

May 7, 1963

F. O. WRIGHT
SURGICAL BOW ASSEMBLY

3,088,460

Filed Jan. 19, 1962

4 Sheets-Sheet 1

FIG. 1.

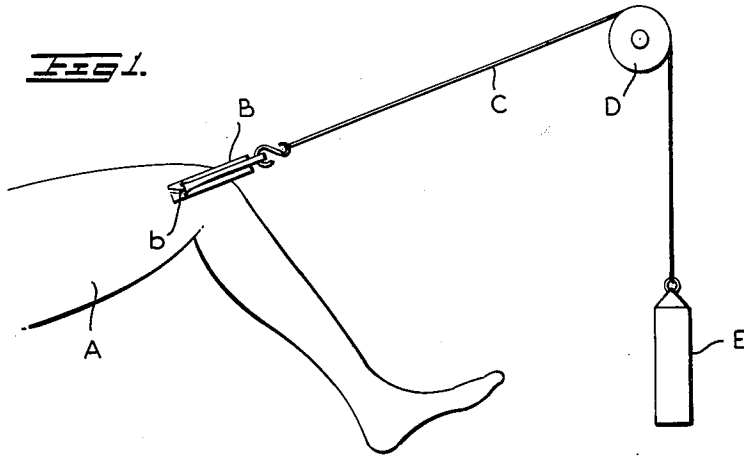


FIG. 2.

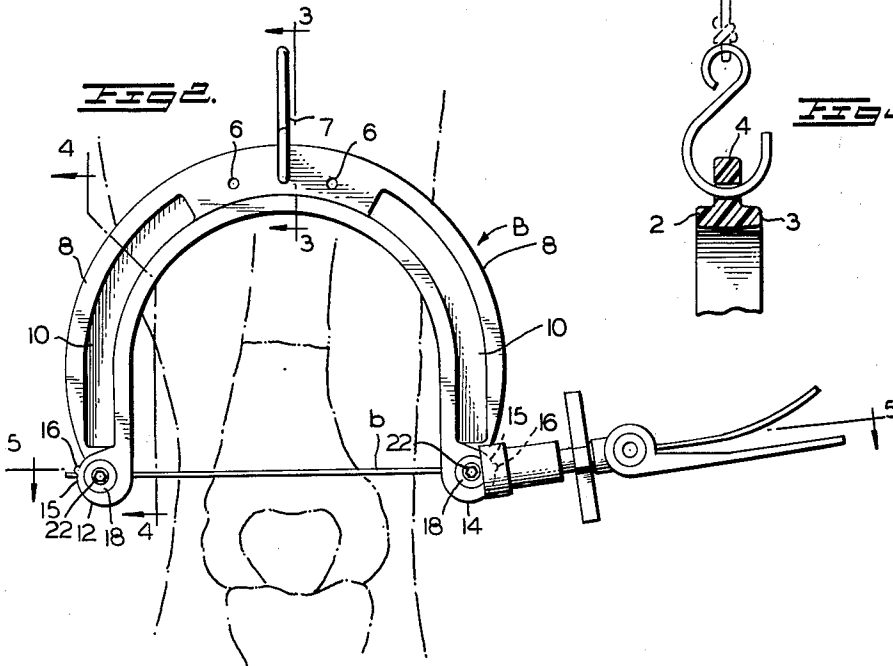


FIG. 3.

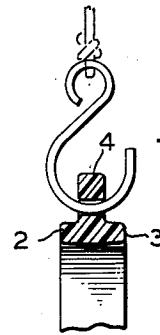
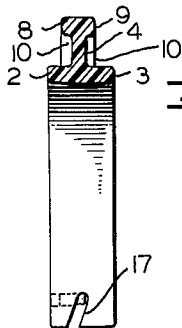


FIG. 4.



