the invention will not work the way it is supposed to do. Also shown in figure 1 is the attachment of the wire to the timber of the edging by staples (3). The end of the wire referenced by (4) is bent. This is so that lengths of the edging can be joined together. There needs to be at least 2 wires for adequate support and all the wires need to be parallel.

Figure 2 shows a section of garden edging including three pieces of timber referenced by (1) connected together by wire referenced (3) bent at the ends referenced by (4) to enable joining with other sections of garden edging. The timber is represented diagrammatically as having been moved in a vertical direction relative to each other to enable the garden edging to follow the slope of a surface.

Figure 3 shows a section of garden edging in which the individual timber pieces have been moved in a horizontal direction relative to each other with the distance between one end of each timber being greater than the other end in a concertina fashion. This enables the garden edging to follow a curved slope or other variation in the surface.

Figure 4 shows the timber moved at right angles relative to each other to form a zig-zag shape for the garden edge. The relationship between the timber pieces is in the nature of a right angle, however, other options could involve variations in such relationships.

As can be seen, if the wire is not longer than the overall length of the edging then these variations are not possible.

Figure 5 shows a section of a garden edging with stakes, pegs, pins or staples, or other reinforcing means referenced by (5) placed between the timber and the wire so that the garden edge can be attached to a surface. Such a surface may be a soil bank or a wood or metal surface.

Figure 6 shows a section of a garden edging in roll form suitable for stacking or storage.

By making the wire in a wavy form as shown in the drawings or form in which the overall length of the section of edging is shorter than the length of the wires, and by allowing some slippage between the wire and the timber the wire can be stretched out or compacted like a concertina, thereby allowing the edging to be flexible and capable of allowing the timber to be moved relative to each other in three directions, so as to follow the contour of a surface. It also helps to orient the staples as shown.

By making the wire of a malleable or other flexible material (plastic, etc) and by the application of a form of attachment between the wire and the timber, the contour or a form of the edging may be fixed permanently until such time as said edging is required for reuse, whereupon the edging can be reformed to its original shape.

The garden edging could be adapted for the use of planters, concrete edgings or fencing materials. By varying the length of the timber pieces the invention could be used for facings in other circumstances.

