April 5, 1966 R. T. McELVENNY 3,244,170

COMPRESSION TYPE BONE SPLINT

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Fig. 1.

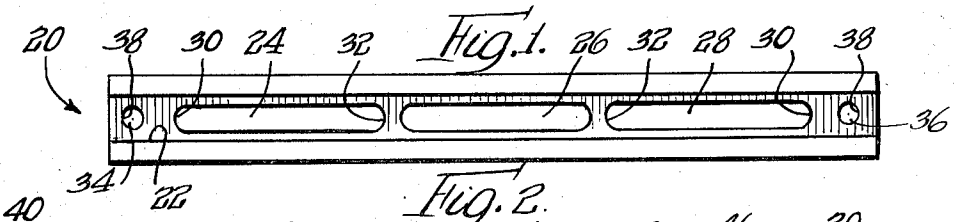


Fig. 2.

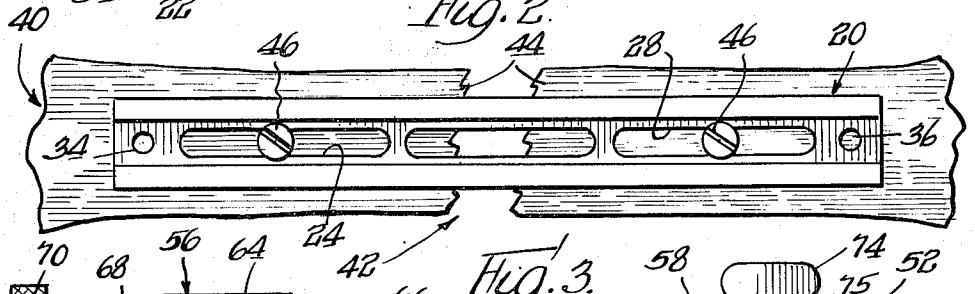


Fig. 3.

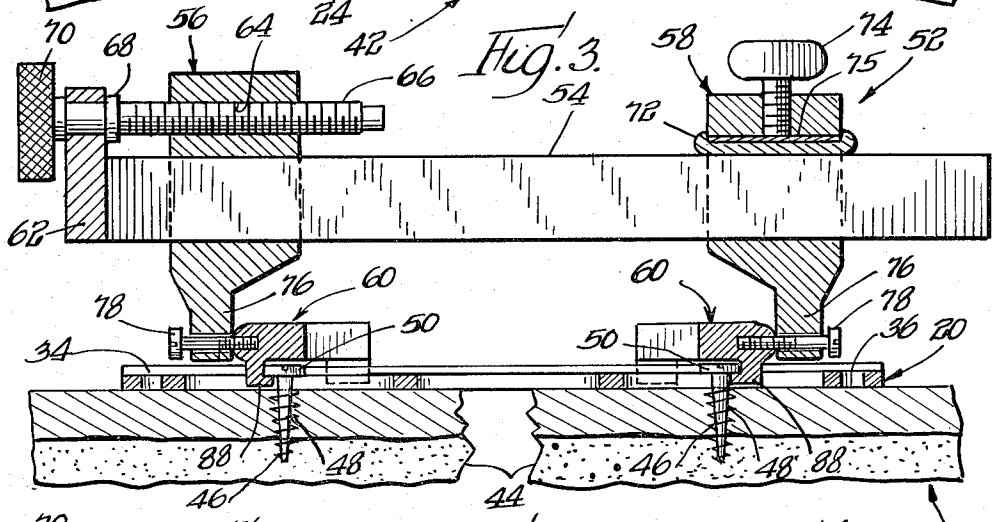
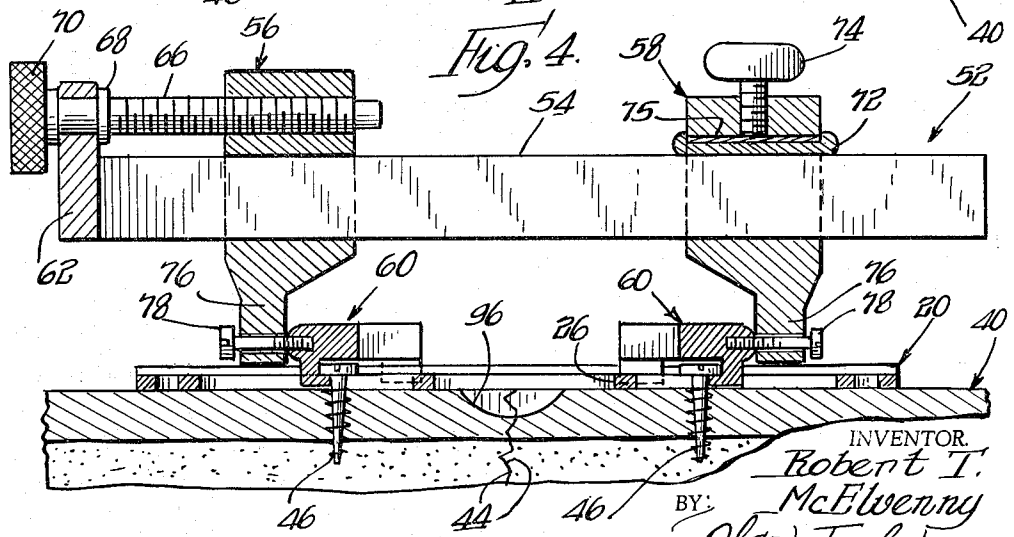


Fig. 4.