INVENTOR
FRANK O. WRIGHT

BY *Raymond J. Bassett*

ATTORNEY

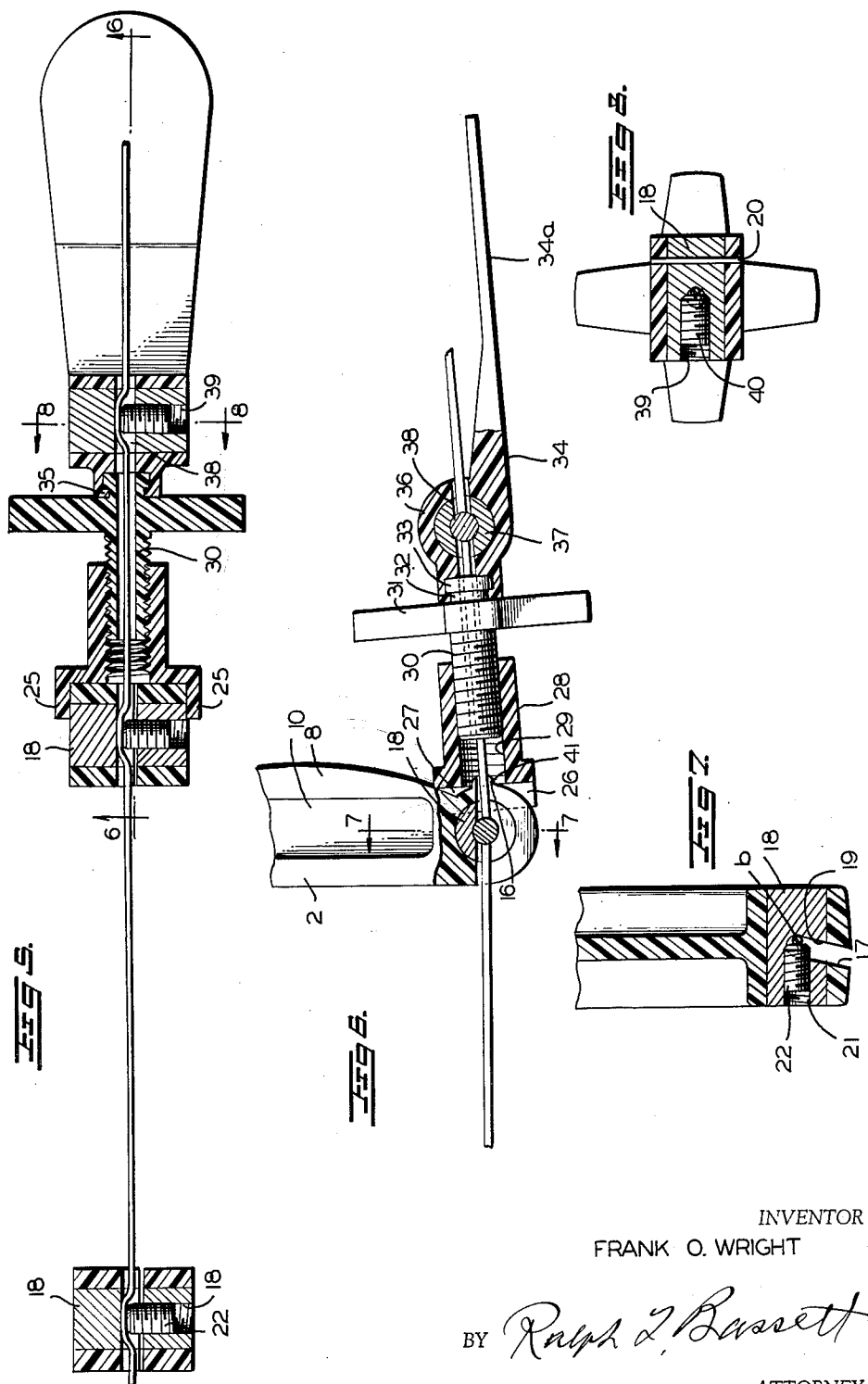
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Filed Jan. 19, 1962

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INVENTOR
FRANK O. WRIGHT

BY *Ralph Z. Bassett*
ATTORNEY

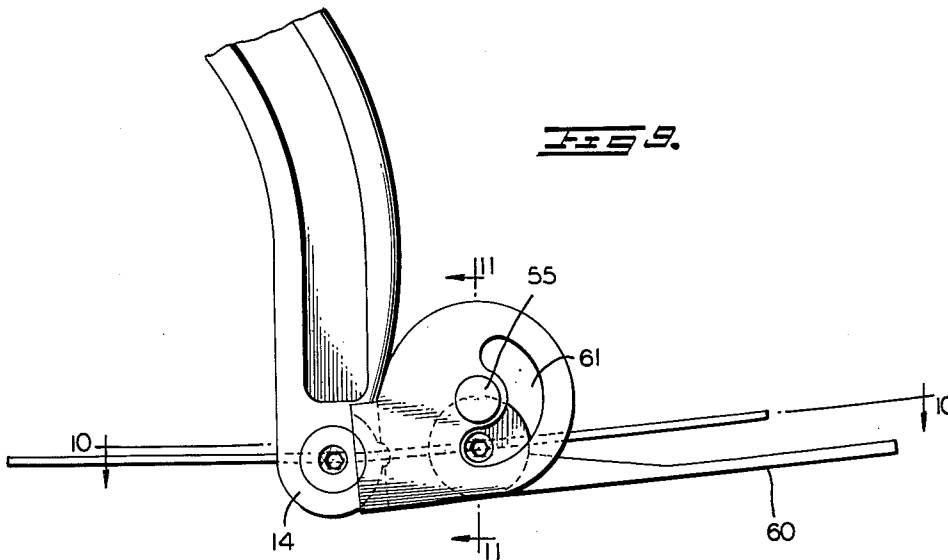
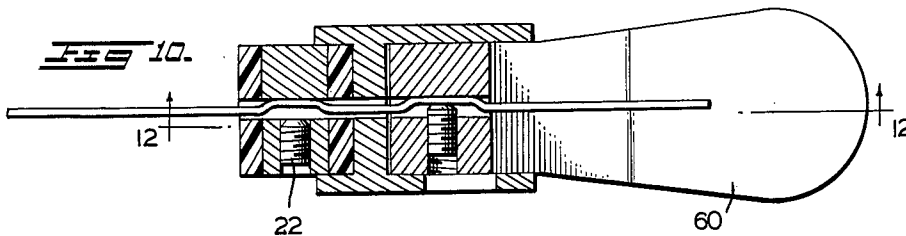
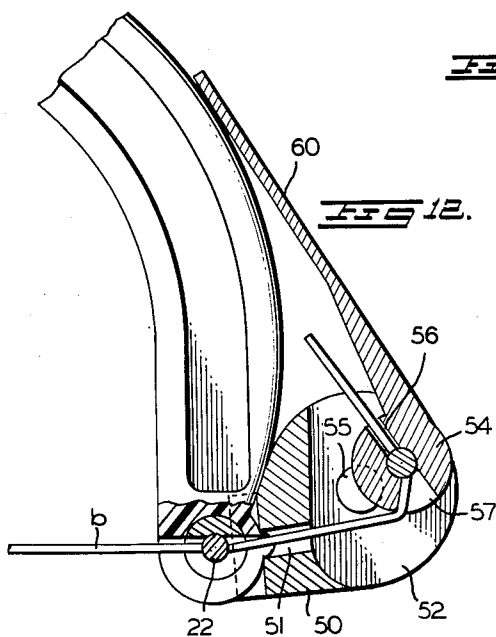
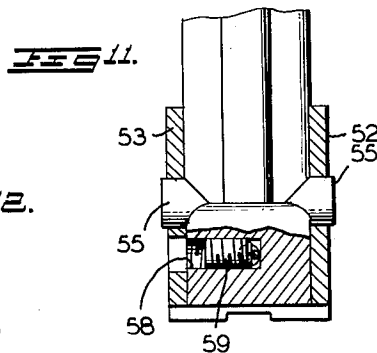
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SURGICAL BOW ASSEMBLY