END

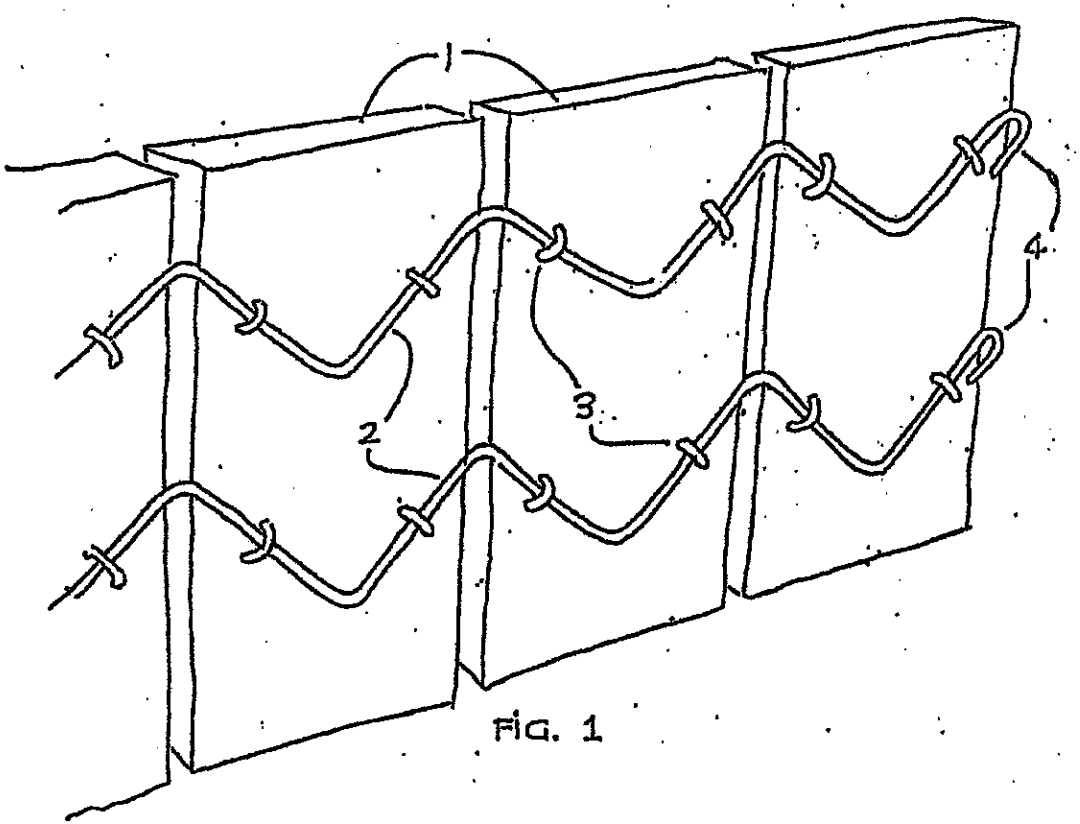


FIG. 1

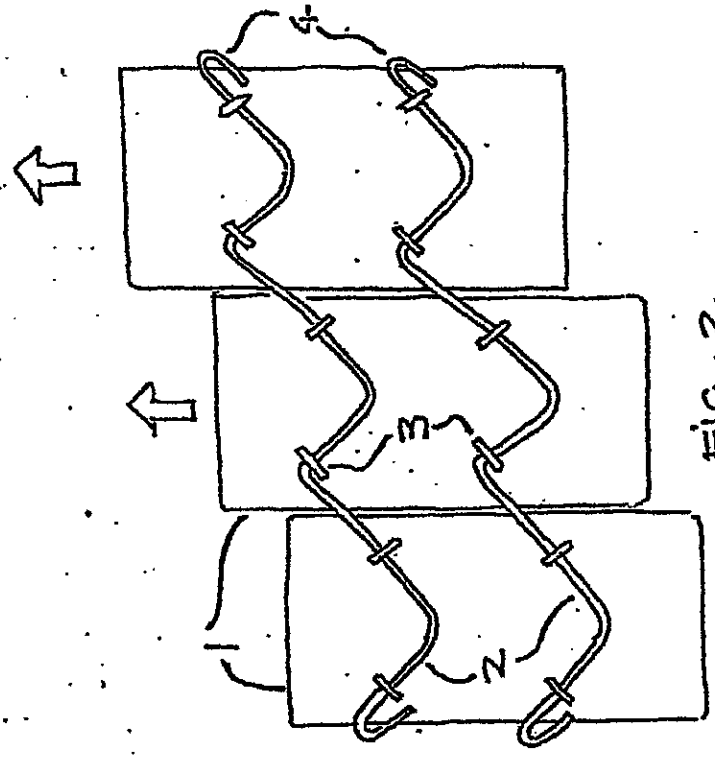


Fig. 2

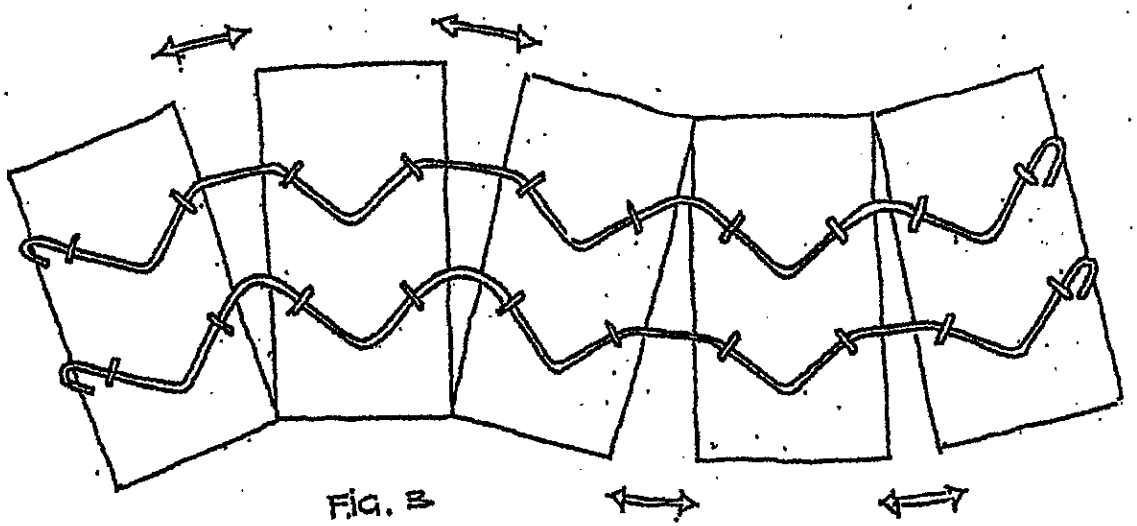


Fig. 3

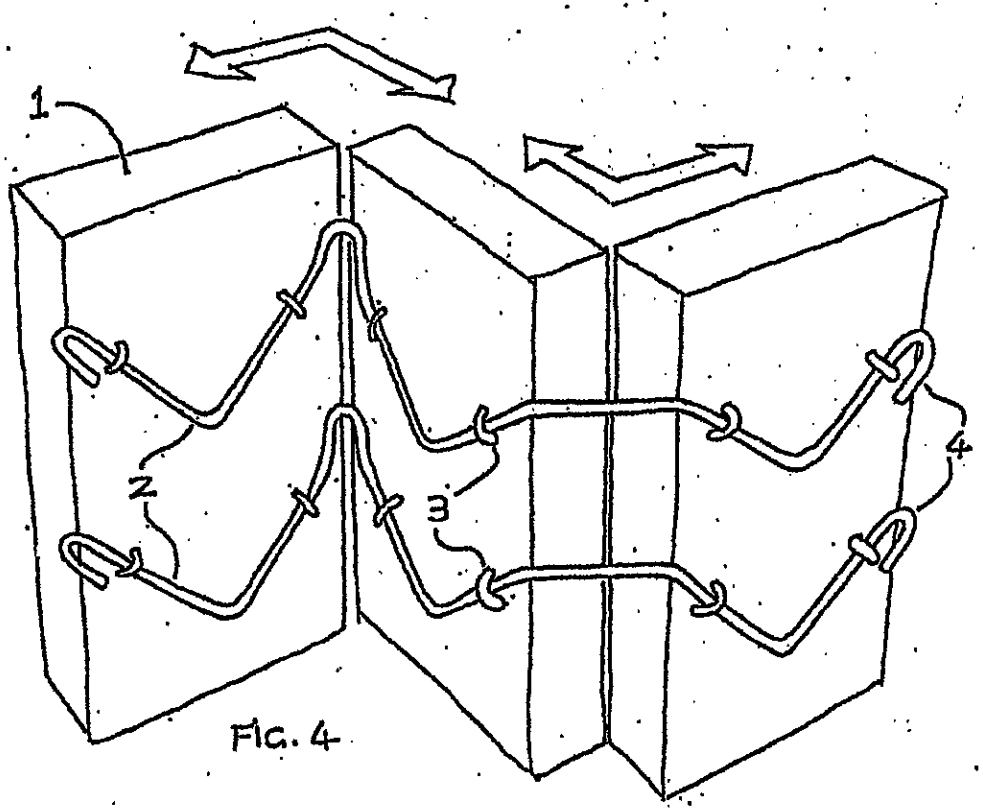


Fig. 4

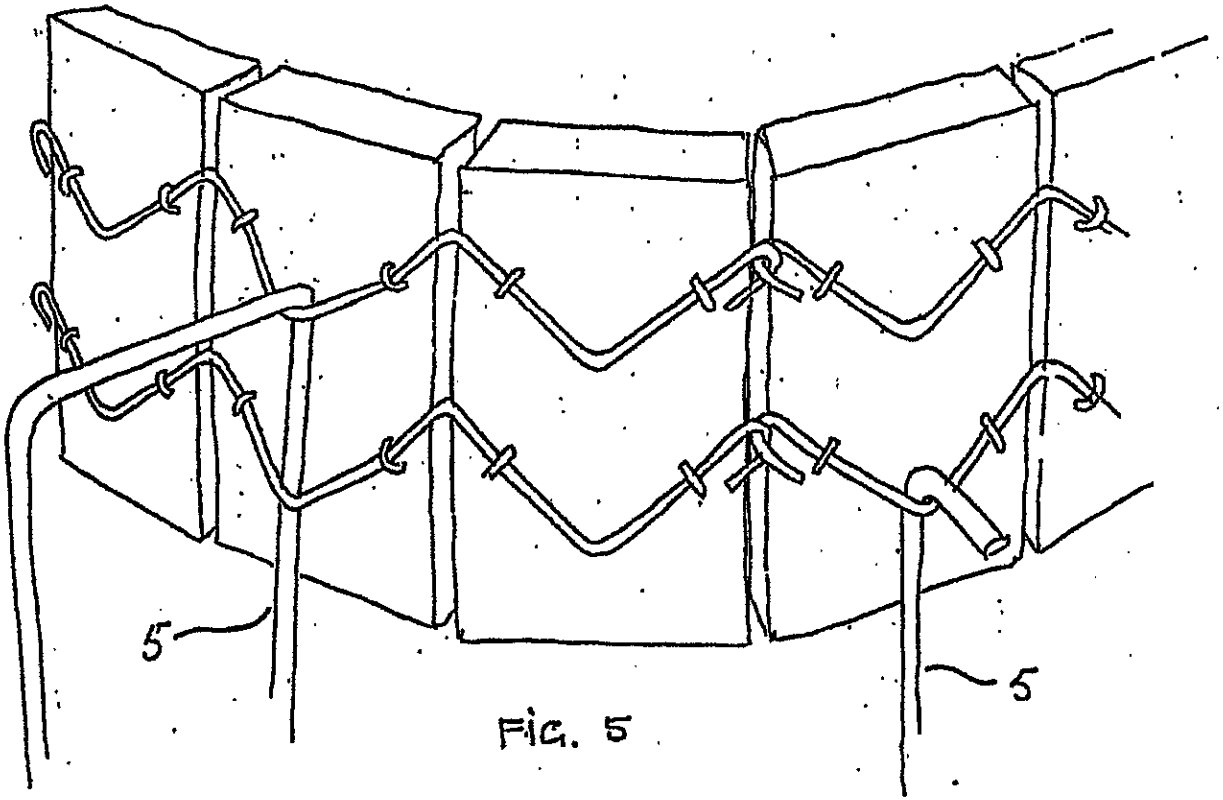


Fig. 5

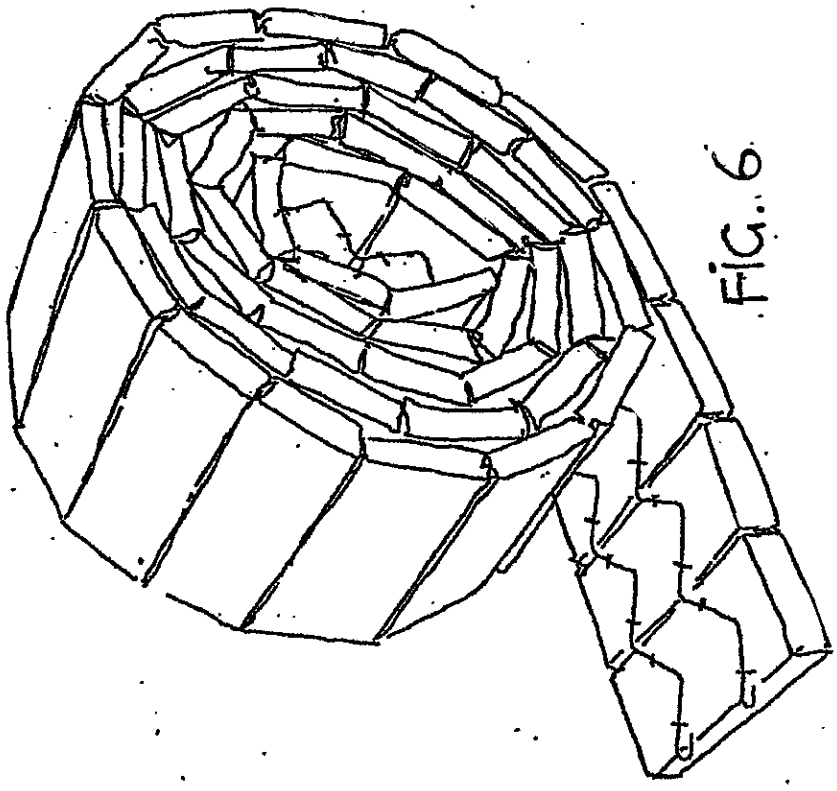
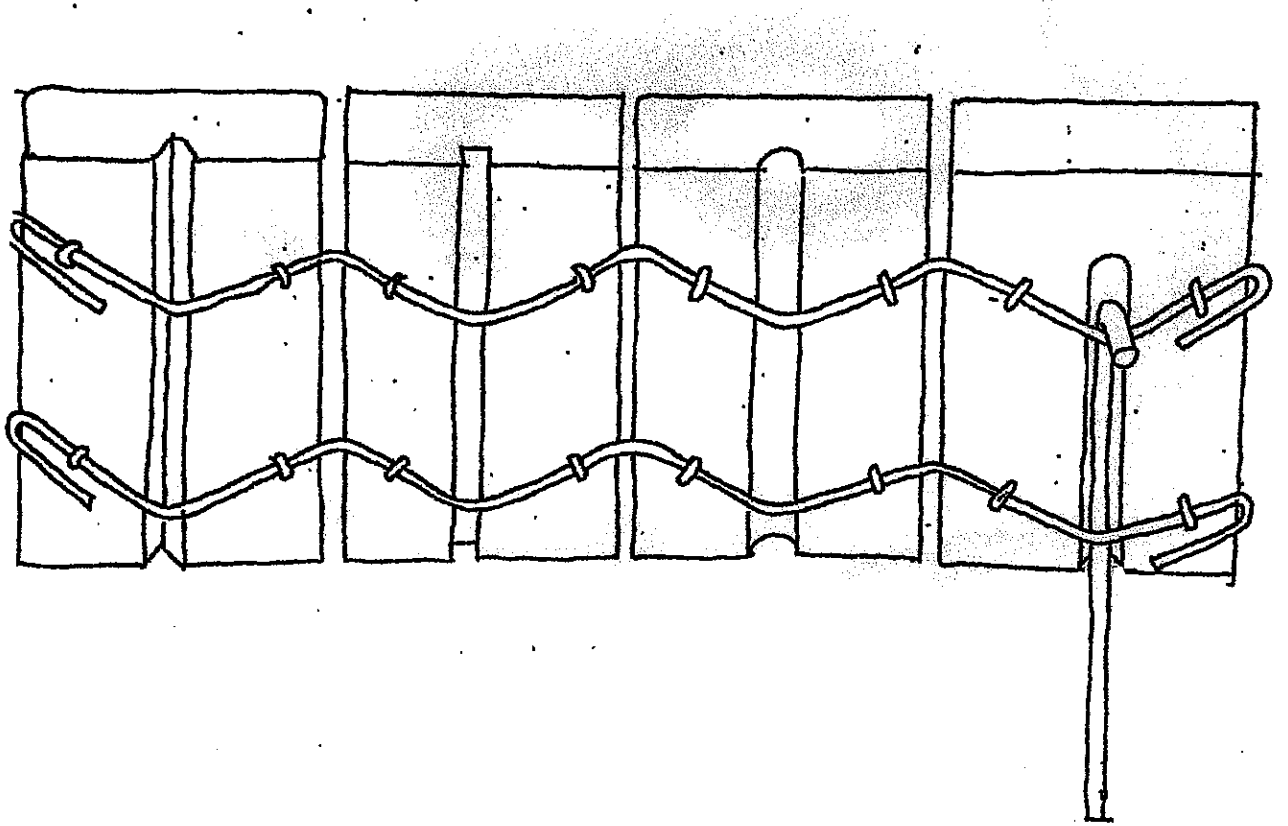


FIG. 6



EDGING WITH GROOVES - QUESTION 2

PROVISIONAL SPECIFICATION - QUESTION 2

This invention is a pre-formed garden edging.

A garden edging is available in which short upright pieces of timber are connected together by a metal strip nailed by two nails to the back of each wood piece. The edging is sold in flat lengths. A number of lengths of the edging can be be used to define a square or rectangular garden bed. The lengths of edging can be bent to define a garden having a curved shape if necessary.The edging is only suitable for use on flat ground.

The invention is a garden edging having pieces of timber connected together by wire.

Each piece of timber in the garden edging should be connected by two lengths of stiff wire.

The two lengths of wire should be attached to the pieces of timber so that they are parallel with each other.

