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(54) **JOINT CONSTRUCTION, SUCH AS FOR USE BY ATHLETES**

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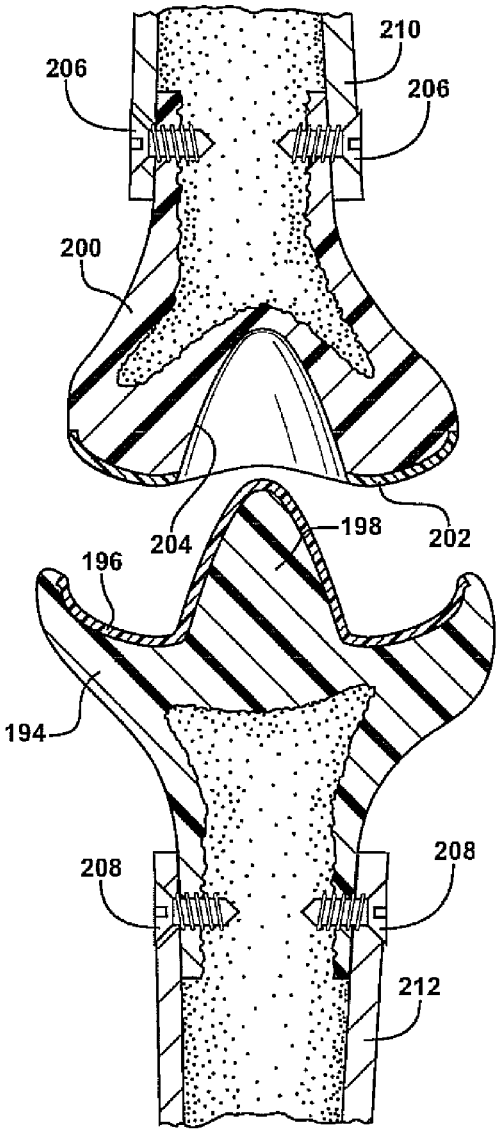
(57) **ABSTRACT**

A reinforced joint assembly includes a first implant portion secured to a sectioned end of a first bone. A second implant portion is likewise secured to a sectioned end of a second bone and in opposing fashion relative to the first implant to define a joint zone therebetween. The first implant exhibits a first surface profile, whereas the second implant exhibits a second and mating surface profile. A male projection extends from the first surface profile of the first implant and seats within a recess defined within the second implant.



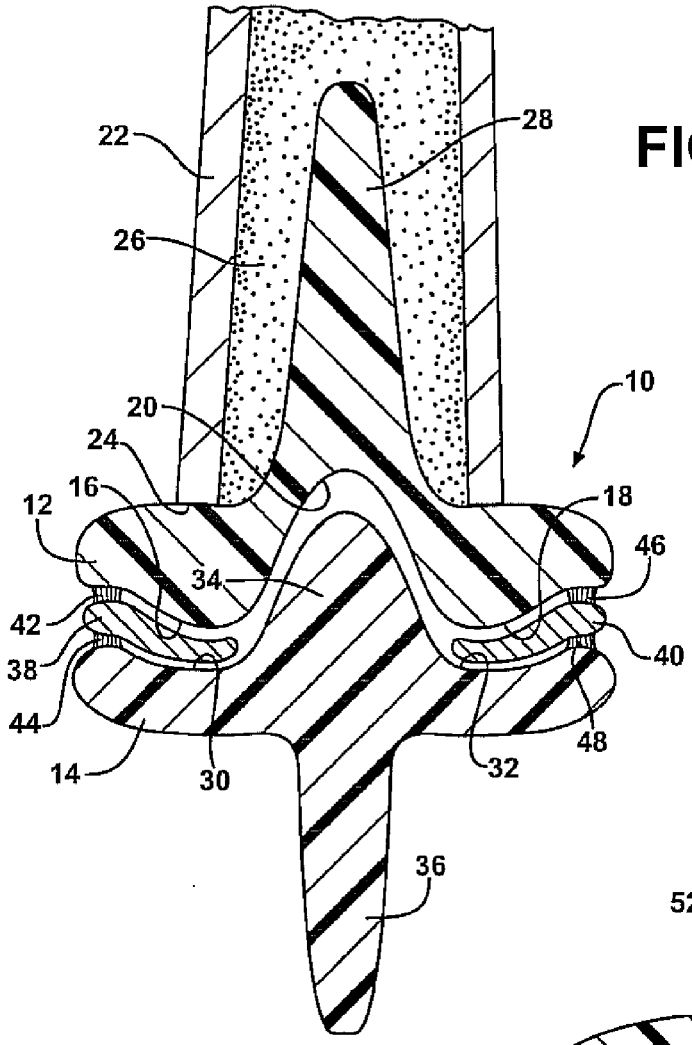

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FIG. 1

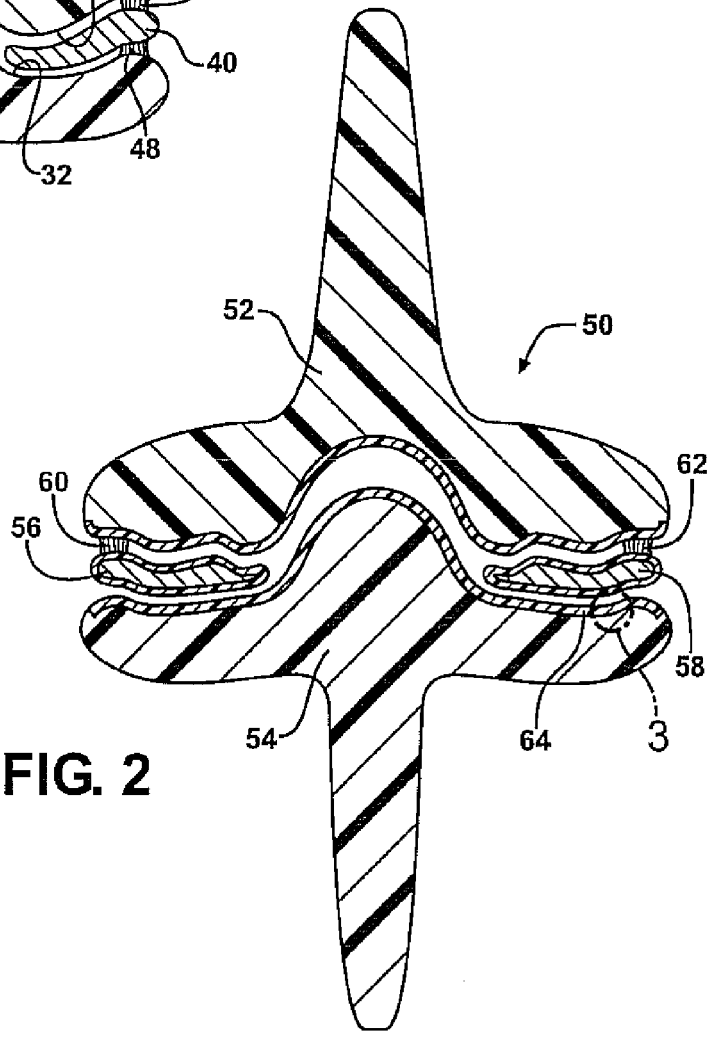
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FIG. 2