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COMPRESSION TYPE BONE SPLINT

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Fig. 5.

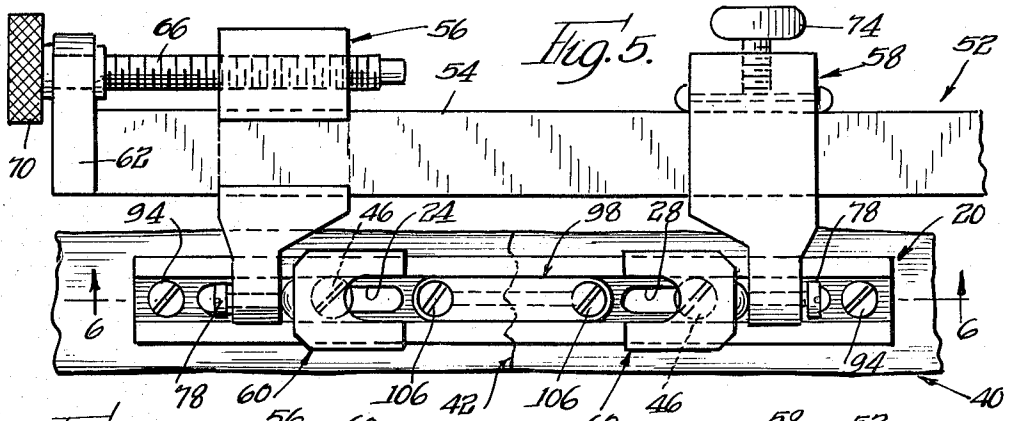


Fig. 6.

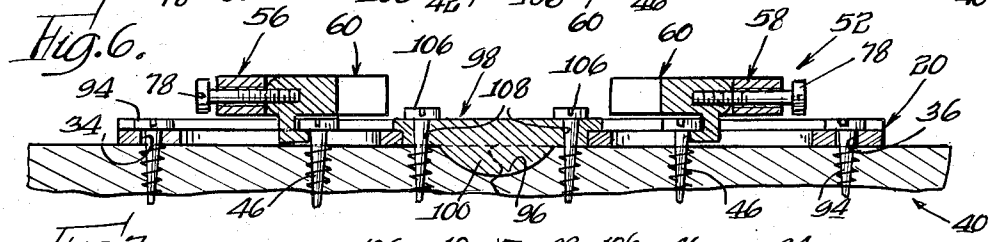


Fig. 7.

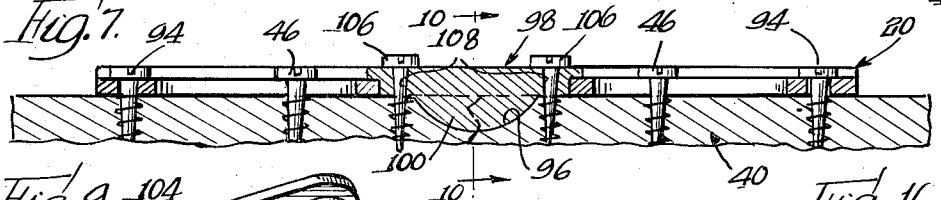


Fig. 9

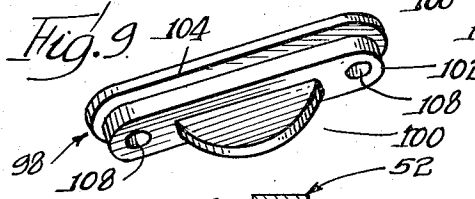


Fig. 10.

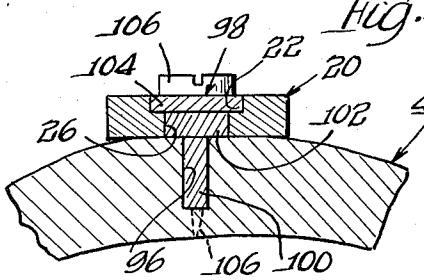


Fig. 8.