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INVENTOR
FRANK O. WRIGHT

BY *Raymond Bassett*
ATTORNEY

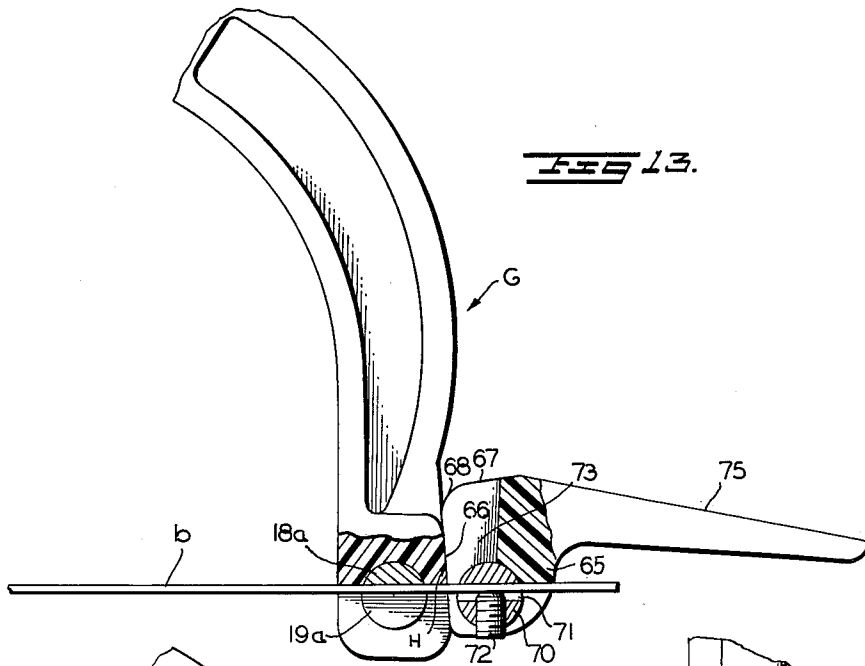
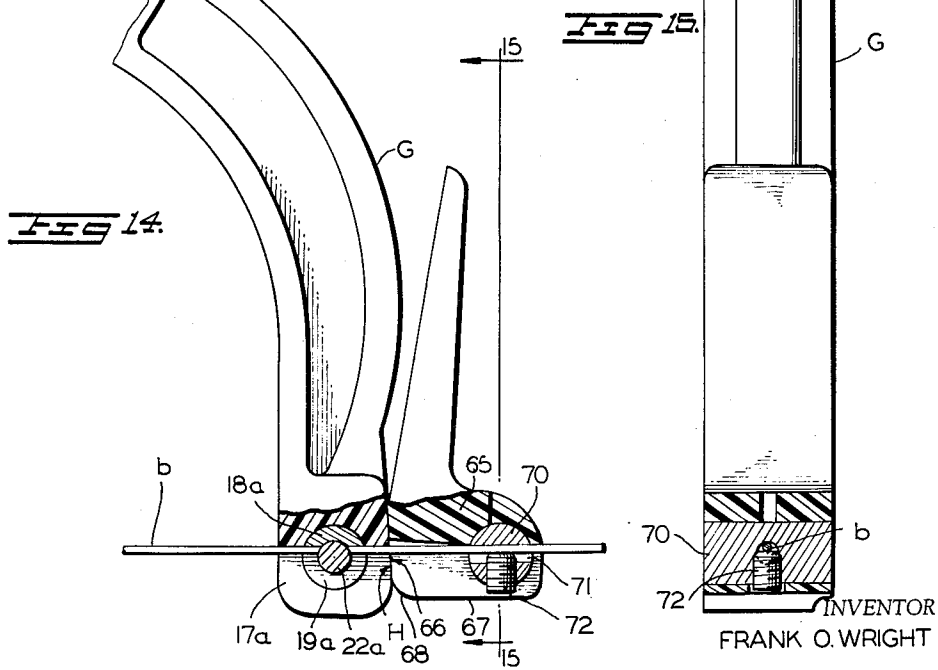
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F. O. WRIGHT
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3,088,460

Filed Jan. 19, 1962

4 Sheets-Sheet 4



BY

Reynold J. Bassett

ATTORNEY

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3,088,460

SURGICAL BOW ASSEMBLY

Frank O. Wright, 880-882 Adams Ave., Memphis, Tenn.