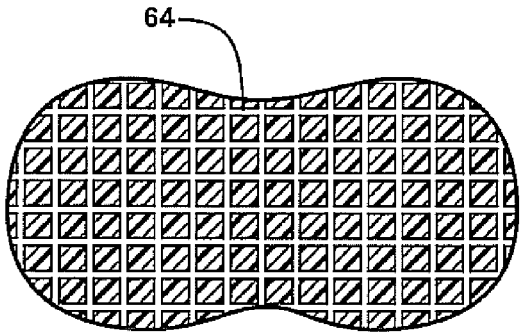


FIG. 3

FIG. 4

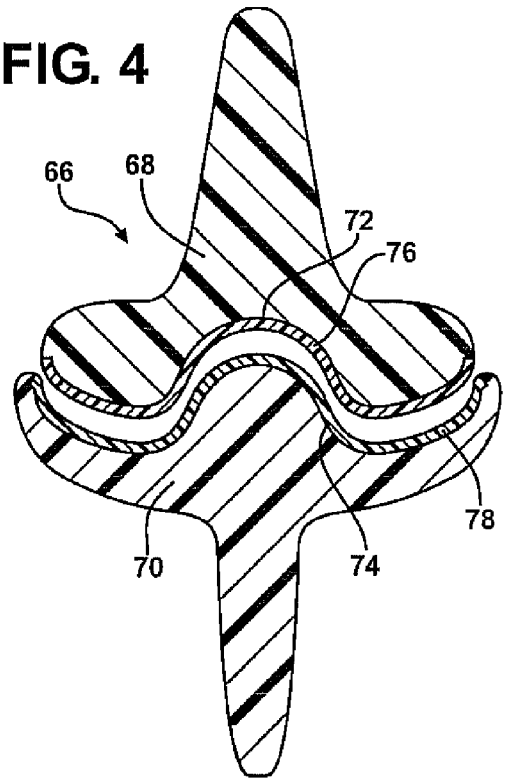


FIG. 5

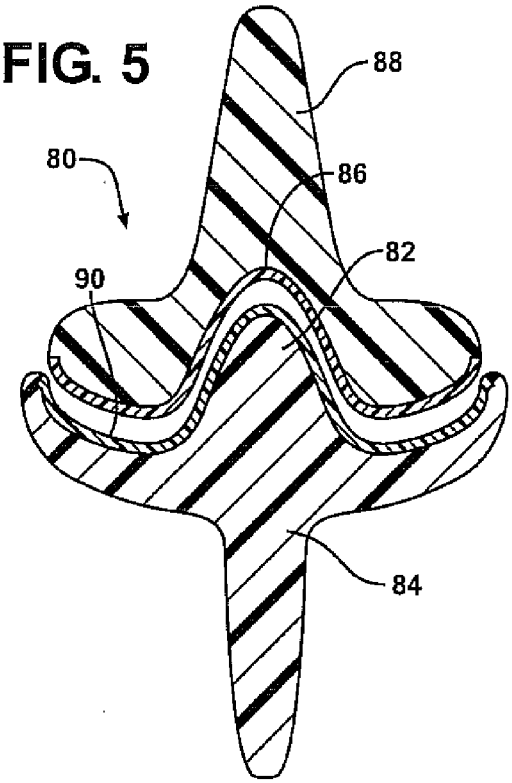


FIG. 5A

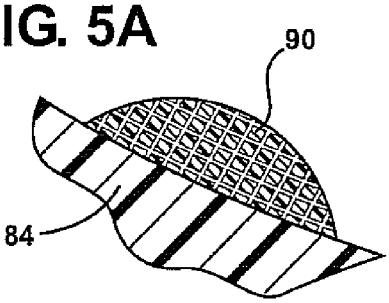
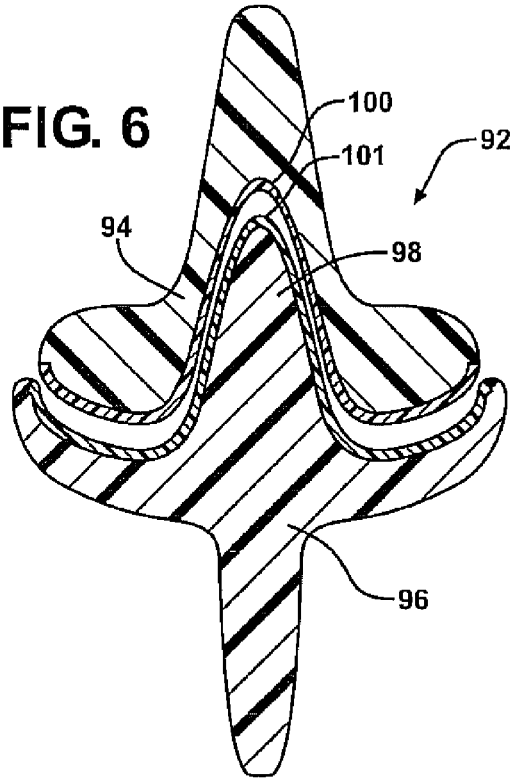