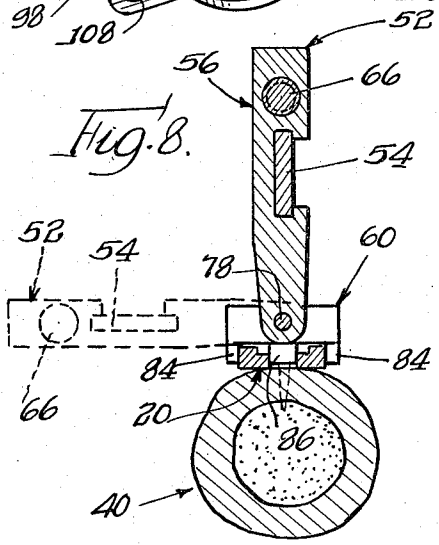
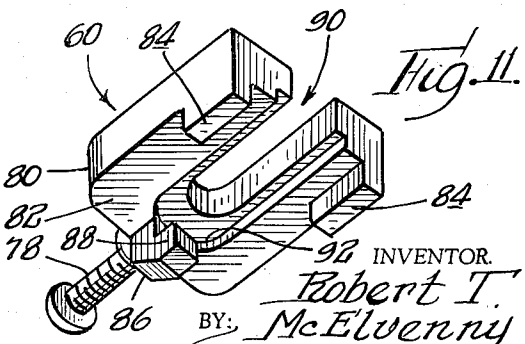


Fig. 11.



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COMPRESSION TYPE BONE SPLINT

Filed Nov. 23, 1962 3 Sheets-Sheet 3

Fig. 12.

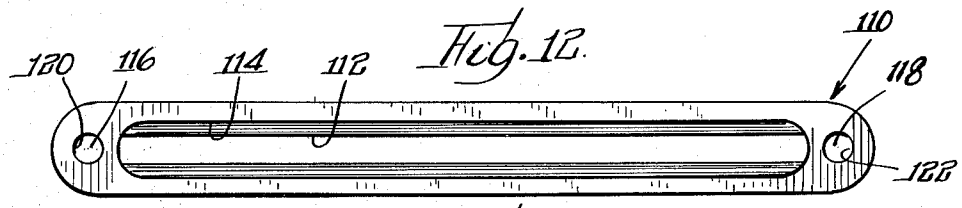


Fig. 13.

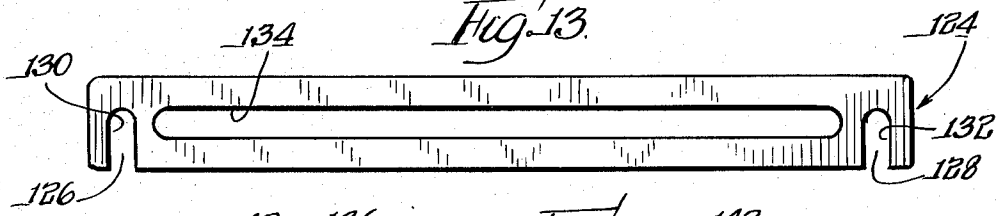


Fig. 14.

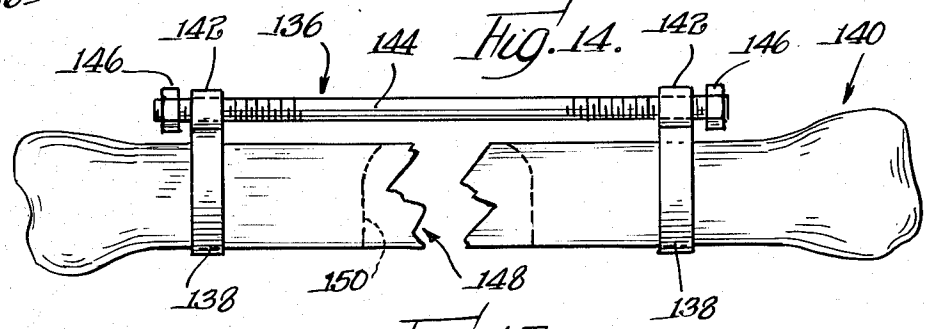


Fig. 15.

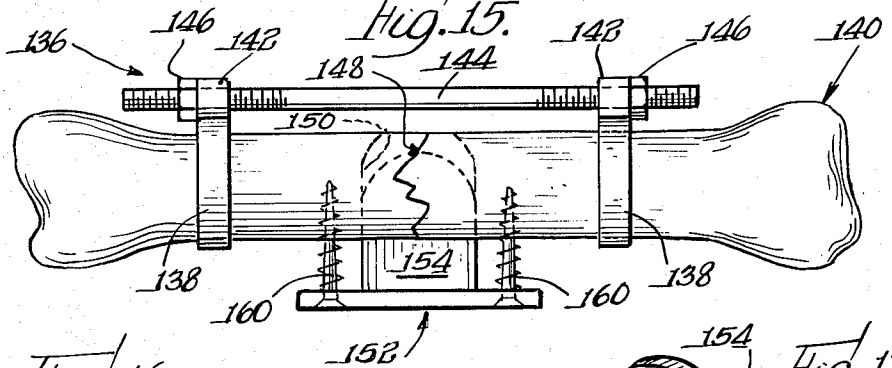


Fig. 16.