Staples can be used to attach the wire to the timber.

Stakes, pegs, pins, etc can be inserted between the timber pieces and the wires.

Two sets of garden edging can be joined together.

The garden edging can be reused.

The Figures show the garden edging of this invention including how it can be stored and stacked.

The timber can be replaced by plastic, metal or other material suitable for use in garden edging but it must be able to be attached to the wires.

The wires can be replaced with plastic or other material capable of being bent to allow movement of the individual pieces of timber relative to one

another.

Lengths of the garden edging can be stacked or rolled to provide for convenient storage or transportation.

The garden edging can be reused, but may need some reinforcement.

Figure 1; shows pieces of timber referenced by (1) joined together by parallel wires (2) in which the overall length of the wire is greater than the overall length of the section of timber or material means. Also the timber pieces should not be immovably fixed on the wires. These are very important as this allows the movement of the timber pieces in 3 dimensions. If the wire is the same length then movement is restricted and the invention will not work the way it is supposed to do. Also shown in figure 1 is the attachment of the wire to the timber of the edging by staples (3). The end of the wire referenced by (4) is bent. This is so that lengths of the edging can be joined together. There needs to be at least 2 wires for adequate support and all the wires need to be parallel.

Figure 2 shows a section of garden edging including three pieces of timber referenced by (1) connected together by wire referenced (3) bent at the ends referenced by (4) to enable joining with other sections of garden edging. The timber is represented diagrammatically as having been moved in a vertical direction relative to each other to enable the garden edging to follow the slope of a surface.

Figure 3 shows a section of garden edging in which the individual timber pieces have been moved in a horizontal direction relative to each other with the distance between one end of each timber being greater than the other end in a concertina fashion. This enables the garden edging to follow a curved slope or other variation in the surface.

Figure 4 shows the timber moved at right angles relative to each other to form a zig-zag shape for the garden edge. The relationship between the timber pieces is in the nature of a right angle, however, other options could involve variations in such relationships.

As can be seen, if the wire is not longer than the overall length of the edging then these variations are not possible.

Figure 5 shows a section of a garden edging with stakes, pegs, pins or staples, or other reinforcing means referenced by (5) placed between the timber and the wire so that the garden edge can be attached to a surface. Such a surface may be a soil bank or a wood or metal surface.

Figure 6 shows a section of a garden edging in roll form suitable for stacking or storage.

By making the wire in a wavy form as shown in the drawings or form in which the overall length of the section of edging is shorter than the length of the wires, and by allowing some slippage between the wire and the timber the wire can be stretched out or compacted like a concertina, thereby allowing the edging to be flexible and capable of allowing the timber to be moved relative to each other in three directions, so as to follow the contour of a surface. It also helps to orient the staples as shown.

By making the wire of a malleable or other flexible material (plastic, etc) and by the application of a form of attachment between the wire and the timber, the contour or a form of the edging may be fixed permanently until such time as said edging is required for reuse, whereupon the edging can be reformed to its original shape.

The garden edging could be adapted for the use of planters, concrete edgings or fencing materials. By varying the length of the timber pieces the invention could be used for facings in other circumstances.