FIG. 6



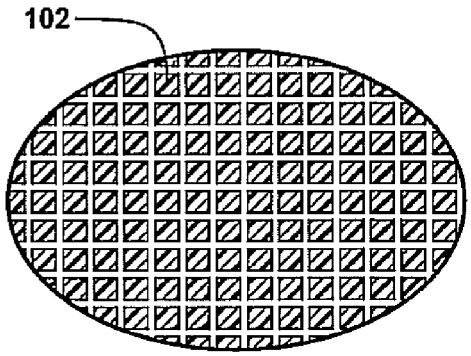


FIG. 7

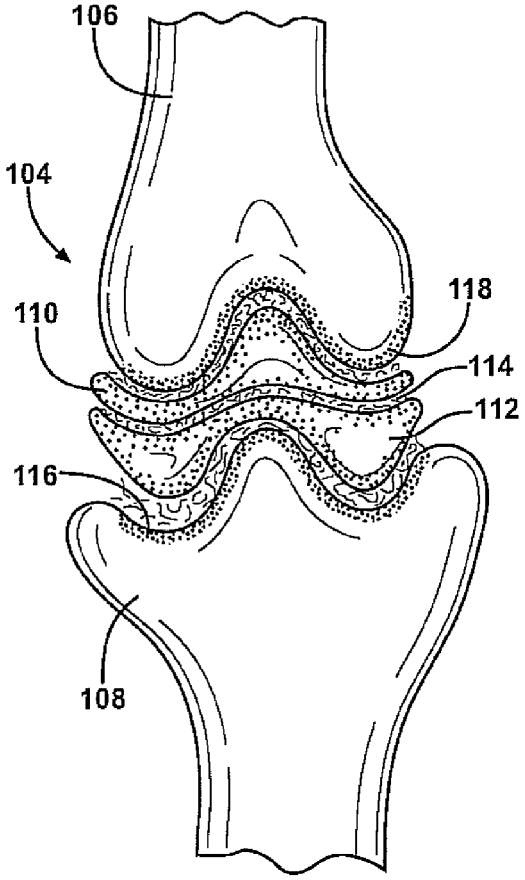


FIG. 8
PRIOR ART

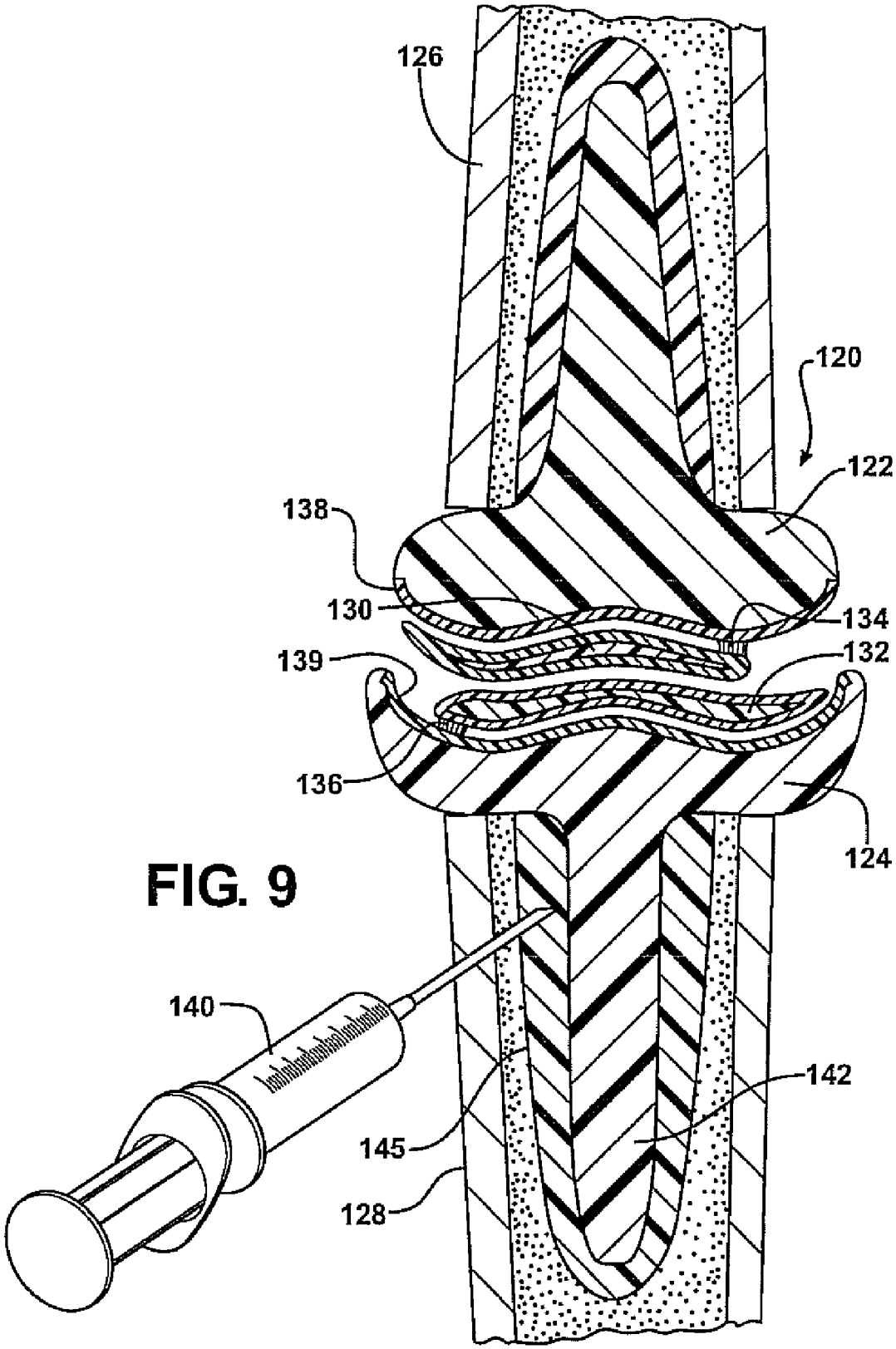


FIG. 9

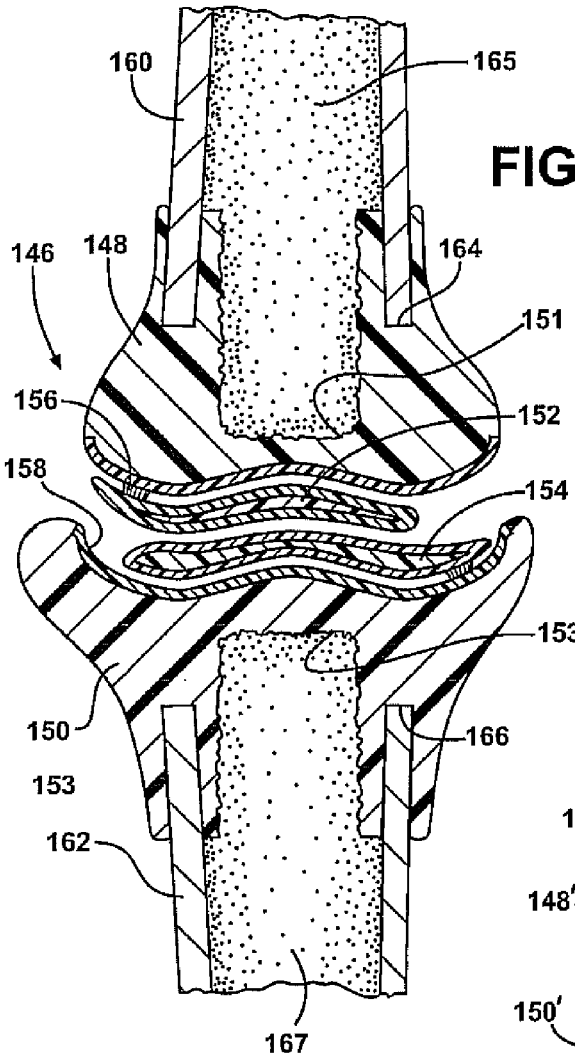

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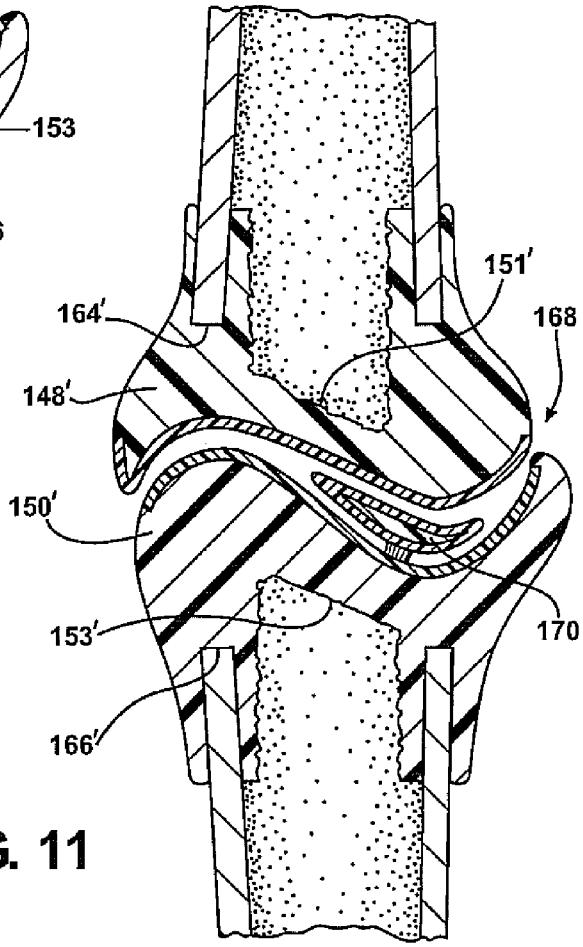
FIG. 10


151'
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166'