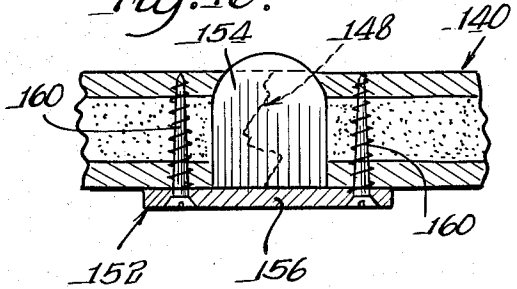
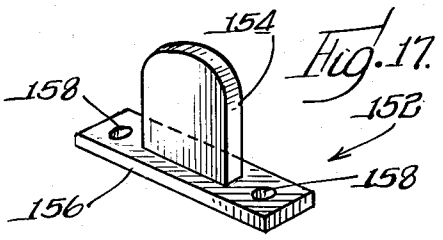


Fig. 17.



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3,244,170

COMPRESSION TYPE BONE SPLINT

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Filed Nov. 23, 1962, Ser. No. 239,456
12 Claims. (Cl. 128—92)

This invention relates generally to medical appliances and more particularly to splints for extramedullary fixation of fractured bones.

In the past, bone splints have been made in the form of a metal bar or plate adapted for direct attachment to a broken shaft bone bridging the fracture therein. However, these prior art bone splints have been ordinarily connected to the bone in only a loose fashion in order to allow the related muscles to pull the bone fragments together for knitting, the splint acting principally as a guide for insuring proper movement of the bone fragments. Because of this loose connection, occasions have arisen wherein the intended result has miscarried, even to the extent of the fracture not healing because of insufficient contact of the broken surfaces.

Therefore, an important object of the present invention is to provide a bone splint which is arranged to establish and preserve forcible engagement of the broken surfaces independently and irrespective of the contracting action of the related muscles.

A more general object of the invention is to provide a new and improved bone splint arrangement.

Another object of the invention is to provide a splint appliance that is arranged to promote and accelerate the healing of a fractured bone.

Still another object of the invention is to provide a bone splint that is arranged to preserve a selected degree of axial compression in the bone to which it is attached.

Yet another object of the invention is to provide a compression type bone splint arrangement which acts to resist torsional stresses applied to the bone.

A further object of the invention is to provide a bone splint arrangement which affords substantial freedom in the use of the body member that includes the fractured bone.

A yet further object of the invention is to provide a compact bone splint arrangement.

And a yet further object of the invention is to provide a new and improved method of positioning the fractured ends of a bone.

These and other objects and features of the invention will become more apparent from a consideration of the following disclosure.

A splint structure in accord with the invention includes a rigid bar adapted to be placed in contact with the surface of a bone, aligned parallel with the axis thereof and disposed overlapping a fracture therein, the splint structure further including means on the rigid bar defining transverse walls or edges and an open region longitudinally inwardly of each of such walls or edges, the open regions being adapted to pass fastener elements radially into the bone and the walls or edges being spaced apart for situation respectively on the opposite sides of a fracture in the bone whereby to provide abutments which cooperate with the fastener elements in preserving compressive forces drawn axially into the bone for the purpose of causing intimate contact between the surfaces of the fracture in the bone.

In order that the principles of the invention may be readily understood, several embodiments thereof, but to which the application is not to be restricted, are shown in the accompanying drawings wherein:

FIG. 1 is a top plan view of a splint bar constructed in accordance with the invention and shown in approximately actual size;

FIG. 2 is a top plan view showing the splint bar of FIG. 1 loosely attached to a fractured bone in preparation for drawing the bone fragments together;

FIG. 3 is a side elevational view in longitudinal cross-section of the arrangement of FIG. 1, a tensioning device being shown assembled in place;

FIG. 4 is a view similar to the showing of FIG. 3 but illustrating the bone fragments having been drawn into intimate contact by use of the tensioning device;

FIG. 5 is a top plan view showing the tensioning device rotated to the side into non-obstructing relationship with the splint bar whereby to facilitate firm attachment of the splint bar to the fractured bone;

FIG. 6 is a side elevational view taken substantially along the line 6—6 of FIG. 5;

FIG. 7 is a view similar to the showing of FIG. 6 but illustrating final positioning of the splint bar and removal of the tensioning device;

FIG. 8 is an end elevational view taken in central cross-section and illustrating rotation of the tensioning device from the position shown in FIG. 4 to that shown in FIG. 5;

FIG. 9 is an enlarged perspective view of a key member used in conjunction with the splint bar of FIG. 1 for use in resisting torsional stresses applied to the bone fragments positioned by means of the splint bar;

FIG. 10 is an enlarged view taken substantially along the line 10—10 of FIG. 7;

FIG. 11 is an enlarged perspective view of one of the shoes incorporated in the tensioning device of FIGS. 3–6 and 8;

FIG. 12 is a top plan view of a modified splint bar constructed in compliance with the invention;

FIG. 13 is a top plan view of a further modified embodiment of the invention;

FIGS. 14 and 15 are side elevational views of a modified bone splint arrangement, FIG. 14 showing attachment of a tensioning device and FIG. 15 showing assembling of a combined splint bar and key member to the broken bone the fragments of which have been drawn into intimate contact by means of the tensioning device;

FIG. 16 is a fragmentary, side elevational view of the arrangement of FIG. 15 taken in central cross-section and illustrating final attachment of the splint bar and key member and removal of the tensioning device; and

FIG. 17 is an enlarged perspective view of the splint bar and key member of FIGS. 14–16.