Filed Jan. 19, 1962, Ser. No. 167,299

13 Claims. (Cl. 128-84)

This invention relates to orthopedic or surgical devices of that class designated generally as traction bows used in connection with skeletal wires or pins, which wires or pins are supported in a state of tension after their insertion through an injured limb and for the application of subsequent traction.

One of the main objects of this invention is to provide a disposable plastic traction bow of light weight and which will not obscure fracture sites at the time of X-ray in traction or cast or in other words is X-ray lucent.

Another object of the invention is to provide a traction bow formed of a suitable plastic such as nylon or Teflon, which plastic structure may be easily cut with a cast cutter for removing the top of the bow after placing in plaster to thereby form a less bulky cast.

A further object of the invention is to provide a plastic bow formed of a material which does not adhere well to the plaster forming the plaster cast.

A still further object of the invention is to incorporate with the bow an associated part which cooperates with the bow for applying appropriate tension to the wires or pins, the associated part being capable of operation or manipulation to apply the tension by the use of one hand only, thereby leaving a surgeon's other hand free for other appropriate services associated with the use of the device.

These and other objects of the invention will more clearly hereinafter appear by reference to the accompanying drawings forming a part of the instant specification and wherein like characters of reference designate corresponding parts throughout the several views, in which:

FIG. 1 is a diagrammatic disclosure showing the invention in use;

FIG. 2 is a side elevation of the assembly;

FIG. 3 is a section on line 3-3 of FIG. 2;

FIG. 4 is a section on line 4-4 of FIG. 2;

FIG. 5 is a section on line 5-5 of FIG. 2;

FIG. 6 is a sectional view taken on line 6-6 of FIG. 5;

FIG. 7 is a section on line 7-7 of FIG. 6;

FIG. 8 is a section on line 8-8 of FIG. 5;

FIG. 9 is a fragmentary side elevation of a modified form of the invention;

FIG. 10 is a horizontal sectional view on line 10-10 of FIG. 9;

FIG. 11 is a fragmentary detailed vertical section on line 11-11 of FIG. 9;

FIG. 12 is a horizontal sectional view on line 12-12 of FIG. 10 showing the device in its actuated position;

FIG. 13 is a fragmentary side elevation partly in section of another form of the invention embodying a cam action for tensioning the wire or pin and in which view the tensioning device is in its initial position;

FIG. 14 is a view similar to FIG. 13 partly in section with the assembly reversed; and

FIG. 15 is a section on line 15-15 of FIG. 14.

In FIG. 1 there is a diagrammatic disclosure of an application of the invention in which reference character A represents a leg to which the instant assembly is to be applied and which assembly includes the plastic bow or yoke member B holding the transverse pin *b*, the latter being inserted through the flesh and bone of the leg A to be treated. The bow member is connected by means of cable C which passes about the supporting pulley D and is connected with the weight E to apply traction.

Referring now to FIG. 2, it will be seen that the bow member B includes an arcuate structure formed of a base

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and two arms. The structure of the base portion of the bow comprises a transverse body including flanges 2 and 3, as shown in FIG. 3, and an intermediate radial projection 4, the latter being provided with a plurality of spaced openings 6 to which a clip or hanger 7 is detachably connected. The clip 7 is for connection with the weight E by means of the cable C. The two arms of the yoke member are identical and the disclosure in FIG. 4 will indicate the cross sectional structure of these arms which include the lateral flanges 2 and 3 which are continuations of the flanges at the base of the bow and the radial projection 4 which is formed with lateral beads or flanges 8 and 9 at its outer marginal edge. The outer flanges 8 and 9 of the arms are defined by the elongated recesses 10 which extend from the base to the enlarged headed portions 12 and 14 forming the free outer extremities of the arms. The elongated recesses 10 and the associated outer flanges 8 and 9 are provided at each side of the arms and these parts are so constructed and arranged as to provide tensile strength inherently necessary to the proper operation of the bow, as will be more clearly hereinafter described.

The free ends of the arms terminate in the headed portions 12 and 14. These headed portions are generally cylindrical in form and have a width corresponding to the full transverse width of the structure as defined by the inner flanges 2 and 3. The outer faces of the headed portions 12 and 14 are provided with arcuate bearing faces 15 and ribs 16 extending transverse to the bow, which bearing faces and ribs provide interengaging faces for association with the jacking device to be hereinafter described. Each of the heads 12 and 14 is formed with a medially positioned diagonal slot 17 shown in detail in FIG. 7, the slot extending transversely of the head and being aligned one with the other. The slots in the heads are deep enough to extend slightly beyond the axis of the heads. The heads 12 and 14 are further formed with elongated longitudinally extending bores in which are positioned cylindrical inserts 18 which extend from side wall to side wall. The faces of the inserts 18 terminate flush with the outer ends of the heads 12 and 14 and the medial portions of the inserts are provided with transverse slots 19 which merge with the diagonal slots 17 in the heads and form therewith transversely extending aligned angular slots for the reception of wires or pins *b*. As previously stated, these wires or pins *b*, when in use, are positioned through a member of the human body including a bone structure for the application of traction thereto.

Each of the cylindrical inserts 18 is held in place by a pin 20, as shown in FIG. 8, the pin extending through the insert and through the headed portion of the arms to prevent displacement. Likewise each of the inserts 18 is formed with an axial bore 21, this bore being threaded or unthreaded as desired and according to whether the lock screw to be associated therewith is conventional or is a self-threading screw.