END

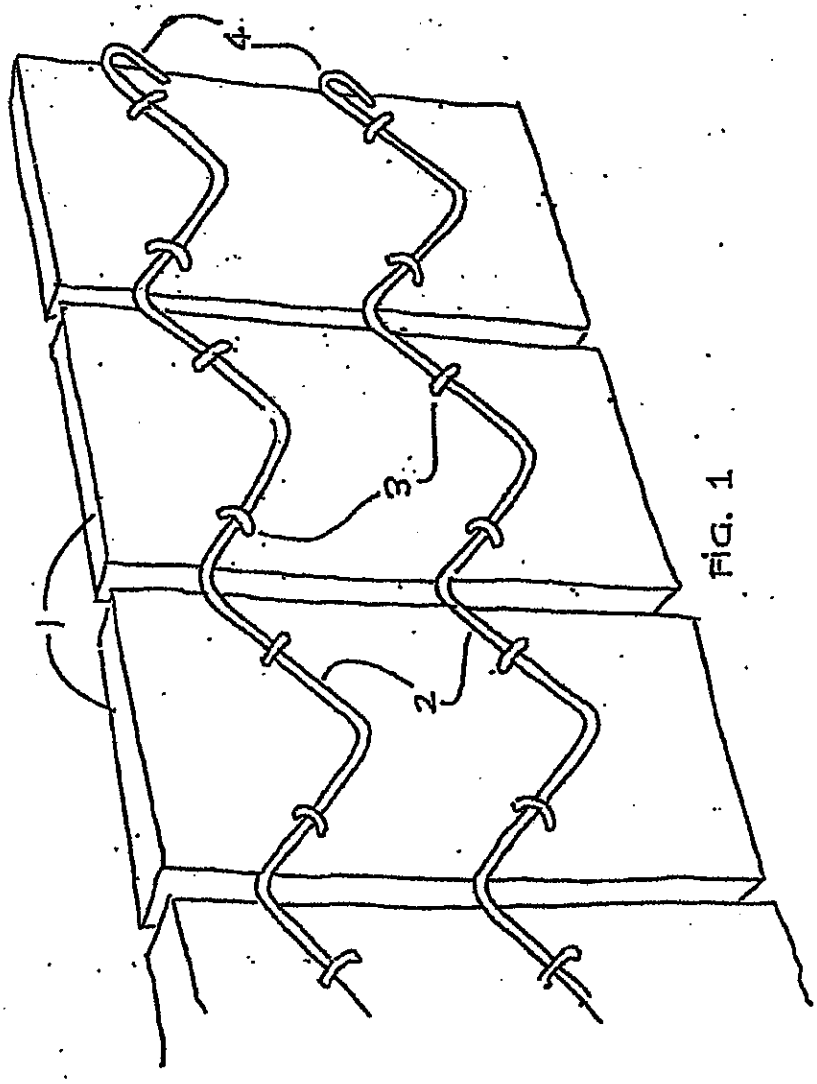


fig. 1

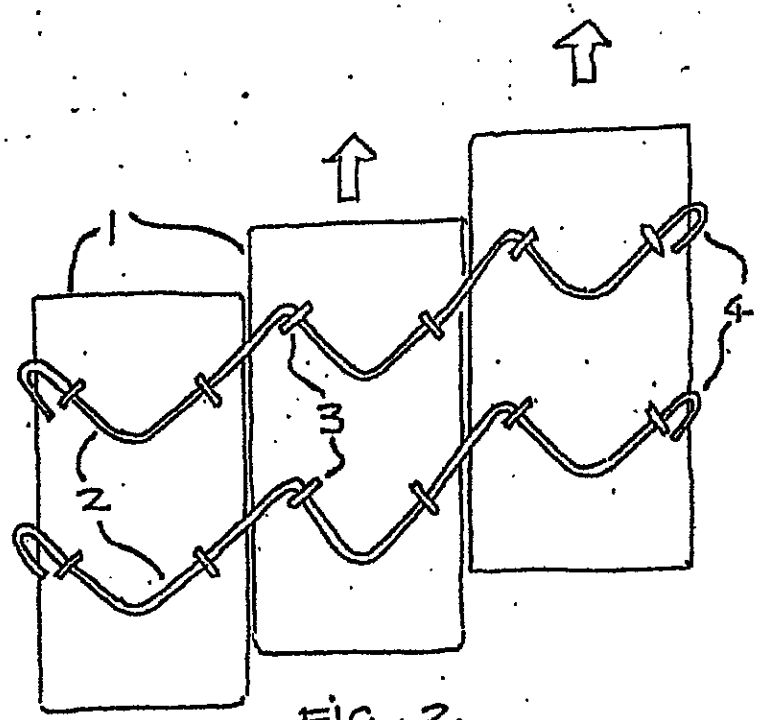


Fig. 2

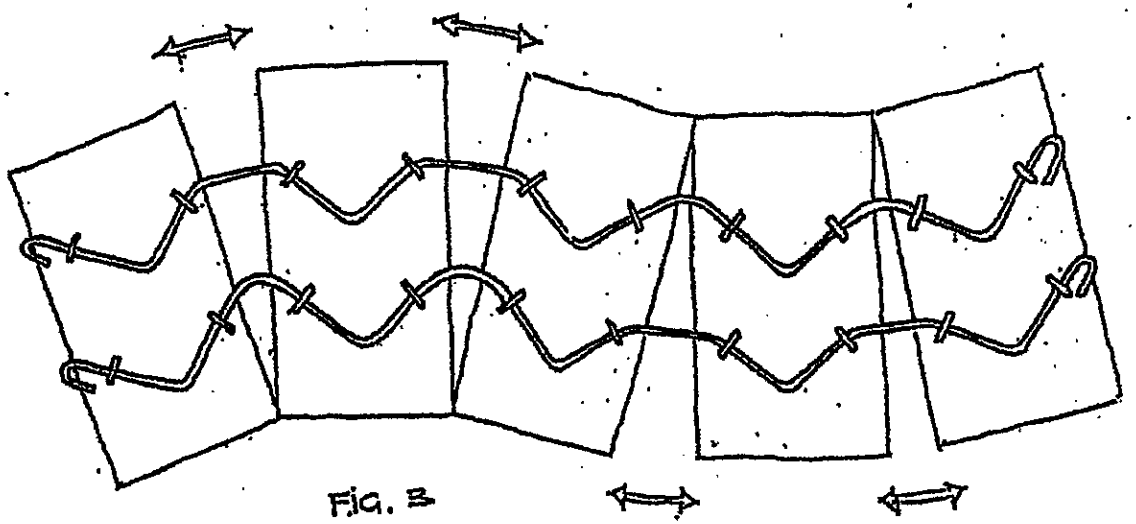


FIG. 3

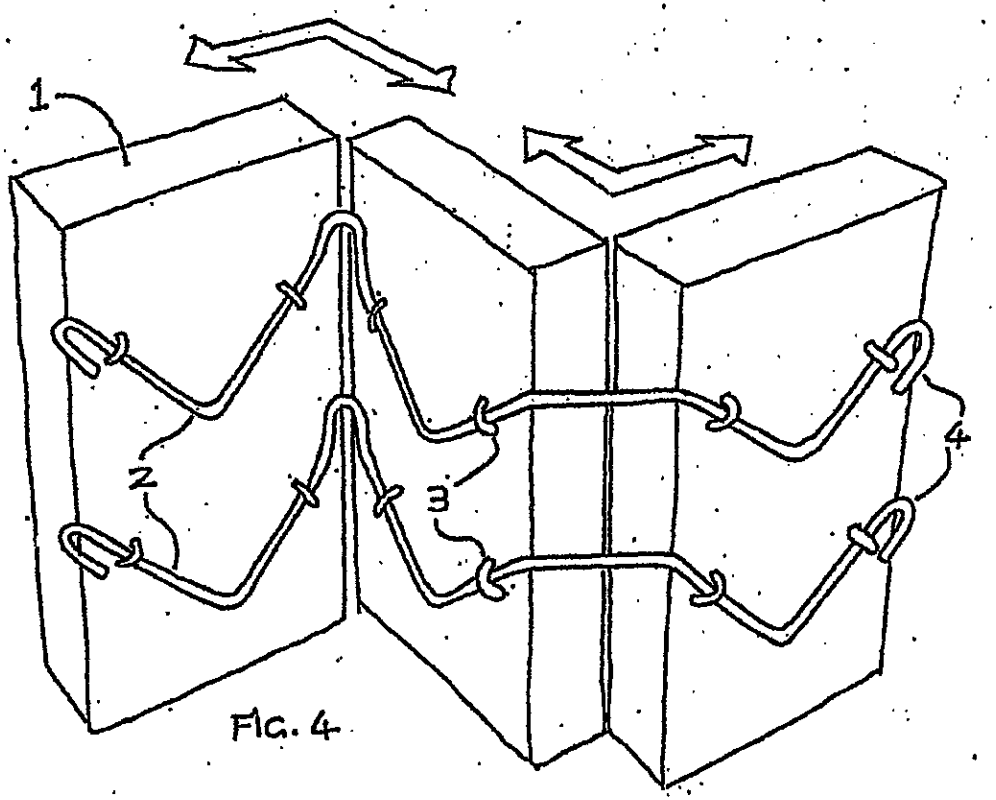


Fig. 4