Referring now in detail to the drawings, specifically to FIG. 1, a splint bar indicated generally by the numeral 20 is constructed in accord with the invention to include a shallow channel 22 opening longitudinally from the top surface thereof. Within the margins of the channel 22, the bar 20 is perforated with longitudinally extending slots 24, 26 and 28, slot 26 being disposed centrally of the bar and intermediate the slots 24 and 28. In addition, the slots 24 and 28 define distal walls 30 and proximal walls 32 at their respective opposite ends; and adjacent the far ends of the bar, open regions taking the form of circular apertures 34 and 36 are situated longitudinally outside or beyond the distal walls 30 of the slots 24 and 28. The edges of the apertures 34 and 36 define transverse walls 38 at their longitudinally outermost portions for purposes which will be described more fully hereinafter.

In order that it may be rigid, the splint bar 20 is fabricated from a suitable metal or alloy. Certain stainless steels and certain magnesium alloys have proved useful in this regard.

The splint bar 20 is intended to be connected to a fractured bone using fasteners which are fabricated from a similar metal; and turning to FIG. 2, a shaft bone 40 is seen divided into two fragments by a fracture 42. The fracture 42 defines irregular surfaces 44; and in order to position these surfaces in intimate contact for healing, the splint bar 20 is placed in contact with the surface of the bone 40, aligned parallel with the axis, thereof, and disposed overlapping the fracture 42. The splint bar 20 is loosely connected to the bone 40 by means of self-tapping screws 46 which are directed radially into the bone 40 through the slots 24 and 28 respectively. The screws 46 are located medially of their respectively slots or toward the distal ends thereof in order to accommodate the movements of the bone fragments which are necessary to cause intimate contact between the surfaces 44 of the fracture. Furthermore, the screws 46 are not turned down tightly against the splint bar whereby to facilitate such movements.

With reference to FIG. 3, the self-tapping screws 46 are seen to include threaded and tapered shanks 48 and heads 50, the heads 50 being diametrically slotted in the conventional manner as is shown in FIG. 2. The heads 50 define exposed enlarged portions which, being of greater transverse dimension than the respective slots 24 and 28, are capable of holding the splint bar loosely in place on the bone 40. Moreover, the exposed enlarged portions defined by the heads 50 are susceptible to use as mounting sites for a tensioning device 52.

The tensioning device 52 includes a rail 54, a traveling carriage 56, a fixable carriage 58 and shoes 60. The carriages 56 and 58 are slotted to slide on the rail 54, and the rail is provided with a heel 62 at the end adjacent carriage 56. Furthermore, the carriage 56 is fashioned with a threaded bore 64 for receipt of the cooperatively threaded shank of a bolt 66, and the heel 62 is apertured to receive a bushing 68 in axial alignment with the bore 64, bushing 68 acting to journal the bolt 66 in the heel 62. Advantageously, a knurled knob 70 is coupled to the bolt 66 outside the heel 62 in order to facilitate manual turning of the bolt for aggressively and progressively altering the position of carriage 56 on the rail 54.

In order that the carriage 58 may be fixed in a selected position on the rail 54, the slot in the carriage is widened to accommodate a foot 72; and a wingbolt 74 is passed through a threaded bore in the top of carriage 58, the lower end of the wingbolt engaging the foot 72 to urge the foot into frictional engagement with the rail 54 locking the carriage 58 in the elected position. If desired, a leaf spring 75 may be disposed between foot 72 and the end of wingbolt 74.

The shoes 60 are pivotally connected to the carriages 56 and 58 at arm portions 76 by means of screws 78, the screws 78 passing freely through bores in the arm portions 76 threadedly to engage the shoes 60. The shoes 60 are particularly adapted to couple the tensioning device 52 to the self-tapping screws 46 at the heads 50 thereof; and turning to FIG. 11, a shoe 60 is seen to comprise a body 80 having a flat surface 82 which is adapted slidably to engage the top surface of a splint bar 20. Side flanges 84 depend from the body 80 in laterally opposed relationship for receiving a splint bar 20 therebetween as is shown in FIG. 8.

Returning to FIG. 11, a toe 86 having a hook 88 is seen to depend from the body 80 in alignment with the longitudinal axis thereof. The hook 88 is adapted to engage the shank of a screw 46 immediately beneath the head 50 thereof; and the body 80 is fashioned with a longitudinal notch 90 for use in observing the head of the screw during engagement and disengagement by the shoe 60. Advantageously, the body 80 also includes a groove 92 aligned with the notch 90 and extending to a position over the hook 88 so as to pass the head 50 of screw 46 readily into engagement with the toe 86 and the hook 88.