FIG. 11

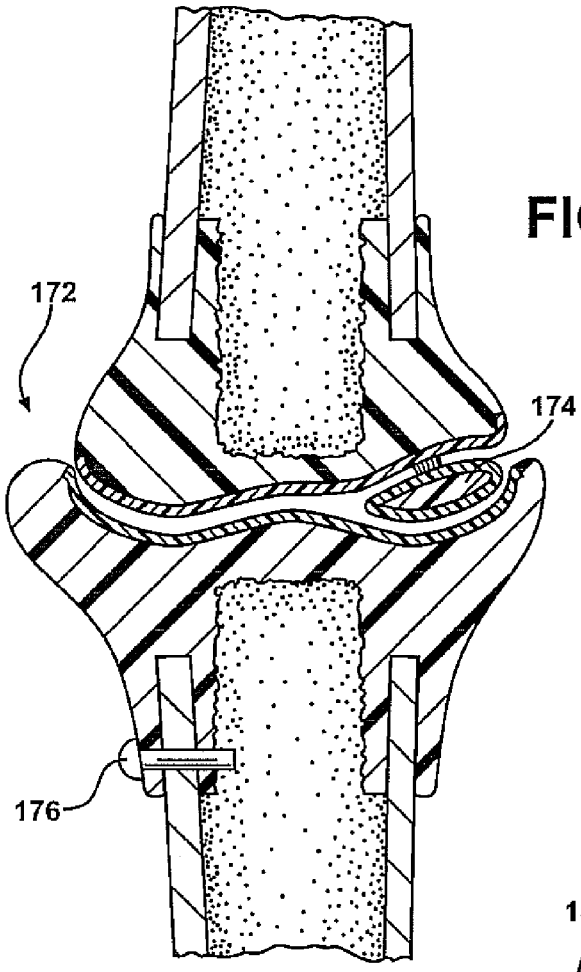

FIG. 12

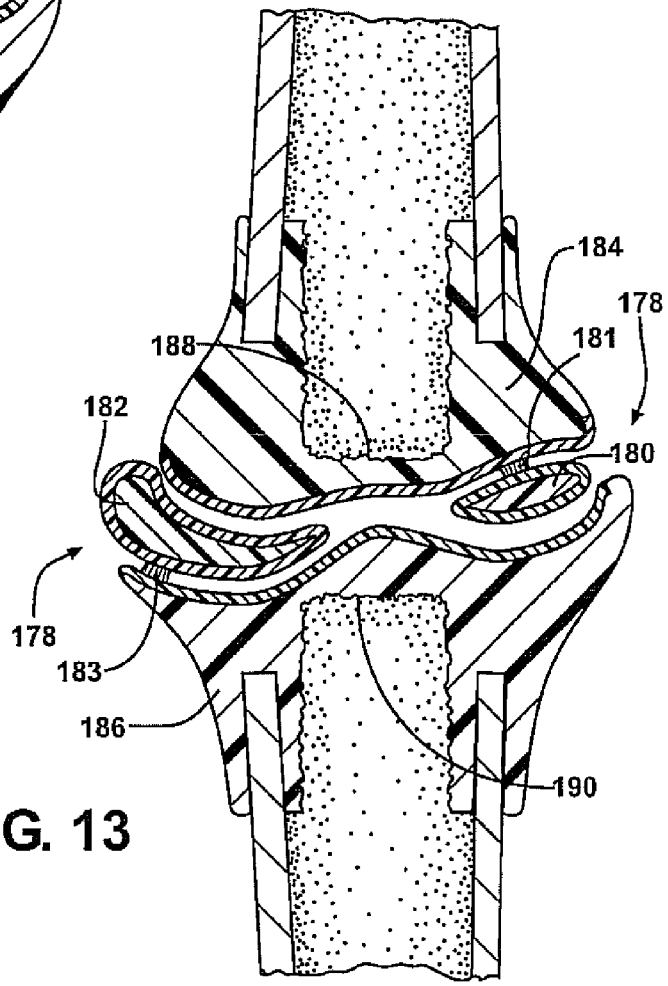

FIG. 13

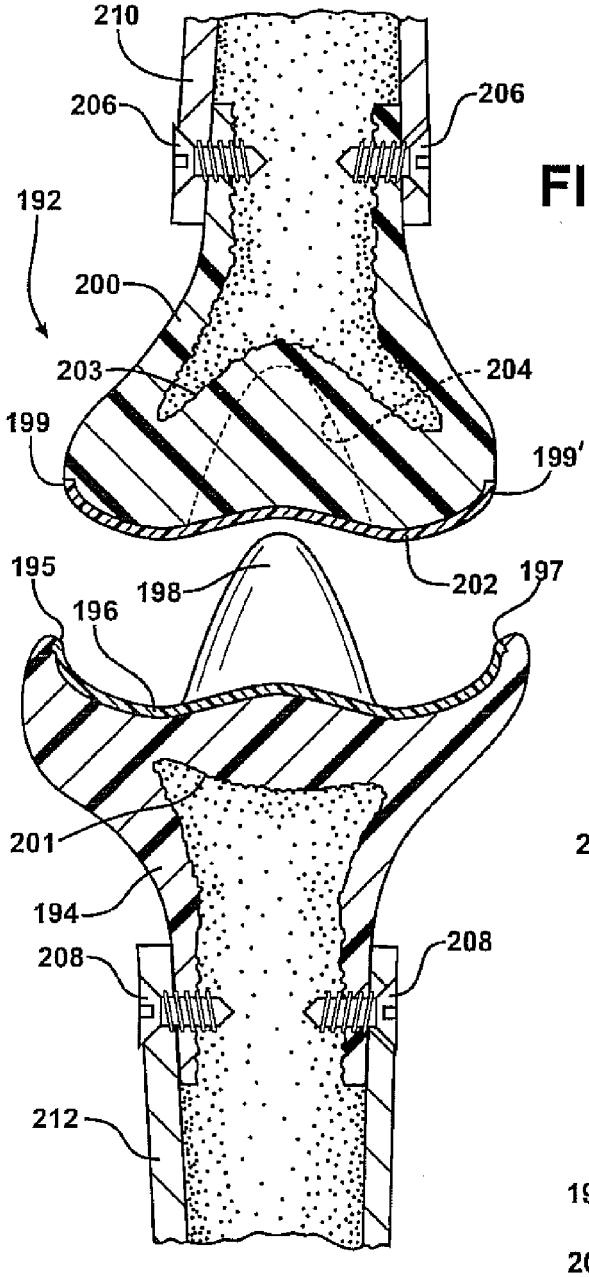
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FIG. 14

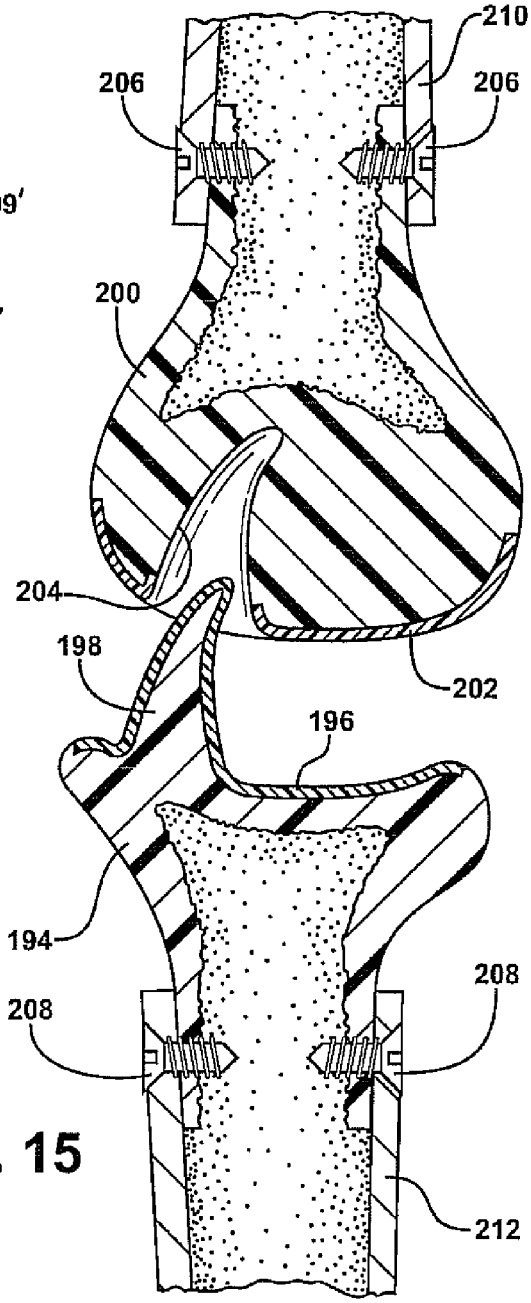
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FIG. 15