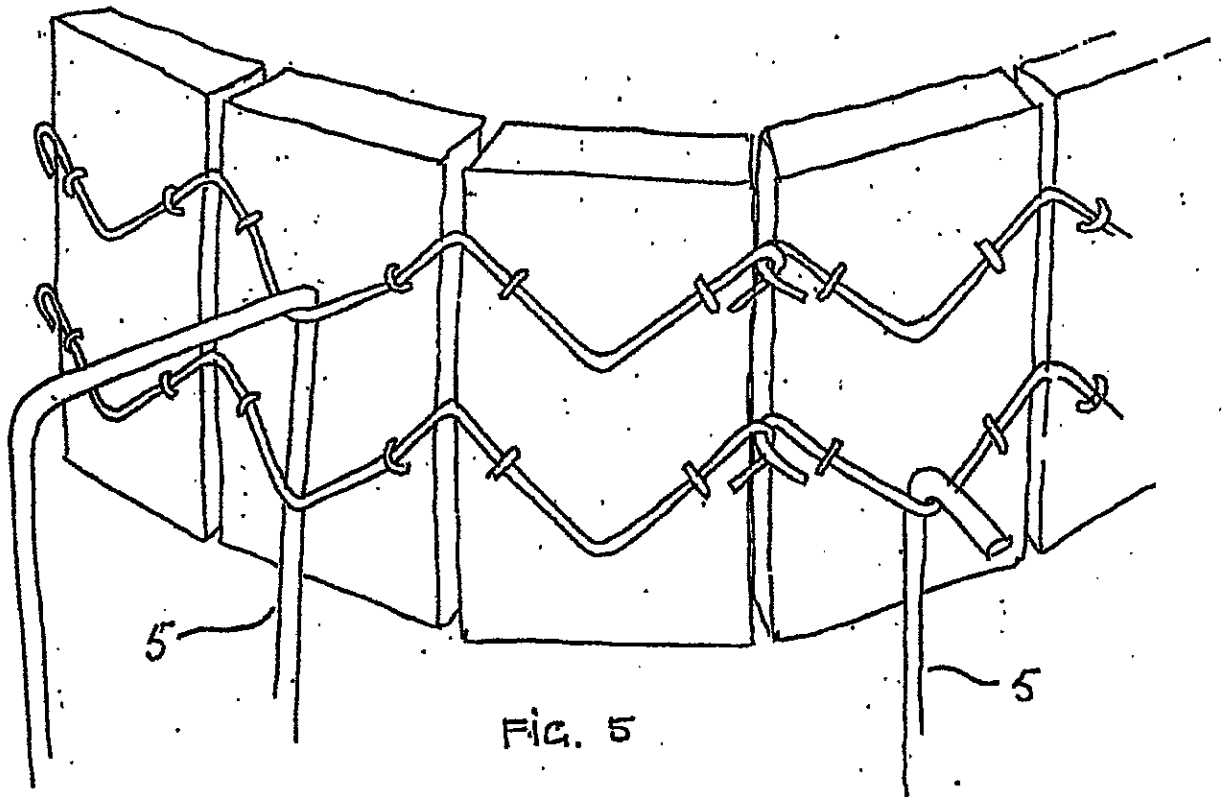


Fig. 5

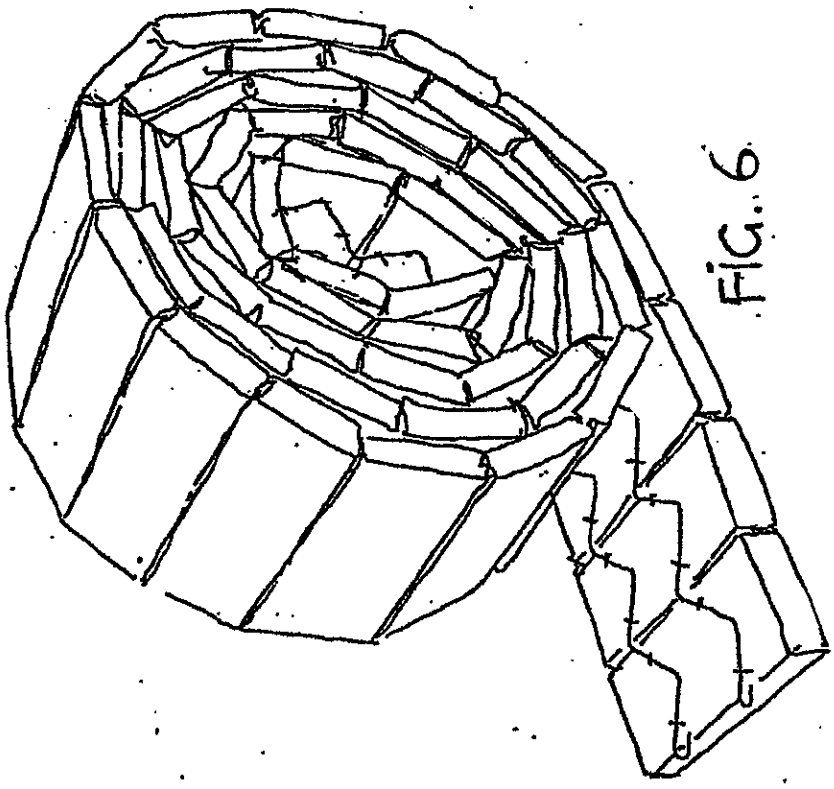
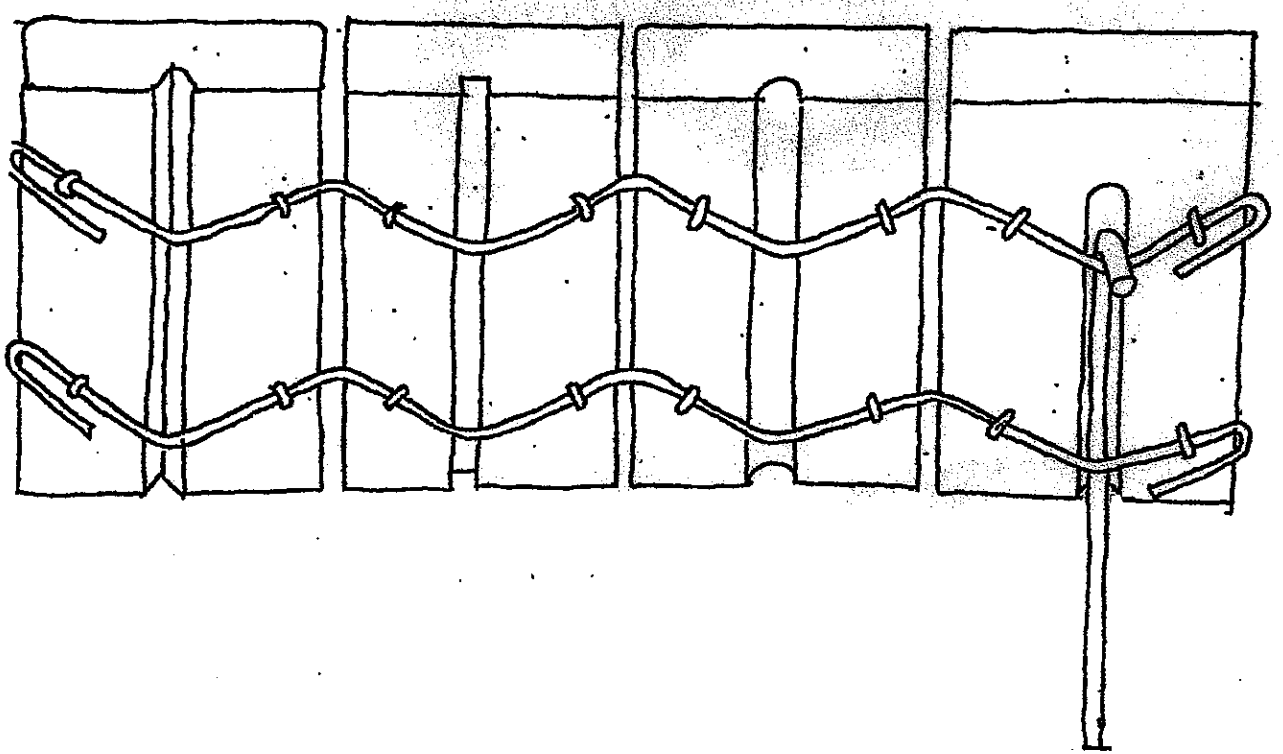


FIG. 6



EDGING WITH GROOVES - QUESTION 2

United States Patent [19]

LeMay et al.