After the splint bar 20 has been loosely connected to the fractured bone 40 and after the tensioning device 52 has been coupled to the heads of the screws 46, the bolt 66 is turned by appropriately manipulating the knurled knob 70 so as to converge the carriages 56 and 58. Upon continuing this action, the surfaces 44 of the fracture are eventually drawn tightly together as is shown in FIG. 4; and when a desired degree of compression is developed at the intimately contacted surfaces of the fracture, the tensioning device 52 is rotated to one side from the position shown in solid outline in FIG. 8 to that shown in broken outline. During such rotation, the carriages 56 and 58 and the rail 54 pivot about the shoes 60 at the screws 78.

After the tensioning device 52 has been turned to one side as is shown in FIGS. 5 and 6, self-tapping screws 94 are passed through the circular apertures 34 and 36 in the splint bar and radially into the bone 40. The screws 94 are selected to take a sufficient length so that they may penetrate deeply into the bony cortex of the bone 40 for securely fastening the splint bar 20 thereto. Moreover, the upper margins of the shanks of screws 94 abut the transverse walls 38 defined by the circular apertures 34 and 36 thereby acting to preserve the compression drawn axially into the bone by the tensioning device 52. After the screws 94 have been turned down tightly into contact with the splint bar 20, the tensioning device is loosened and removed, specifically by backing off the carriage 56 through appropriate manipulation of bolt 66 and by slipping one or both of the hooks 88 from beneath the heads of the corresponding screws 46. It is realized that the screws 46 may be tightened or removed after screws 94 have been secured in place.

As will be recognized, the present invention is arranged to position the fractured ends of a bone with a selected degree of axial compression preserved at the contacting surfaces of the fracture. This compression has been found to promote and accelerate healing of the fractured bone. Moreover, the splint appliance is attached directly to the bone in such a manner as to avoid reliance on the contracting action of related muscles and to establish and preserve forcible engagement of the broken surfaces. Thus, the splint appliance of the invention enables an injured individual to become perambulatory at a much earlier stage in his convalescence. Cases involving serious leg fractures have been walking in less than five weeks instead of as many as eighteen weeks after injury when the splint appliance of the invention has been employed. In addition, the splint arrangement of the invention does not require any parts thereof to extend through the flesh of the patient during the healing period. Hence, it allows the patient a rather substantial freedom of use of the injured body member even while the patient is still confined in bed.

While the splint bar 20 is an extremely useful appliance in the form and mode of usage described hereinabove, it is also advantageous to incorporate means with the splint bar 20 for resisting torsional forces which may be applied to the fractured bone after it has been set. Returning to FIG. 4, a semi-circular slot 96 is seen cut radially into the cortex of bone 40 overlapping the surfaces 44 of the fracture. This cut is made with a conventional, circular bone saw, the blade of which is passed into contact with the bone through the slot 26 in the splint bar 20. In order that the slot 96 will be of the desired shape, it is preferable to cut the slot after the bone fragments have been drawn into intimate contact by use of the tensioning device 52.

When the tensioning device 52 has been pivoted aside to expose the splint bar 20, as is shown in FIGS. 5 and 6, a key member 98 is passed into engagement with the slot 26 and into the slot 96 which has been cut in the bone. With reference for the moment to FIG. 9, the key member 96 is seen to comprise a semi-circular tongue or key element 100 which depends from a body portion 102.

The key element **100** is adapted fittingly to enter the keyway defined by the slot **96**, and the body portion **102** is selected fittingly to enter the slot **26** which is formed in the splint bar **20**. The key member **98** also includes an upper flange **104** which takes a width corresponding to the width of the channel **22** fashioned in the splint bar. Thus, the key member **98** fittingly engages the splint bar **20** and the keyway fashioned in the bone as is shown in FIG. 10.

After the key member **98** has been fitted to the slot **96** and the slot **26**, self-tapping screws **106** are passed through apertures **108** and into aggressive engagement with the bone **40** on opposite sides of the fracture **42**. It will be noted with respect to FIGS. 6 and 7 that the fastener-passing apertures **108** which are provided in the key member **98** are aligned with portions of the slot **26** in order that the screws **106** may readily enter the bone **40**. It is to be recognized that the splint bar **20** may be used either with or without the key member **98** as is desired.

While particular embodiments of the invention have been thus far shown and described, it should be understood, of course, that the invention is not limited thereto since many modifications may be made. Accordingly, modified embodiments of the invention are illustrated in FIGS. 12–17.

In FIG. 12, a rigid splint bar indicated generally by the numeral **110** is seen to include an elongated slot **112** which may be thought of as the result of merging the slots **24** and **28** of splint bar **20**. The splint bar **110** is provided with a longitudinally extending groove **114** similar to the groove or channel **22** but differing therefrom by terminating short of the opposite ends of the splint bar. Circular apertures **116** and **118** perforate the opposite ends of the splint bar **110** longitudinally outwardly of the slot **112**, the circular apertures **116** and **118** defining transverse walls **120** and **122** respectively for cooperation with fastener elements in preserving compression drawn into the fracture of a bone, the surfaces of which are spanned by the splint bar **110**.