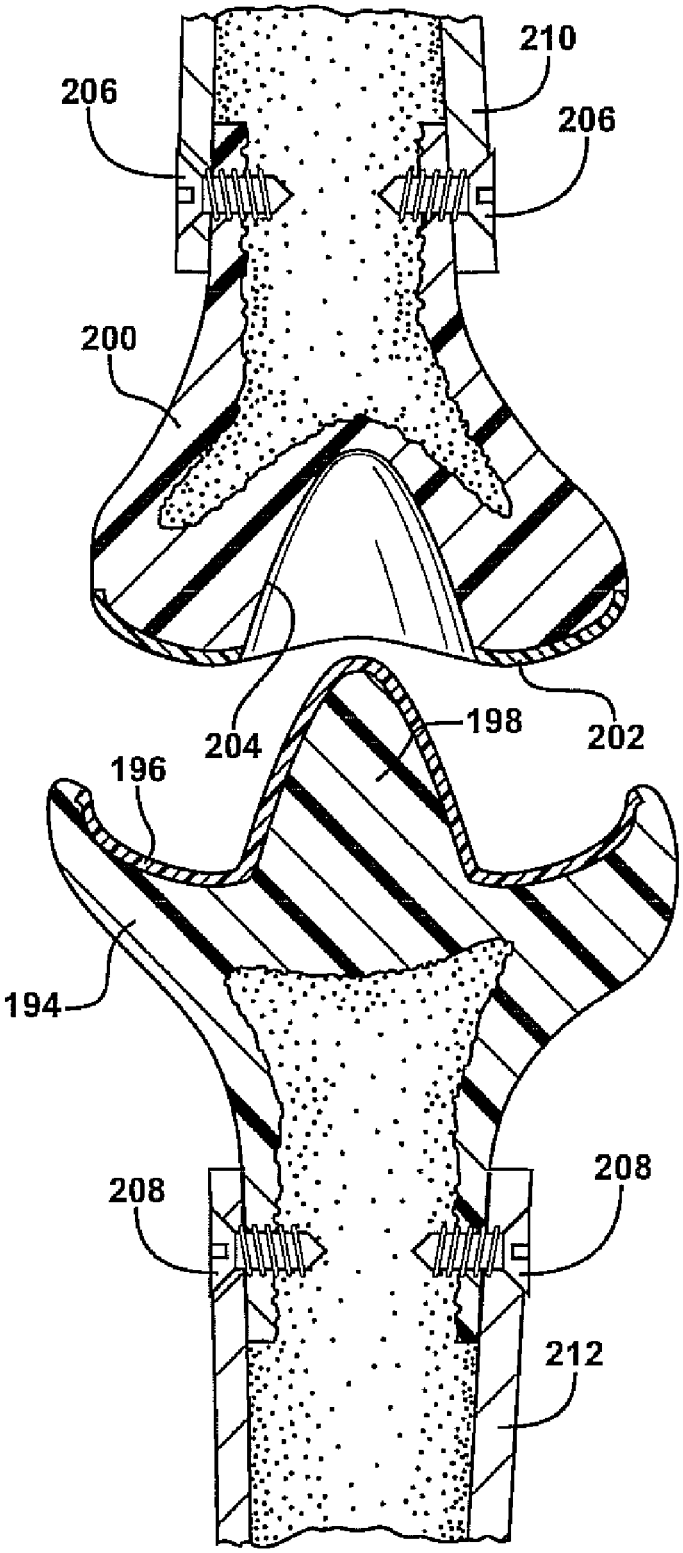

FIG. 16

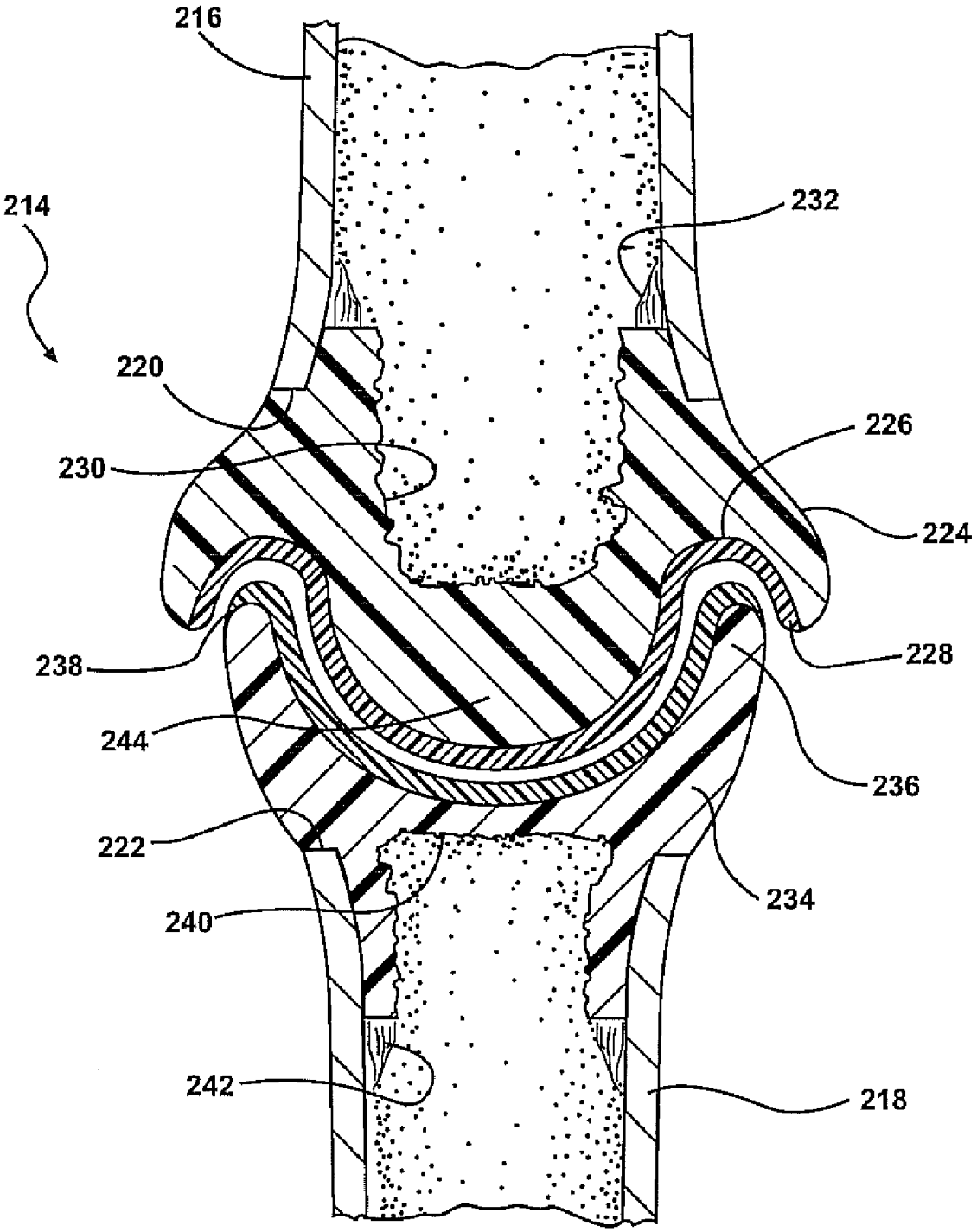

FIG. 17

JOINT CONSTRUCTION, SUCH AS FOR USE BY ATHLETES

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the priority of U.S. provisional application Ser. No. 61/039,612, filed Mar. 26, 2008, for a Joint Construction, Such as for Use by Athletes.

FIELD OF THE INVENTION

[0002] The present invention relates generally to artificial joint constructions. More specifically, the present invention discloses a heavy duty and reinforced joint construction for use such as by athletes and which exhibits increased wear resistance, durability and load tolerances.

BACKGROUND OF THE INVENTION

[0003] Artificial joint constructions are known in the art prior art. Such joint constructions are often provided as a replacement for worn out knee, elbow, hip and other known joint assemblies. It is also known that, given active lifestyles, replacement joint assemblies are also known for individuals exhibiting fairly active lifestyles and for which prior art joints of limited motion and durability are a shortcoming.

SUMMARY OF THE INVENTION

[0004] The present invention discloses a heavy duty and reinforced joint construction, such as for use by athletes, and which provides increased range and durability over prior art artificial joint assemblies. The reinforced joint construction includes a first implant portion secured to a sectioned end of a first bone. A second implant portion is likewise secured to a sectioned end of a second bone and in opposing fashion relative to the first implant to define a joint zone therebetween. The first implant exhibits a first surface profile, whereas the second implant exhibits a second and mating surface profile. A male projection of desired shape and configuration extends from the first surface profile of the first implant and seats within a substantially mating recess configuration defined within an opposing surface of the second implant.

[0005] Additional features include at least one inter-disposed and supporting portion in contact with the first and second surface profiles and which provides additional cushioning and biasing support to the joint assembly. First and second cartilage surfaced and supporting portions are further established between the mating surface profiles and contribute towards maintaining the integrity of the joint assembly.

[0006] A softened and lubricated plastic surface is applied upon at least one of the mating surface profiles and the male projection. At least one of the softened plastic surfaces further includes a lubricant supporting pattern exhibiting crosswise extending and fluid retaining tracks. The cartilage surfaced and supporting portions further partially overlap one another in position between the mating surface profiles and assist in providing an enhanced degree of substantially frictionless and lubricating support to the reinforced joint assembly.

[0007] Each of the implants exhibits a peripheral extending and undercut profile for securing to an associated and sectioned bone end. Each of the implants can further include a roughened inner surface for promoting bone marrow adhesion and to prevent inadvertent separation of the end joint from the bone (natural or artificial). Additional features include at least one pin for providing additional securing the implant profile to the sectioned bone end.