The lock screw is indicated by reference character 22 and is of a size to snugly engage within the bore 21 and to transversely intersect the slot 17-19 for the purpose of clamping the pin or wire *b* into position. It will be noted that the angular positioning of the slot 17-19 results in a travel of the wire *b* generally to the base of the slot and insures a wedging thereof between the wall of the slot and the fastening screw 22 when the latter is urged into position by a suitable Allen wrench.

As previously stated the pin or wire *b* is inserted through the bone and flesh structure of a member of the human body and this pin or wire structure must be held under tension when so positioned and the member of the body is under traction. To accomplish this the bow B is positioned with the wire or pin *b* in the bottom of the slot 17-19 at the extremity of each arm of the bow and

when so positioned the lock screw 22 in the head 12 is driven into clamping and wedging position to bind the end of the wire or pin in the head 12 so that it cannot be displaced. The lock pin 22 in the head 14 is left free and out of engagement with the pin or wire in the adjacent slot until the wire is placed in tension by springing the arms towards each other by the use of an associated jack means shown in FIGS. 5 and 6.

The jacking means of FIGS. 5 and 6 comprises a base member having flanges 25 formed thereabout for engaging the outer face of one of the cylindrical heads 12 or 14, the flanges 25 projecting over the flattened ends of the heads and overlying and encompassing the arcuate bearing faces 15 at the outer faces of the head. The jacking assembly can be used on either the head 12 or 14 as both are equipped for this function. The flanges 25 which embrace the arcuate faces of the head are formed with transverse slots 26 for seating about the outer flanges 8 and 9 of the arm structures, which latter merge into the heads as at 27, best shown in FIG. 6. The head members are formed with cylindrical extensions 28 formed with a threaded bore 29 extending therethrough to receive the threaded shank 30 of the screw jack which is operated by the radiating arms 31, whereby the hollow jack shank or stem 30, by rotation, will move inwardly and outwardly within the threaded bore of the cylindrical extensions 28. The head of the jack member from which the arms 31 radiate includes a centrally positioned hollow projection 32 of annular form having the flanged head 33 about which is positioned by a snapping action a handle member 34, the handle member having a socket defined by inwardly projecting annular flange 35 to form the recesses into which the head 33 is received when the parts are assembled.

It is to be understood that the jack assembly is to be formed of a plastic having elastic characteristics, such as nylon, so that the assembly heretofore described at 33 may be conveniently made. The handle member 34 is formed with an intermediate medial portion of generally cylindrical form indicated by reference character 36, this intermediate portion 36 having a central bore for receiving the cylindrical metal insert 37. The insert 37 is formed with a transverse bore 38 and an axial bore 39, the transverse bore 38 being aligned with the axis of the bore in the hollow jack shank 30 so that the pin or wire *b* can extend through the diagonal slots in the heads 12 and 14 and through the bore formed in the jack parts and in the aligned transverse opening 38 in the insert 37.

When the pin or wire *b* has been anchored by the lock screw 22 in the head 12 and threaded through the jack screw as shown, it is locked into position by the lock screw 40 in the jack, best shown in FIG. 8, and the jack is then manipulated by the surgeon through rotation of the jack screw by handle 34. The operation of the handle will cause tensioning of the wire *b* which when so tensioned can be locked in position by driving the lock screw home in the head 14. It will be noted that the transverse rib 16 of the head to which the jack is applied seats in a socket or transverse slot 41 to prevent rotational displacement of the assembly with respect to the head members, whereby the jacking structure and the bow member are interlocked.

After the wire or pin *b* has been placed under tension the screw 40 in the jack can be retracted by use of an Allen wrench which fits in the head of the screw and the jack removed by axial movement of the jack assembly from off of the protruding wire or pin. This leaves the bow structure with its tensioned pin in position for the application of the traction assembly as shown in FIG. 1. It is preferred that the parts of the jacking assembly be formed of a white plastic, such as nylon, whereby its lightness and cheapness is present without minimizing the inherent strength essential to its use.

A modified form of jack assembly is shown in FIGS. 9, 10, 11 and 12. In the modified form of jacking device the

interengaging faces of the jack assembly and of the bow head are the same as in the jack shown in FIGS. 5, 6, 7 and 8 to insure proper association and interengagement of parts to facilitate the operation and tensioning of the wire or pin *b*. In the modified form, a cam action is substituted in lieu of the screw jack heretofore described and this cam action is provided by the use of an enlarged head 50 having a bore 51 for the passage of the wire or pin *b*. A pair of spaced wings 52 and 53 are provided and between these wings is eccentrically mounted a head 54 by eccentric pivot pins 55 which are seated in the walls 52 and 53 to pivot the eccentric head 54. The eccentric head 54 is formed with a transverse slot 56 enlarged at its inner portion 57 to permit movement of the associated portion of the wire or pin *b*. The head 54 is formed with an axially threaded bore 58 in which is positioned a lock screw 59 for the purpose of securing the wire or pin *b* which projects therethrough, as shown in FIG. 11. The head 54 has a flat arm or hand member 60 corresponding to the hand member 34^a of the preceding form of jack assembly.