[11] **Patent Number: 4,747,231**

[45] **Date of Patent: May 31, 1988**

[54] **LANDSCAPE EDGING**

[76] Inventors: **Larry R. LeMay; Sharon M. LeMay,** both of Rte. 2 Box 176A, Holcombe, Wis. 54745

[21] Appl. No.: **897,926**

[22] Filed: **Aug. 19, 1986**

[51] **Int. Cl.**[4] **A01G 1/00**

[52] **U.S. Cl.** **47/33**

[58] **Field of Search** 52/586; 47/32, 33; 404/6, 7, 8; 256/19, 29, 24

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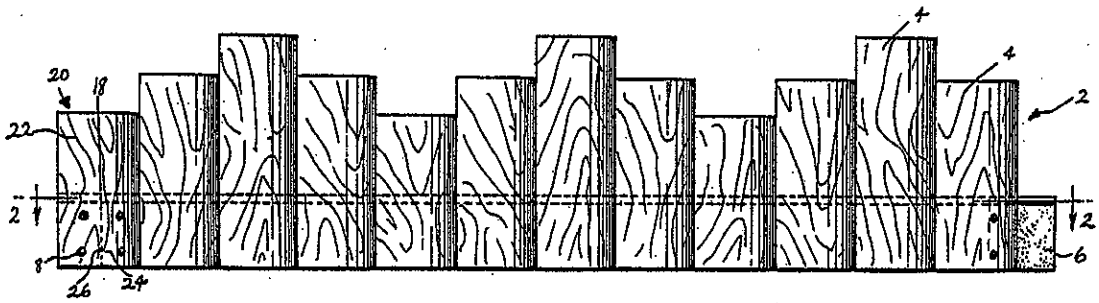
Primary Examiner—Robert A. Hafer
Assistant Examiner—Bradley M. Lewis
Attorney, Agent, or Firm—Berman, Aisenberg & Platt

[57] **ABSTRACT**

A landscape edging has a plurality of sections engaged adjacent to each other on a length of strip material, each length of strip material having two longitudinal edges, one of the longitudinal edges preferably having a cylindrical-shaped bead-like projection. The strip engages in a similarly shaped slot cut through one end of each section, forming a length of landscape edging. The sections are preferably log sections.

9 Claims, 1 Drawing Sheet



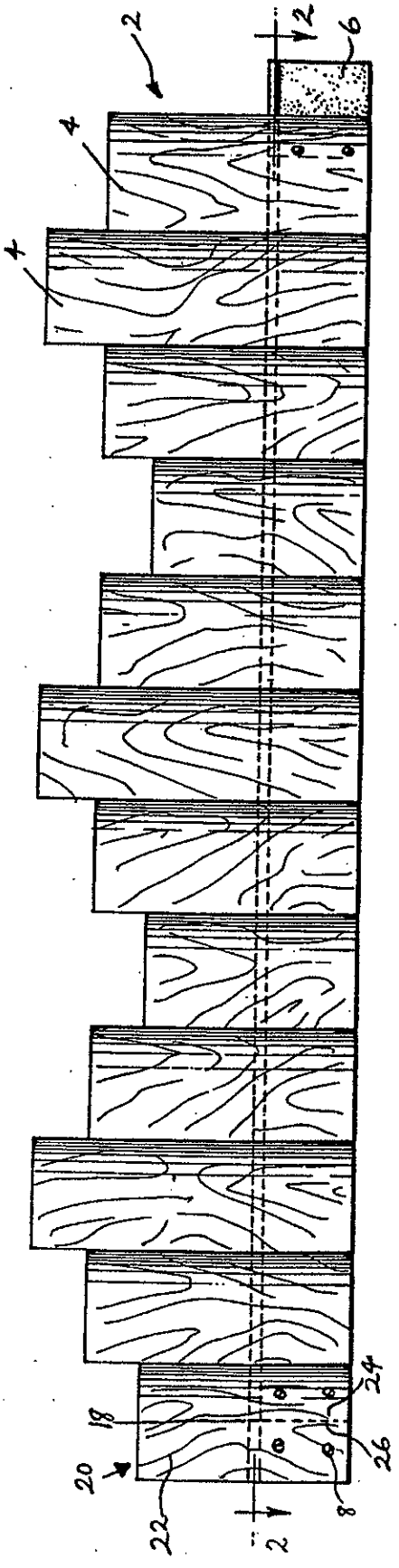


FIG 1

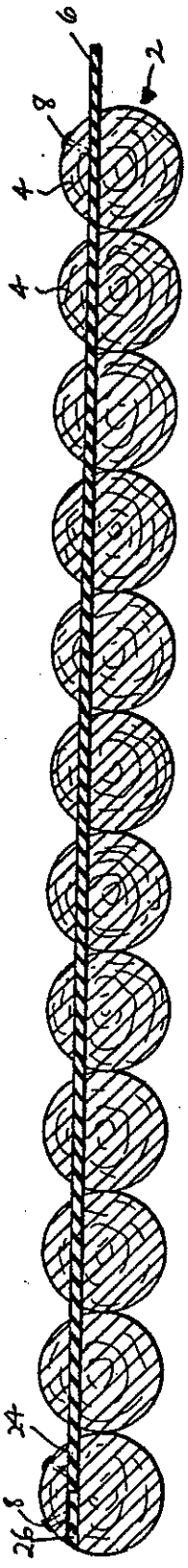


FIG 2

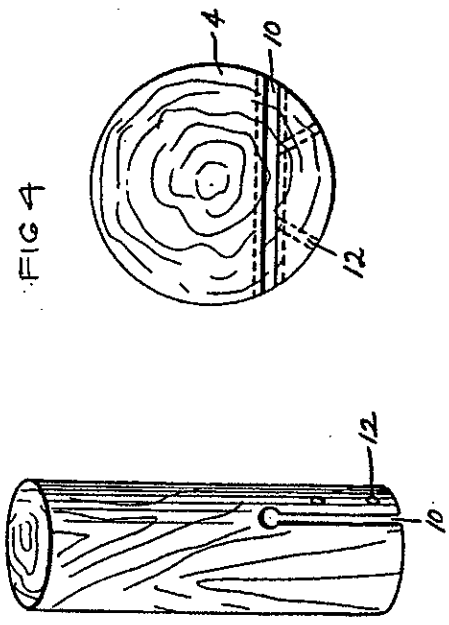


FIG 3

FIG 4

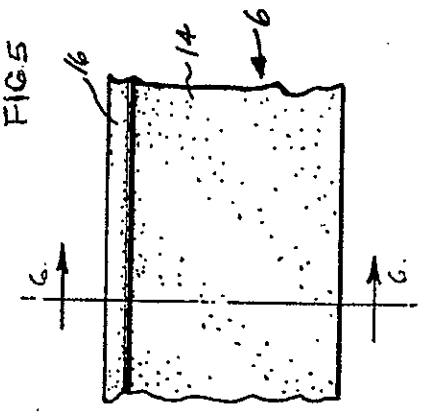


FIG 5

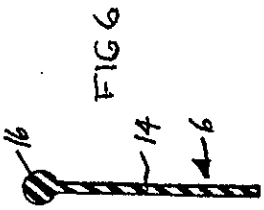


FIG 6

LANDSCAPE EDGING

FIELD OF THE INVENTION

This invention relates to edging for garden beds or lawns.