[0008] As shown in further variants, the male implant extending portion can also extend in an angled fashion and seat within a likewise angled female inner recess. In a yet further variant, a first implant portion establishes an outer annular seating location about its periphery with respect to a second opposing implant portion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Reference will now be made to the attached drawings, when read in combination with the following detailed description, wherein like reference numerals refer to like parts throughout the several views, and in which

[0010] FIG. **1** is a plan cutaway view of a reinforced joint assembly according to a first preferred embodiment and including multiple joint contacting and fused cartilage force absorbing locations established between first and second bone mounted implants;

[0011] FIG. **2** is a modified view of the reinforced joint assembly of FIG. **1** and illustrating lubricant retaining grid patterns arrayed on the multiple opposing surfaces between the opposing implants and intermediately positioned fused cartilage portions;

[0012] FIG. **3** is a sectional plan view of a selected fluid retaining grid surface pattern associated with an opposing implant;

[0013] FIG. **4** is a modified cutaway of a reinforced joint assembly according to a further preferred embodiment and illustrating first and second opposing implants exhibiting a different center configuration with pronounced male and female ball and receiver portions;

[0014] FIG. **5** is a further modified implant configuration with a more pronounced center support established between first and second implant;

[0015] FIG. **5**A is a partial illustration of a lubricant track supporting surface associated with an implant surface in FIG. **5**;

[0016] FIG. **6** is a yet further modified implant configuration with first and second opposing joint defining implants exhibiting a further increased male/receiver socket configuration;

[0017] FIG. **7** is an illustration similar to that previously shown in FIG. **3** of a fluid retaining grid including crosswise extending tracks and which is exhibited upon an opposing soft plastic cartilage surface of a selected implant;

[0018] FIG. **8** is a prior art illustration of a horse bone structure and illustrating its multiple bone cartilage and interstitial fluid structure;

[0019] FIG. **9** is a cutaway illustration of a reinforced implant scenario replicating that shown in FIG. **8** and which includes first and second sectioned bone-end installed implants and with fused inter-disposed cartilage portions;

[0020] FIG. **10** is a succeeding illustration of a joint assembly incorporating two sectioned end bone mounted implants and exhibiting first and second interdisposed and fused cartilage support portions;

[0021] FIG. **11** is slightly varied assembly in comparison to that shown in FIG. **10** and illustrating a single centrally supporting and fused cartilage support portion;

[0022] FIG. **12** is a further variant with a single cartilage support and in which the implants are secured by pins to sectioned bone end locations;

[0023] FIG. **13** is a yet further modified variant as compared to FIG. **12** and in which first and second interspaced and fused cartilage portions are arranged on opposite sides of an implant defined zone;

[0024] FIG. **14** is an exploded front view of a modified knee joint implant assembly in which a first lower bone secured plastic implant exhibits a first surface profile with a central and conical upward projecting male portion, a second upper and opposing arrayed plastic implant exhibiting a second mating surface profile and a further recessed receiver location for seating the conical projecting male portion in a further secure and reinforcing engagement;

[0025] FIG. **15** is a rotated side view of FIG. **14** and better illustrating the male and receiver configuration associated with the first and second implants, and in particular the edge configured and angled seating profile for maximizing force absorption capabilities;

[0026] FIG. **16** is a further rotated rear view of the assembly shown in FIGS. **14** and **15**; and

[0027] FIG. **17** is a final cutaway plan view of a reinforced joint assembly and in which a first implant portion establishes an outer annular seating location about its periphery with respect to a second opposing implant portion.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0028] Referring now to FIG. **1**, a plan cutaway view is shown at **10** of a reinforced joint assembly according to a first preferred embodiment. As previously described, the present invention discloses a heavy duty and reinforced joint construction for use such as by athletes, and which exhibits increased wear resistance, durability and load tolerances.

[0029] While not evident from the various cutaway illustrations referenced herein, a number of the heavy duty/reinforced joint assemblies can include the male implant portion exhibiting a more pronounced configuration and which can be more effectively and completely seated within a female receiver such that additional force absorbing characteristics are established for holding together the super joint thus created. Also, the illustrations shown herein are primarily in two dimensional cutaway, it being understood that the configuration of the male and female implants in three dimension typically exhibiting more pronounced ball and socket style engagement configurations, these contributing not only to the super duty engaging and impact absorbing properties of the joint assemblies, but also to the universal range of pivoting established between the male and female portions and as will be further described herein.

[0030] Referring again to FIG. **1**, the cutaway shown is of first **12** and second **14** hard plastic end mounted implants, these collectively defining a joint region selected from any including knee, elbow, lip, wrist, ankle or other joint and which can benefit from a more durable construction associated with repetitive athletic activities. The first implant **12**, in the instance of the illustration being a female receiver, exhibits a outwardly arrayed surface including outer perimeter defined and arcuate surfaces **16** and **18**, as well as a generally centralized and inner-most recessed cavity **20**.

[0031] The female implant **12** is mounted within a sectioned end of an existing bone **22**, and which includes an outermost extending sectioned edge **24** and an open interior such as which is filled with an inner bone marrow **26**. The female implant **12** further exhibits a pronounced and rearwardly/inwardly extending profile, see at **28**, this seating within the section bone interior (and embedded within the marrow **26**) to provide additional seating and adhering surface area for retaining the female implant **12** at its seated location relative the sectioned bone end.

[0032] According to one non-limiting embodiment, such implant assemblies contemplate removing a previously worn away or damaged section of a user's joint structure, such as by sawing or machining the damaged end from an existing bone in situ within the patient, and prior to installation of new synthetic/prosthetic implant portions. Further, and while it is preferable that the natural bonding action of the bone marrow be employed for securing the inserting profile **28** of the implant portion **12**, other and additional embodiments will also discuss the ability to use pins, fasteners, injected plastic adhesives, cements and the like for assisting in bonding the specified implant to a sectioned end of the bone.

[0033] The second or male implant, again at **14**, further includes each of mating outer perimeter surfaces **30** and **32** (these mating with the configuration of the first implant surfaces **16** and **18** of the female implant **12** as best shown in the plan cutaway in FIG. **1**). The male implant **14** also exhibits a central projecting and seating portion **34**, and which is further dimensioned so as to seat within the inner cavity **20**. The second implant **14** also includes an opposite and rearward extending profile **36** for securing within a second sectioned bone end (not shown) and in substantially the same fashion as shown in reference to the inserting profile **28** associated with the female implant **12**.

[0034] Also shown in FIG. **1** are multiple joint contacting and fused bone or cartilage force absorbing portions, see at **38** and **40**, these being established at opposing joint surface locations established between the first **12** and second **14** bone mounted implants. The cartilage portions **38** and **40** can also constitute a bone-like material mimicking that associated with each of the implant bodies **12** and **14**, and which establish additional joint support which can further be fused at outer locations **42** & **44** (with respect to cartilage portion **38**) and at **46** & **48** (for cartilage portion **40**). As will be further described in reference to the several additional variants, the fused locations can be arranged at any of inner, outer or intermediate locations relative to the periphery of the established joint structure, and depending upon the desired performance characteristics which the joint assembly is attempting to replicate.

[0035] The functioning of the cartilage portions is such that they provide additional contacting and load/force bearing surfaces within the joint zone and between the implants **12** and **14**, and such as which is not provided for by existing artificial joint assemblies. Also not shown in FIG. **1**, but evident throughout several of the additional illustrations, is the provision of soft plastic lubricating surfaces between the opposing faces of the bone and/or cartilage defined portions, as well as the provision of natural or artificial lubricants for enhancing the frictionless operation of the joint.

[0036] Referring now to FIG. **2**, a modified view is shown at **50** of a reinforced joint assembly similar in construction to that illustrated in FIG. **1**, but not showing the sectioned bones to which the implants, see first implant **52** and second **54** opposing arrayed implant, are secured. Similar additional and intervening cartilage supporting (e.g. bone-like) portions are shown at **56** and **58**, these similar to those previously shown at **38** and **40** in FIG. **1**, and with the exception that a single pair of fused locations **60** and **62** are provided for securing the portions **56** and **58** to only the upper female or first implant **52**,

and while permitting the lower (male) implant a range of independent motion, it being further understood that such an arrangement can be reversed, and so that the cartilage portions are fused only to the mail implant **54**.