One of the side walls, i.e. the side wall 53, is formed with an arcuate slot 61 shown in FIG. 9 so that the set screw 59 will be available for access by a wrench regardless of the position of the cam head. When the cam tensioning assembly of the modification is in position as in the preceding form of jack screw and the wire or pin *b* has been threaded through the assembly, the wire or pin *b* is clamped by means of the lock screw 59 and the cam head is then rotated on its pins 55 to stretch and tension the wire *b*. This operation is obviously performed by swinging the head with the handle 60 which is designed to lie against the palm of the hand of the surgeon utilizing the assembly. When the wire has been tensioned, then the set screw or lock screw in the head 14 can be driven home to hold the wire under tension. The tension obviously is available by the cam compressing the two arms of the bow member together and then in setting the lock screws as described. The cam tension member can be removed from the wire by releasing the lock screw 59 in the cam head and stripping the device off of the extremity of the pin or wire *b*.

In the disclosure of FIGS. 13, 14 and 15, only one arm of a bow member is shown, it being understood that each arm is identical in construction so that the tensioning device may be applied at either side of the bow as may be determined by the position of the latter during its application. The arm shown has been indicated by reference character *G* and is provided with the marginal reinforcements to provide the essential inherent resiliency in association with its base, as heretofore described. The free extremity of the arm *G* is provided with the diagonal slot 17^a which is aligned with the diagonal slot in the opposite free extremity of the other arm of the bow, this diagonal slot 17^a being provided for the reception of the wire or pin.

Extending transversely through the terminal of the arm *G* is a metallic plug or cylindrical insert 18^a, the faces of the outer ends of which terminate flush with the outer faces of the terminal of the arm *G*. The insert 18^a is provided with diagonal slot 19^a which is aligned as in the previous form with the diagonal slot 17^a of the arm terminal structure. The insert 18^a is formed with an axial bore in which is positioned the lock screw 22^a to secure the wire or pin in fixed position in the insert of the arm terminal after the tensioning operation by the tensioning means to be hereinafter described. The outer face *H* of the terminal of the arm *G* is flat to provide a bearing surface and is inclined inwardly to seat the tensioning means thereon and to prevent its outward displacement during the tensioning operation.

The tensioning device shown comprises an enlarged head 65 having a pair of angularly disposed faces 66 and 67, these faces being relatively flat and extending the full width of the head and being connected by a rounded

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bearing portion 68 about which the head is rotated during its camming operation for the tensioning of wire or pin *b*. At the outer end of the elongated head 65 is rotatably mounted an insert or pin 70 having a transverse bore 71 for the passage of the wire or pin *b* and a locking means 72 in the form of a screw extending through and transversely of the insert or pin 70 for binding the wire or pin *b* therein.

The head 65 of the tensioning device is shown as partially bifurcated transversely of its structure to provide a pair of spaced wings in which the end portion of the insert or pin 70 is mounted. The bifurcation provides guiding areas or faces 73, one of which is shown in FIG. 13 for the passage of the wire or pin *b* during the rotation of the head of the tensioning device. During the rotation of the head of the tensioning device by means of the handle 75, the pin 70 will remain in fixed position with the slot aligned with the slots in the heads of the arms G so that the wire or pin *b* will not be displaced outwardly and away from its seat at the base of the slot in the insert 18^a.

In the operation of that form of the invention shown in FIGS. 13, 14 and 15, the wire or pin *b* is first anchored in the other arm G of the bow, which is identical in construction and assembly as the arm terminal shown. The wire or pin *b* then extends through the insert 18^a in the arm terminal shown and remains unanchored in this arm terminal but is anchored in the head 65 of the tensioning device by means of the screw or fastener 72 as shown. When in the position shown in FIG. 13, the arm 75 of the tensioning device is rotated about the arcuate bearing surface 68 and against the inclined flat bearing face H of the arm G. The movement of the arm 75 of the tensioning device in the upward direction against the arm G of the bow will tend to hold the wire or pin *b* against its seat in the insert 18^a of the bow arm extremity and because of the greater length of the head 65 the arms G will be compressed one against the other and tension applied to the wire *b* as the head is rotated to the position shown in FIG. 14.

Because the pin or insert 70 in the head 65 is free to rotate, the wire or pin *b* will be maintained in an aligned position during the application of the tension, this tension as previously stated being determined by the difference in dimension between the length and the thickness of the head 65 as the head rotates substantially ninety degrees. The head 65 will tend to have a snap action because of the resiliency of the arms G of the bow and the face 67 of the head 65 will, upon rotation of the arm 75, assume the position shown in FIG. 14. Having assumed the position shown in FIG. 14, the fastener or screw 22^a will be driven home to bind the wire or pin *b* securely in its seat at the base of the slot 19^a. With the wire *b* firmly secured by the screw 22^a, the screw 72 in the head 65 can be released if so desired and the tensioning assembly removed. When so removed the wire or pin *b* can be severed if desired.

It is to be understood that the head 65 may be made of a plastic such as nylon or Teflon in the same manner as the bow structure, including arms G, and that the latter are constructed with marginal reinforcements providing inherent resiliency sufficient to provide tensioning forces necessary in the application of the wire or pin during the operation by the surgeon.

All of the forms of the invention incorporate the same general concept, i.e. the provision of a plastic, disposable bow having inherent characteristics enabling the application of tension to the wire or pin *b* in the manner shown and described. The parts of the invention are so assembled and related that the device can readily be used in the manner described by a surgeon without complicated manipulation, i.e. by the steps of anchoring the wire to an outer arm and to the tensioning device; then the operation of the operating arm or handle to a position tensioning

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the arms of the bow; and finally the anchoring of the wire or pin *b* in the second arm.