A further modified splint bar is indicated generally in FIG. 13 by the numeral **124**, the splint bar **124** being distinguished by the fact that it is provided with laterally opening slots **126** and **128** at its opposite ends. The slots **126** and **128** define transverse walls **130** and **132** respectively for the desired cooperation with fastener elements. Like the splint bar **110**, the splint bar **124** is fashioned with a single, longitudinally elongated slot **134**; however, the splint bar **124** eliminates the channel or groove in the upper surface thereof.

Another modified arrangement of the invention is illustrated in FIGS. 14–17. There, a tensioning device indicated generally by the numeral **136** is seen to include clamp rings **138** which are disposed releasably encircling the respective fragments of a fractured bone **140**. Each of the clamp rings **138** includes a mounting formation **142** which is apertured slidably to pass portions of a compression rod **144**. The opposite ends of rod **144** are threaded to receive nuts **146**; and as will be recognized, axial compression can be drawn into the bone **140** by appropriately turning down the nuts **146**, as for example by using an open end wrench of appropriate size. It is also recognized that a turnbuckle arrangement can be employed between the clamp rings **138** to achieve the desired force in the fractured bone. Advantageously, the clamp rings **138** comprise hinged C-shaped members which are connected at their unhinged ends by a screw-type catch or the like. Furthermore, the inner margins of the clamp rings **138** may be serrated or knurled to increase their ability to grip the bone **140**.

The clamp rings **138** are situated on the opposite sides of a fracture **148** in the bone **140**; and in order to fix the bone fragments in position after the surfaces of the fracture have been drawn into intimate contact, a slot **150** is cut or sawed into the broken ends of the bone fragments overlapping the fracture **148**. The slot **150** desirably penetrates radially into the bone **140** to enter the opposite walls of the cortex thereof. The slot **150** may be cut into the bone either before or after the ends of the fracture have been drawn into intimately abutting relationship.

The tensioning device **136** is employed in drawing axial compression into the bone **140** so as to pull the surfaces of the fracture **148** into intimate contact. Specifically, the nuts **146** are turned on the threaded ends of rod **144** converging the clamp rings **138** and thereby drawing the bone fragments together. After the bone fragments have been so drawn together with a selected degree of compression therebetween, a combined splint bar and key member **152** is assembled to the bone **140**.

As will be seen in FIG. 17, the combined member **152** includes an elongated tongue or key element **154** which is assembled to a plate **156**, plate **156** being perforated with circular apertures **158** adjacent its opposite ends. As is best shown in FIGS. 15 and 16, the key element **154** is adapted to be passed into the slot **150** bridging the fracture and penetrating to the opposite walls of the cortical layer of the bone **140**. When the combined member **152** is disposed in place, self-tapping screws **160** are passed through the apertures **158** and into aggressive engagement with the opposite walls of the cortical layer. When the screws **160** have been turned down tightly, the tensioning device **136** is loosened by backing off the nuts **146** whereupon the clamp rings **138** are removed from the bone. The combined member **152** serves both to preserve the compression at the fracture in the bone and to resist torsional forces imposed upon the bone.

The specific examples herein shown and described are to be considered as being primarily illustrative. Various changes other than those described may, of course, occur to those skilled in the art; and such changes are to be understood as forming a part of this invention insofar as they fall within the spirit and scope of the appended claims.

The invention is claimed as follows:

1. A splint for extramedullary fixation of a fractured bone, comprising: a rigid bar adapted to be placed in contact with the surface of a bone, aligned parallel with the axis thereof, and disposed overlapping a fracture therein; means on said bar defining opposed, transverse walls and a plurality of open regions individually disposed longitudinally inwardly of said walls, said open regions being sized to pass fastener elements for engagement with said walls and said walls being spaced apart and being thereby adapted for situation respectively on the opposite sides of a fracture in said bone whereby to provide abutments which cooperate in preserving compressive forces drawn axially into said bone for the purpose of causing intimate contact between the surfaces of said fracture in said bone; a fastener element passing through each of said open regions; formation means on a central portion of said bar defining an aperture adapted to be disposed spanning the fracture in said bone; a key member situated in said aperture and including a tongue extending laterally beyond said bar and being thereby adapted to enter a longitudinal keyway cut in said bone overlapping the fracture therein and extending from said bar on the same side as said fastener elements; and means for mounting said key member in said aperture.

2. A splint according to claim **1** wherein said key member includes individual fastener-passing apertures alignable with said fracture-spanning aperture.

3. A splint according to claim **1** wherein said open regions are separated by said formation means.

4. A splint according to claim **1** wherein said open regions and said aperture are merged to form an elongated slot.

5. A splint according to claim **1** wherein said bar includes a channel opening from the top surface thereof, said channel being arranged to be wider than said fracture-spanning aperture; and wherein said key member in-

cludes a top flange corresponding in width with said channel whereby to be fittingly received therein for locking said key member to said bar.