BACKGROUND OF THE INVENTION

Existing lawn and garden edging is not sufficiently strong to satisfy many users. One form of conventional edging uses sections of logs attached together at the back by one or more strands of wire. Such edging does not serve as an impenetrable barrier to weeds and grass as they may grow through the spaces between the timbers. Additionally, with time, the timbers are gradually displaced with respect to each other if subjected to any pressure. Furthermore, the wire attachments may rust and break, thus negating the efficiency of the edging.

Other conventional edging is comprised of plastic strips which are partly buried in the ground, and are partly visible above the ground. While these strips are impenetrable to weeds and grass, they are unsightly and not decorative. Such strips are generally only used where a decorative edging is not needed.

Other prior art edgings include those of Beck, U.S. Pat. No. 4,543,745, in which a vertical row of timers which have been sawn off to provide a flat edging at the back are secured to a metal sheet. The metal sheet is likely to rust, and thus, the edging will deteriorate. In the patent to Dombrowski, U.S. Pat. No. 2,619,686, timbers for use in building construction are assembled together in parallel relationship by means of a thin strips of metal which fit into slots in the vertical edge of each log. The strip has no integrity on its own, but is used as part of a structure for building log cabins. Freedman, U.S. Pat. No. 2,746,723 shows a fence in which the boards are held together by supporting rails behind pickets. Kannen, U.S. Pat. No. 1,853,055, describes a stone wall, made in sections connected by ropes. Novak, U.S. Pat. No. Des. 276,494 shows a plastic landscape edging unit which is assembled by circumferential joining of the plastic sections.

SUMMARY OF THE INVENTION

An edging for garden beds or lawns has a plurality of log sections placed adjacent to each other, connected by a plastic or rubber strip. Each log has a slot cut through its base, enabling a rubber or plastic strip, of similar shape to the slot, to be inserted sequentially through a plurality of adjacent slotted logs. The ends of the strip are secured by screws through the log section housing the strip end. The strip preferably has a cylindrical-shaped bead along its top edge, and engages in a similarly shaped slot within each log section.

It is an object of the invention to provide a sturdy landscape edging which is long-lasting and aesthetically pleasing.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 shows an elevational view of a landscape edging of the invention.

FIG. 2 shows a bottom view of the landscape edging of FIG. 1.

FIG. 3 shows a perspective view of a single log used in the edging.

FIG. 4 shows a bottom view of a log used in the edging.

FIG. 5 shows an elevational view of a strip used to secure the logs together.

FIG. 6 shows a cross-section taken on line 6—6 of FIG. 5.

DETAILED DESCRIPTION OF THE INVENTION

The invention is a landscape edging having a plurality of vertically-placed sections, preferably log sections, which are generally situated adjacent to each other on a length of strip material, each length of strip material having two longitudinal edges, one of the longitudinal edges preferably having a bead-like projection along its length, the bead-like projection being on the upper edge of the strip when the strip is placed in a position to engage each section. The strip engages in a slot of similar shape to the strip, the slot being cut through one end of each log section. The log sections are threaded onto the strip to form a length of landscape edging having the appearance of many log sections standing adjacent to each other. The strip material, which may be flexible, and which is preferably made of plastic, allows the landscape edging to take an appropriate shape, including straight lengths, circles and bends. These sections can be shortened, or connected together, very rapidly. A preferred means of securing the strip to the end log is by screws through the log and the strip, but any appropriate method may be used.

The internal slot cut through the end of each section gives the edging unexpectedly advantageous strength and, additionally, the edging is aesthetically pleasing when viewed from either the front or back.

Referring now to FIGS. 1 to 6, in which like numerals represent like parts, FIG. 1 shows a landscape edging 2 of the invention, having a plurality of log sections 4 standing adjacent to each other. Flexible strip 6, having a flat portion 14 and a cylindrical portion 16 running along one edge thereof, is engaged in slot 10 in each log. Each slot 10 is keyhole-shaped, as shown in FIG. 3, to engage strip 14. Thus, the log sections cannot be lifted off the strip, but may only be added and removed by a sliding or threading operation. The slot may be cut through the base of the log either on a diameter or approximately one-quarter of the way across the log, as shown in FIGS. 2 and 4, or in any other appropriate position.

Each end of the flexible strip is secured to the log section which engages over the end of the strip, by any suitable means, such as by screws 8. The joint 18 between two sections of landscape edging is not visible to an onlooker except by the location of the screws, which are very unobtrusive. One log section 22 is placed over the adjacent ends 24 and 26 of two adjacent flexible strips and the adjacent ends of the flexible strips are secured to the inside of that log section by screws, or other appropriate fastenings.

The strip, which is preferably of flexible plastic, is impervious to the elements, and will not rust or corrode. If the strip is flexible, the edging may be bent to follow the contours of a lawn, garden bed, or other landscape feature, sufficient flexibility being provided to curve the landscape edging of the invention into a circle or around right-angled bends. The logs may be used either with or without the bark, and may be pressure treated or otherwise treated to ensure their longevity. Natural logs are preferably used, but manufactured slotted sections may alternatively be used.

The invention provides a particularly advantageous landscape edging which is inherently strong since the log sections cannot be lifted off the flexible strip due to the bead-like projection along the top of the strip. The bead-like projections, illustrated in FIGS. 5 and 6 as cylindrical in shape, may have any other appropriate shape that engages in a suitably shaped slot in the log sections.

If the bead edge on the strip is omitted, the log sections may be lifted on and off the strip, and may be secured to the strip, if required, by screws, adhesively, or by other suitable means. Even if the bead edge is present, sections other than the end sections may be secured to the strip, for added strength.

The landscape edging of the invention is appropriately sized. As a non-limiting example, in the log edging shown in FIG. 1, the strip may be 4 inches high, with a thickness of 1/16 inch, and a bead of 7/16 inch diameter. The log sections, shown of three different heights, may suitably be 8, 10 and 12 inches high and 4 inches in diameter. The slot through the log sections for engaging the strip, may be ¼ inch wide with a cylindrical bead-shaped end ¼ inch in diameter. Screws, each 1 inch long, may be placed adjacent to the slot to secure the end of the strip to the log section, the slot being placed approximately one-quarter of the way through a 4 inch diameter log section, as shown in FIG. 2. A section of landscape edging may be 4 feet, or other appropriate length. If 3 inches of flexible strip is left exposed at one end of the assembled landscape edging for insertion into the end log of the next section, the 3 inch exposed length may be trimmed appropriately to the size of end on the next section, or cut off completely if an adjacent section of landscape edging is not needed.

While the invention has been described above with respect to certain embodiments thereof, it will be appreciated that various changes and modifications may be made with departing from the spirit and scope of the invention.