[0037] Also incorporated into the implant assembly **50** is the provision of a number of soft plastic exposed surfaces, and which are further disclosed as lubricant retaining grid patterns as also shown at **64** in the enlarged partial view of FIG. **3**. The exposed surfaces may be defined on each opposing face of implants **52** and **54**, as well as the intermediately positioned cartilage portions **56** and **58**. In this fashion, the soft plastic and frictionless promoting surfaces can be arrayed on the multiple opposing surfaces between the opposing implants and intermediately positioned fused cartilage portions.

[0038] Referencing again FIG. **3**, the sectional plan view shown is of a selected fluid retaining grid surface pattern **64** associated with an implant or intermediately positioned synthetic (again faux bone or cartilage) portion. As shown a plurality of cross wise extending tracks or grooves, of selected dimension, are defined in the exposed surface of the grid defined pattern **64** and facilitate the location and retention of lubricant for maximizing the efficiency of the joint implant. It is also envisioned that other grid surface patterns or configuration can be employed with the lubricant inducing/soft plastic surfaces.

[0039] Referring now to FIG. **4**, a modified cutaway is shown at **66** of a reinforced joint assembly according to a further preferred embodiment and illustrating first **68** and second **70** opposing implants. These exhibit a first example of a mating center configuration, see surface pattern **72** for implant **68** and at **74** for implant **70**. The surface patterns generally define therebetween pronounced (e.g. more rounded) male and female ball and receiver portions. Also disclosed is the provision of soft plastic surface (e.g. cartilage wearing or substitute) portions, see at **76** and **78**, the purpose for which is again to maximize both the effective seating area and support of the male and female portions.

[0040] As further shown in FIG. **5** at **80**, a further modified implant configuration (such as in comparison to FIG. **4**) is illustrated and which exhibits an even more pronounced center support, see generally more conical influenced male portion at **82** and which is associated with selected implant **84**, this established in opposing fashion with a center receiver location **86** defining a portion of a second (female) implant **88**. The provision of softened plastic and lubricant retaining track channels is again shown at **90** (see also FIG. **5**A which is a partial illustration of a lubricant track supporting surface associated with an implant surface in FIG. **5**).

[0041] As further shown in FIG. **6**, a yet further modified implant configuration **92** illustrates first (female) **94** and second (male) **96** opposing joint defining implants exhibiting a further increased male/receiver socket configuration. This includes a lengthened center seating portion **98**, associated with the implant **98**, and which seats within a further recessed and likewise mating receiver location **100** defined within the associated, e.g. composite hard plastic, body of the implant **94**. As again shown, the provision of a composite soft plastic covering (see at **100** for female implant **94** and further at **101** for male implant **96**) can be applied to both opposing surface profiles of the implants **94** and **96**. FIG. **7** is an illustration similar to that previously shown in FIG. **3** of a fluid retaining grid **102** and which again includes crosswise extending tracks which are exhibited upon an opposing soft plastic cartilage surface of a selected implant, these again further assisting in the distribution and retention of lubricant patterns to extend the wear life of the joint.

[0042] Referring now to FIG. **8**, a prior art illustration is generally shown at **104** of a conventional horse bone/joint structure including upper **106** and lower **108** bones. Also illustrated are multiple bone portions, see at **110** and **112**, in addition to interstitial fluid structure **114** and soft plastic cartilage support portions **116** and **118**.

[0043] The purpose of FIG. **8** is to illustrate the operation of a horse joint structure and to equate that to a suitable reinforced artificial human implant, as further shown at **120** in the cutaway illustration of FIG. **9**. The assembly **120** includes first **122** and second **124** sectioned bone-end installed implants (see as further attached to sectioned bones **126** and **128**). Again shown are inter-disposed bone portions **130** and **132**, these being fused at locations **134** and **136** respectively, to joint surface locations of the bones **122** and **124**. The provision of (composite) soft plastic cartilage surfaces is again shown at **138** and **139** for joint implants **122** and **124**, respectively and, in cooperation with the (composite) hardened plastic construction of the implants, attempts to duplicate the reinforcing and wear resistant aspects of the equine bone structure of FIG. **8**, and such as further establishes a total of six (6) cartilage absorbing surfaces between the implants **122** and **124**.

[0044] Also referenced in FIG. **9** is the provision of an injectable liquid plastic, see syringe **140**, and which is provided in use with each of the inner bone structures (see bone **128**). Each implant includes a reverse extending mounting support (see at **142** for selected implant **124**). Flexible membranes, illustrated as plastic bags **144** and **145**, is pre-inserted into the associated and marrow filled cavity of the selected bone **128** and prior to the installation of the associated implant **124**. At this point, a volume of the liquid plastic is injected between the inner implant extending support **142** and the bag/fluid impervious membrane **144**. This causes the membrane to deflect outwardly (see arrows) and, upon setting and hardening, to permanently bond the implant to the bone.

[0045] FIGS. **10-13** illustrated a series of modified and related joint assemblies, and in which first and second composite implants each exhibit undercut peripheral surfaces which are dimensioned to secure to sectioned bone ends. As first shown in FIG. **10** joint assembly **146** incorporates two sectioned end bone mounted implants **148** and **150**. The implants **148** and **150** exhibit interior profiles **151** and **153** communicating with the bone interior, the implants further exhibiting first **152** and second **154** cartilage surfaced and supporting portions which are inter-disposed and fused, at **156** and **158**.

[0046] The implants **148** and **150** are mounted to existing sectioned bone end locations, see bones **160** and **162**, such as again by undercut machined and inwardly facing edge profiles, see at **164** and **166** defined within each of the implants **148** and **150**. In this fashion, the implants are dimensioned to correlate to a given bone diameter and, prior to installation, are machined to precisely fit in securing fashion to the sectioned bone ends. Further, the provision of inner marrow (see at **165** and **167** for bones **160** and **612**, respectively) for contacting and gripping the inner defined implant profiles **151** and **153** associated with each bone functions to assist in bonding the implants in their installed bone end locations.

[0047] Without repeating in detail each corresponding feature presented in each of FIGS. **11-13**, FIG. **11** is a slightly

varied assembly **168** in comparison to that shown in FIG. **10** and illustrates modified implant portions **148'** and **150'**, these generally including a single centrally supporting and fused support portion, see further at **170** and which is connected to a surface locations of the portion **150'**. The provision of a single and central disposed support (and cartilage surfaced) portion **170** is intended to provide buttressing support at a location in which excessive joint wear may otherwise occur and without the need for a pair of inter-disposed supports as in earlier variants. Additional features such as the undercut portions **164'** and **166'** defined in the inner facing annular surfaces of the implants, as well as the inner bone facing profiles (at **151'** and **153'**)

[0048] FIG. **12** illustrates a further variant **172** similar in respects to that illustrated in FIG. **11** with modified joint surface profile, and with a single cartilage surface support **174** likewise fused at an interior location of a selected upper implant. The implants can further be secured by pins, see at **176**, to sectioned bone end locations. As shown, a cement material can additionally or alternatively be used to secure the implant to the sectioned bone end.

[0049] FIG. **13** illustrates at **178** a yet further modified variant as compared to FIG. **12** and in which first **180** and second **182** interspaced and fused cartilage portions (see fused locations **181** and **183**, respectively for securing cartilage portion **180** to surface location of first implant **184** and further for securing cartilage portion **182** to opposite edge surface location of second implant **186**) these arranged on opposite sides of an implant defined zone. As further particularly shown, the under surface profile associated with each implant **184** and **186** can be textured, or roughened, as shown at **188** and **190**, in order to provide additional gripping surface area to which the inner defined volumes of bone marrow can exert greater bonding and gripping of the sectioned bone end installed implants. Other features, such as the undercut portions are illustrated in similar fashion as shown in FIGS. **11** and **12**.

[0050] Referring now to FIG. **14**, an exploded front view **192** is shown of a modified knee joint implant assembly in which a first lower bone secured (e.g. composite hardened plastic) implant **194** exhibits a first surface profile **196** and a central and conical upward projecting male portion **198**. A second upper and opposing arrayed plastic implant **200** exhibits a second mating surface profile **202** and a further recessed receiver location **204** (see as shown in phantom) for receiving and seating the conical projecting male portion **198** in a further secure and reinforcing engagement.