It is to be noted in connection with the disclosure of FIGS. 13, 14 and 15 that due to the fact that the insert 70 is free to rotate in its mounting, the lock screw 72 which secures the wire or pin *b* is always outwardly projected so that an Allen wrench or other operating device can be readily inserted for seating or unseating the same. The screw 72 may be provided with a socket for an Allen wrench or a slot for a conventional screwdriver and as shown in FIG. 13 this screw projects outwardly for ready access for the initial setting and as shown in FIG. 14 is in the same position for release. The slot defined by the walls 73 and 74 in the head 65 permits freedom of movement of the head without displacing the wire or pin *b* when the head is rotated by means of the operating projection or handle 75.

What I claim is:

1. In a wire bow structure for surgical use, comprising an integral X-ray lucent molded plastic body including a base portion and a pair of spaced arms, said arms being resiliently associated with their base for movement towards and from each other, head members formed at the ends of said arms, a wire member, diagonal recesses in said head members for receiving said wire member including a mounting face, a jack member for applying tension to the wire member located in said recesses, a rotatable gripping device mounted in the jack member, a recess formed in the rotatable gripping device, means for securing the wire member in said recess, transversely positioned integral projections including an inclined wall portion projecting from the outer side face of each of the head members for providing an abutment for engaging the mounting face of said jack member when applied thereto to prevent the longitudinal displacement of the jack member in the direction of the length of the arm, and a relatively large flat extension on the jack member for engaging the palm of the hand of an operator during actuation of the jack member.

2. In a wire bow structure for surgical use, an integral X-ray lucent molded plastic body including a base portion and a pair of spaced arms, said arms being resiliently associated with their base for movement towards and away from each other, head members formed at the outer end portions of said arms, aligned recesses in said head members, a wire member adapted to be positioned in said aligned recesses with a portion projecting outwardly of one of the head members, means for securing the wire member in its recess in each head member, transversely positioned integral projecting portions including an inwardly inclined wall portion extending from the outer side face of each of said head members, a jack member, means for securing the jack member to the projecting portion of said wire for applying tension to said wire in the direction parallel to its length, said jack member including a face portion adapted to be applied against a transversely positioned integral projecting portion of one of said head members and to engage against said inclined wall portion thereof to prevent its longitudinal displacement off of the end of the head member when the jack member is being actuated to apply tension to the wire in a direction parallel to the wire, and means for engaging the hand of an operator comprising a relatively large flat extension on the jack member.

3. In a wire bow structure for surgical use, an integral X-ray lucent molded plastic body including a base portion and a pair of spaced arms, said arms being resiliently associated with their base for movement towards and away from each other, head members formed at the ends of said arms, aligned recesses in said head members, a wire member adapted to be positioned in said aligned recesses, means for securing the wire member in the recesses in each head member, a transversely positioned abutment portion projecting outwardly from the outer face of each of the head members, a jack member hav-

ing a portion adapted to engage the outer face of one of said arms and an abutment portion, means carried by the jack member for securing a free end of the wire member arranged in said recesses for applying tension to the wire member in a direction parallel to the length of the wire when the latter is secured in the recess spaced from the head member engaged by the jack member, whereby tension applied to the wire member will move the arms towards each other and permit the wire member to be secured in the recess in the head member engaged by the jack to retain the wire member under tension when the wire is disengaged from the jack member, said transversely positioned integral projecting portion acting against the abutting jack face during application of tension to the wire and displacement of the arms towards each other to prevent displacement of the jack member in the direction of the terminal of the head member engaged by the jack member.

4. In a wire bow structure for surgical use, comprising an integral X-ray lucent molded plastic body including a base portion and a pair of spaced arms, said arms being resiliently associated with their base for movement towards and away from each other, head members formed at the end portions of said arms, substantially aligned recesses in said head members, a wire member adapted to be positioned in said aligned recesses, means for selectively securing said wire in said recesses, a jack member for applying tension to said wire member in a direction parallel to its length, a rotatable gripping device mounted in said jack member, a recess formed in the rotatable gripping device, means for securing the wire member in said recess, transversely positioned integral projections including an inclined wall portion formed on the outer side face of each of the head members for providing an abutment, said abutment being adapted to engage an adjacent wall portion of said jack to prevent longitudinal displacement of said jack member during application of tension to said wire member, and means for engaging the hand of an operator comprising a relatively large flat extension on said jack member.

5. A wire bow assembly for surgical use comprising an integral X-ray lucent molded plastic bow structure including a base portion and a pair of spaced arms, said arms being resiliently displaceable, head portions formed at the free ends of said arms, transversely extending aligned diagonal slots formed in each of said head portions, a wire member, screw members extending through said head portions and intersecting said diagonal slots at their bases for selectively securing said wire to one of said heads, said heads each being formed with outwardly facing inwardly inclined bearing faces, a cam member having angularly disposed bearing faces for engaging the bearing face of one of said heads, said cam member including a transverse rotatable eccentrically mounted insert, a transverse passageway in said insert for alignment with the base of said slots, means for securing said wire within the passageway in said insert, means projecting from said cam member for rotating said cam to compress said arms for applying tension to the wire secured to one of said arms, and means for securing the wire to the other head when said arms are compressed to maintain said wire under tension.