6. Splint apparatus for use in the extramedullary fixation of a fractured bone, comprising: a rigid splint bar adapted to be placed in contact with the surface of a bone, aligned parallel with the axis thereof, and disposed overlapping a fracture therein, said bar including transverse, fastener-engaging edges and longitudinally extending open regions; first bone-engaging fastener elements passed through selected ones of said open regions in slidable relationship with the walls thereof, said first fastener elements being adapted to be disposed on opposite sides of said fracture for loosely connecting said bar to said bone; a temporary tensioning splint device mounted on said first fastener elements overlying said bar, including opposed shoes slidably engaging said bar and having formations releasably coupled to said fastener elements, said device further including drive means for aggressively converging said shoes and thereby converging said first fastener elements for guidably compressing the surfaces of the fracture together; and second bone-engaging fastener elements passed through selected ones of said open regions in engagement with said edges whereby to permanently anchor said bar and preserve the compressive force urging the surfaces of said fracture into intimate contact.

7. Splint apparatus for use in the extramedullary fixation of a bone, comprising: a rigid splint bar adapted to be placed in contact with the surface of a bone, aligned parallel with the axis thereof, and disposed overlapping a fracture therein, said bar including transverse, fastener-engaging edges and longitudinally extending open regions; first bone-engaging fastener elements passed through selected ones of said open regions in slidable relationship with the walls thereof, said first fastener elements being adapted to be disposed on opposite sides of said fracture for loosely connecting said bar to said bone, each of said first fastener elements having an exposed portion for use as a mounting situs for a tensioning splint device; a temporary tensioning splint device mounted on said first fastener elements overlying said bar, including opposed shoes slidably engaging said bar and having formations releasably coupled to said fastener elements at the exposed portions thereof, said device further including drive means for aggressively converging said shoes and thereby converging said first fastener elements for guidably compressing the surfaces of the fracture together; and second bone-engaging fastener elements passed through selected ones of said open regions in engagement with said edges whereby to permanently anchor said bar and preserve the compressive force urging the surfaces of said fracture into intimate contact.

8. Splint apparatus according to claim 7 wherein said exposed portions are enlarged.

9. Splint apparatus for use in extramedullary fixation of a fractured bone, comprising: a substantially flat rigid splint bar adapted to be placed in contact with the surface of a bone, aligned parallel with the axis thereof, and disposed overlapping a fracture therein, said bar including transverse edges and an open region longitudinally inwardly of each of said edges; tensioning means including first fastener elements slidably passed through said open regions spaced longitudinally inwardly from said edges, said first fastener elements being adapted to be disposed on opposite sides of said fracture for loosely connecting said bar to said bone, said tensioning means further including contractile means coupled to said elements and comprising forcibly convergable members acting to converge said elements and thereby urge the surfaces of the fracture intimately together, each of said fastener elements having shank portions whose length is greater than the thickness of said bar to facilitate entry into an underlying bone; and second fastener elements passing through said open regions and adapted to pass into said bone in engagement with said edges whereby to preserve the compressive force urging the surfaces of said fracture into intimate contact.

10. Splint apparatus according to claim 9 wherein said forcibly convergable members include progressively interengageable elements.

11. Splint apparatus for use in the extramedullary fixation of a fractured bone, comprising: a rigid splint bar adapted to be placed in contact with the surface of a bone, aligned parallel with the axis thereof, and disposed overlapping a fracture therein, said bar having a longitudinally extending guide channel in one surface and said bar including transverse, fastener-engaging edges and longitudinally extending open regions; first bone-engaging fastener elements passed through selected ones of said open region in slidable relationship with the walls thereof, said first fastener elements being adapted to be disposed on opposite sides of said fracture for loosely connecting said bar to said bone; a temporary tensioning splint device mounted on said first fastener elements overlying said bar, including opposed shoes slidably engaging said bar and fittedly engaging said channel, said shoes having formations releasably coupled to said fastener elements and said tensioning splint device further including drive means for aggressively converging said shoes and thereby converging said first fastener elements for guidably compressing the surfaces of the fracture together; and second bone-engaging fastener elements passed through selected ones of open regions in engagement with said edges whereby permanently to anchor said bar and preserve the compressive force urging the surfaces of said fracture into intimate contact.

12. For use in the extramedullary fixation of a bone, splint apparatus having a rigid splint bar adapted to be placed in contact with the surface of a bone, aligned parallel with the axis of the bone and disposed overlying a fracture therein, the bar including transverse, fastener-engaging edges and longitudinally extending open regions, the apparatus further having first bone-engaging fastener elements passed through selected ones of the open regions of the bar in slidable relationship of the walls of the selected open regions; these first fastener elements being adapted to be disposed on opposite sides of the fracture of the bone for loosely connecting the bar to both fragments of the bone, the apparatus additionally having second bone-engaging fastener elements passed through selected ones of the open regions in engagement of the transverse edges of the bar, bone-setting apparatus comprising: opposed shoes superposed on the bar in slidable engagement therewith, said shoes having formations releasably coupable with the first bone-engaging fastener elements; and drive means for aggressively converging said shoes and thereby the first fastener elements for use in guidably compressing the fractured surfaces of the bone together.

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