[0051] As with previous embodiments, the opposing surface profiles of the joint implants are provided such as by a soft lubricant material and can further exhibit any desired mating configuration, this contributing to a desired performance profile of the joint. As shown in FIG. **14**, the joint implant **194** illustrates upwardly angled perimeter edge locations (see at **195** and **197**) which seat over and around associated rounded edges **199** and **199'** of the upper located implant **200**.

[0052] As in previous embodiments, composite softened plastic surfaces **196** and **202** are provided upon opposing surfaces of the mating profiles associated with the implants **194** and **200**, as well as optionally provided upon the extending male portion **198**. The implants **194** and **200** may again include roughened/textured inner defined surfaces (see at **201** and **203**) for facilitating bonding of marrow, and can further be secured through the assistance of pins, see at **206** and **208**, these being laterally mounted with respect to associated and sectioned bone ends **210** and **212**.

[0053] FIG. **15** is a rotated side view of FIG. **14** and better illustrates the male and receiver configuration associated with the first lower **194** and second upper **200** implants. In particular, the edge configured and angled seating profile established between the male portion **198** and female receiver **204** and in combination with the normal opposing joint surfaces **196** and **202**, is better shown from this angle for maximizing force absorption capabilities, such as during experiencing of increased forces associated with an athletic joint assembly. FIG. **16**, a further rotated rear view of the assembly shown in FIGS. **14** and **15** and repeats the same elements previously described from a further rotated position.

[0054] Finally, and referring to FIG. **17**, illustrated at **214** is a cutaway plan view of a reinforced joint assembly employed in such as a heavy duty knee application between upper **216** and lower **218** bones, each of which including sectioned ends which are defined at **220** and **222**. A first or upper implant portion is shown at **224** and again can be constructed from such as a plastic, composite plastic or even metallic/composite material and which establishes an outer annular curved seating location (see modified and arcuate "U" shape outer configuration at **226**) about its periphery. The upper implant **224** again includes other features common to many of the previously described variants, these including a soft plastic exterior facing surface **228**, as well as a roughened inner surface **230** which facilitates contact with the inner bone defined marrow. As also shown at **232**, natural bone growth is promoted by the marrow between the outer connecting periphery of the implant **216** and the connecting edge **220** of the bone.

[0055] A second or lower implant **234** is similarly attached to the sectioned end **22** of the bone **218** and defines an inwardly spaced and seating outer perimeter, see at **236**. The extending perimeter location **236** is seated within a generally trough location associated with the seating location **226** associated with the upper and outwardly dimensioned implant **224**. The lower implant **234** again includes an opposing soft plastic cartilage layer **238**, as well as roughened inner bone marrow adhering surface **240** and bone growth promoting location **242** defined between the bone **218** and the inserting location of the implant **234**.

[0056] As with earlier embodiments, an associated male projection is represented at **244** with regard to the upper implant **224** and which can seat within a mating and opposing centrally recessed configuration associated with the lower implant **234**. The construction of the implants are further such that the opposing cartilage layers **228** and **238** define enhanced frictionless and wear resistant layers associated with the artificial implant portions to an enhanced degree consistent with providing an athletic-type reinforced joint assembly.

[0057] The joint assembly **214** exhibits another possible configuration and by which the lower implant **234** can pivot and/or rotate within the upper outer dimensioned implant **224**, further without risk of the joint implants becoming disengaged. This feature is of further importance when it is considered that, during joint replacement, the natural ligaments are often severed, usually permanently, and which can otherwise result in the subsequently installed implant portions becoming detached relative to one another in less robust assemblies. It is also envisioned that the arrangement established by the implants **224** and **234** can be reversed, and such

as with the lower implant defining the outwardly displaced and peripheral seating portion relative to an inwardly dimensioned upper implant portion.

[0058] As with the several preceding variants, the existence of additional ligaments or other retaining structure is not shown, however is understood to exist in some or all of the variants and in order to facilitate retaining a given joint structure in a desired spacing and mating arrangement. It is also understood that the opposing implant configurations can be reconfigured in any fashion which will facilitate providing increased or reinforced impact or load absorbing properties for a selected joint assembly, including those for a knee, elbow, shoulder, ankle or the like.

[0059] Having described my invention, other and additional preferred embodiments will become apparent to those skilled in the art to which it pertains, and without deviating from the scope of the appended claims:

I claim:

1. A reinforced joint assembly, comprising:

a first implant portion secured to a sectioned end of a first bone;

a second implant portion secured to a likewise sectioned end of a second bone and in opposing fashion relative to said first implant to define a joint zone therebetween;

said first implant exhibiting a first surface profile and said second implant exhibiting a second and mating surface profile; and

a male projection extending from said first surface profile of said first implant and seating with a recess defined within said second implant.

2. The joint assembly as described in claim **1**, further comprising at least one inter-disposed and supporting portion in contact with said first and second surface profiles.

3. The joint assembly as described in claim **2**, further comprising first and second cartilage surfaced and supporting portions established between said mating surface profiles.

4. The joint assembly as described in claim **2**, further comprising a softened plastic surface applied upon at least one of said mating surface profiles and said male projection.

5. The joint assembly as described in claim **4**, at least one of said softened plastic surfaces further comprising a lubricant supporting pattern exhibiting crosswise extending and fluid retaining tracks.

6. The joint assembly as described in claim **3**, further comprising said cartilage surfaced and supporting portions partially overlapping one another in position between said mating surface profiles.

7. The joint assembly as described in claim **1**, further comprising each of said implants exhibiting a peripheral extending and undercut profile for securing to an associated and sectioned bone end.

8. The joint assembly as described in claim **1**, each of said implants further comprising a roughened inner surface for promoting bone marrow adhesion.

9. The joint assembly as described in claim **7**, further comprising at least one pin for securing said implant profile to the sectioned bone end.

10. The joint assembly as described in claim **1**, said male implant extending portion extending in an angled fashion and seating within a likewise angled female inner recess.

11. The joint assembly as described in claim **1**, further comprising a first implant portion establishing an outer annular seating location about its periphery with respect to a second opposing implant portion.

12. A reinforced joint assembly, comprising:

a first implant portion secured to a sectioned end of a first bone;

a second implant portion secured to a likewise sectioned end of a second bone and in opposing fashion relative to said first implant to define a joint zone therebetween;

each of said implants exhibiting a peripheral extending and undercut profile for securing to an associated and sectioned bone end;

said first implant exhibiting a first surface profile and said second implant exhibiting a second and mating surface profile, at least one inter-disposed and supporting portion in contact with said first and second surface profiles and further comprising first and second cartilage surfaced and supporting portions established between said mating surface profiles; and

a male projection extending from said first surface profile of said first implant and seating within a recess defined within said second implant.

13. The joint assembly as described in claim **12**, further comprising a softened plastic surface applied upon at least one of said mating surface profiles and said male projection.

14. The joint assembly as described in claim **13**, at least one of said softened plastic surfaces further comprising a lubricant supporting pattern exhibiting crosswise extending and fluid retaining tracks.

15. The joint assembly as described in claim **12**, further comprising said cartilage surfaced and supporting portions partially overlapping one another in position between said mating surface profiles.

16. The joint assembly as described in claim **12**, each of said implants further comprising a roughened inner surface for promoting bone marrow adhesion.

17. The joint assembly as described in claim **12**, further comprising at least one pin for securing said implant profile to the sectioned bone end.

18. The joint assembly as described in claim **12**, said male implant extending portion extending in an angled fashion and seating within a likewise angled female inner recess.

19. The joint assembly as described in claim **12**, further comprising a first implant portion establishing an outer annular seating location about its periphery with respect to a second opposing implant portion.

20. A reinforced joint assembly, comprising:

a first implant portion secured to a sectioned end of a first bone;

a second implant portion secured to a likewise sectioned end of a second bone and in opposing fashion relative to said first implant to define a joint zone therebetween;

said first implant exhibiting a first surface profile and said second implant exhibiting a second and mating surface profile, at least one inter-disposed and supporting portion in contact with said first and second surface profiles and further comprising a cartilage surfaced and supporting portion fused to a selected implant portion and established between said mating surface profiles; and

a male projection extending from said first surface profile of said first implant and seating within a recess defined within said second implant.

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