6. A wire bow assembly for surgical use comprising an integral X-ray lucent molded plastic bow structure including a base portion and a pair of spaced arms, said arms being resiliently displaceable, head portions formed at the free ends of said arms, transversely extending aligned slots formed in each of said head portions, a wire member, screw members extending through said head portions and intersecting said slots at their bases for selectively securing said wire to said heads, said heads being formed with outwardly facing inwardly inclined bearing faces, a cam member formed with outer adjacent angularly disposed flat faces for engaging the inclined bearing face of one of said heads, said flat faces being at an angle

of approximately 90 degrees and being connected by a bearing surface, said cam member including a transversely mounted rotatable insert, a transverse passageway in said insert for alignment with the base of said slots, means for securing the wire within the passageway in said insert, said rotatably mounted insert being positioned a relatively close distance from one flat face of said cam member and a relatively greater distance from the other flat face of said cam member whereby movement of said cam member on its bearing surface will resiliently displace said arms the difference in distance between the inserts and the flat faces of the cam member and thereby apply a predetermined degree of tension to the wire secured to the other arm and to the insert.

7. A plastic bow assembly for surgical use comprising an integral X-ray lucent molded plastic body of U-form and including a base portion and a pair of resiliently displaceable spaced arms, head members formed at the outer end portions of said arms, said head members being provided at their outer sides with relatively wide flat inwardly inclined jack mounting faces, a wire member, slots extending inwardly through said head members, said slots having their inner portions aligned to receive and position the wire therein, insert members extending transversely through said head members and through said slots, slots formed in said insert members arranged to register with the slots in said head members to form seats for said wire, and screw members extending through said insert members and intersecting said slots at their base portions for securing the wire.

8. In a wire bow structure for surgical use comprising an integral X-ray lucent molded plastic body including a base portion and a pair of spaced arms, said arms being resiliently associated with their base for movement towards and from each other, head members formed at the ends of said arms, a wire member, recesses in said head members having axially aligned portions for receiving said wire member, the outer side face of one of said head members being formed with an inwardly inclined jack mounting surface, a cam jack member formed with a head portion having a pair of angular faces for seating on said inclined mounting surface, said angular faces being arranged at approximately 90 degrees and connected by a bearing portion, a wire securing device having a transverse passage therethrough rotatably mounted in said head portion, said wire securing device being positioned closer to one of said angular faces than to the other and being adapted to receive therein one end portion of said wire arranged in the aligned portions of said head, means for securing the wire to the outwardly spaced head member of the bow and to said rotatable wire securing device, whereby rotation of the cam jack member on its bearing from its face closely positioned to the wire securing device to its other angular face will apply compression to the resilient arms of the bow and tension to said wire, and said inwardly inclined angular face mounting said cam jack member will permit said jack member to pass over dead-center position for retaining said jack in fixed position with respect to said bow, and means for securing the tensioned wire in the bow head adjacent the jack for retaining the wire under tension when the bow is released from said wire.

9. The structure of claim 8 characterized in that the inwardly inclined jack mounting surface of the head member lies at an acute angle with respect to the axis of the wire member when arranged in the recesses in the head members.

10. The structure of claim 8 characterized in that the wire securing device extends transversely through the head portion of the cam jack member and a slot is formed in the cam jack member communicating with the transverse passage in the wire securing device to permit the insertion of the end portion of the wire in the cam jack member.

11. A wire bow structure for surgical use comprising an integral X-ray lucent molded plastic body including a base portion and a pair of spaced arms, said arms being resiliently associated with their base for movement towards and away from each other, head members formed at the ends of said arms, aligned recesses formed in the head members, and securing means in each of said head members, said securing means extending transversely of said recesses, one of said head members being provided with a transversely extending outer flat angular mounting face, said mounting face lying in a plane converging toward the center portion of the base.

12. A plastic bow assembly for surgical use comprising an integral X-ray lucent molded plastic body of U-form and including a base portion and a pair of resiliently displaceable spaced arms, head members formed at the outer end portions of said arms, a wire member, slots extending inwardly through said head members, said slots having their inner portions aligned to receive and position the wire therein, insert members extending transversely through said head members and through said slots, slots formed in said insert members arranged to register with the slots in said head members to form seats for said wire, screw members extending through said insert members and intersecting said slots at their base portions for securing the wire, a jack member having a face for abutment against the outer side of a head member for use in applying pressure to the bow arms, said head members having their outer side faces formed with a transversely extending outwardly projecting portion for engagement with the abutting jack face to prevent displacement of the jack when applying pressure to the bow arms.

13. A plastic bow assembly for surgical use comprising an integral X-ray lucent molded plastic body of U-form and including a base portion and a pair of resiliently displaceable spaced arms, head members formed at the

outer end portions of said arms, a wire member, slots extending inwardly through said head members, said slots having their inner portions aligned to receive and position the wire therein, insert members extending transversely through said head members and through said slots, slots formed in said insert members arranged to register with the slots in said head members to form seats for said wire, screw members extending through said insert members and intersecting said slots at their base portions for securing the wire, a jack member adapted to be applied to and abut the outer face of one of the head members of one of the pair of spaced arms for connection with the wire located in said aligned slots and fixedly secured in the slot in the other head member to apply pressure to the resiliently displaceable spaced arms for tensioning of the wire, said head members having their outer side faces formed with a transversely extending inwardly inclined surface area for engaging the abutting jack face to prevent the travel of the jack off of the end of the arm with which it is in abutment during application of pressure by the jack to the bow assembly.

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