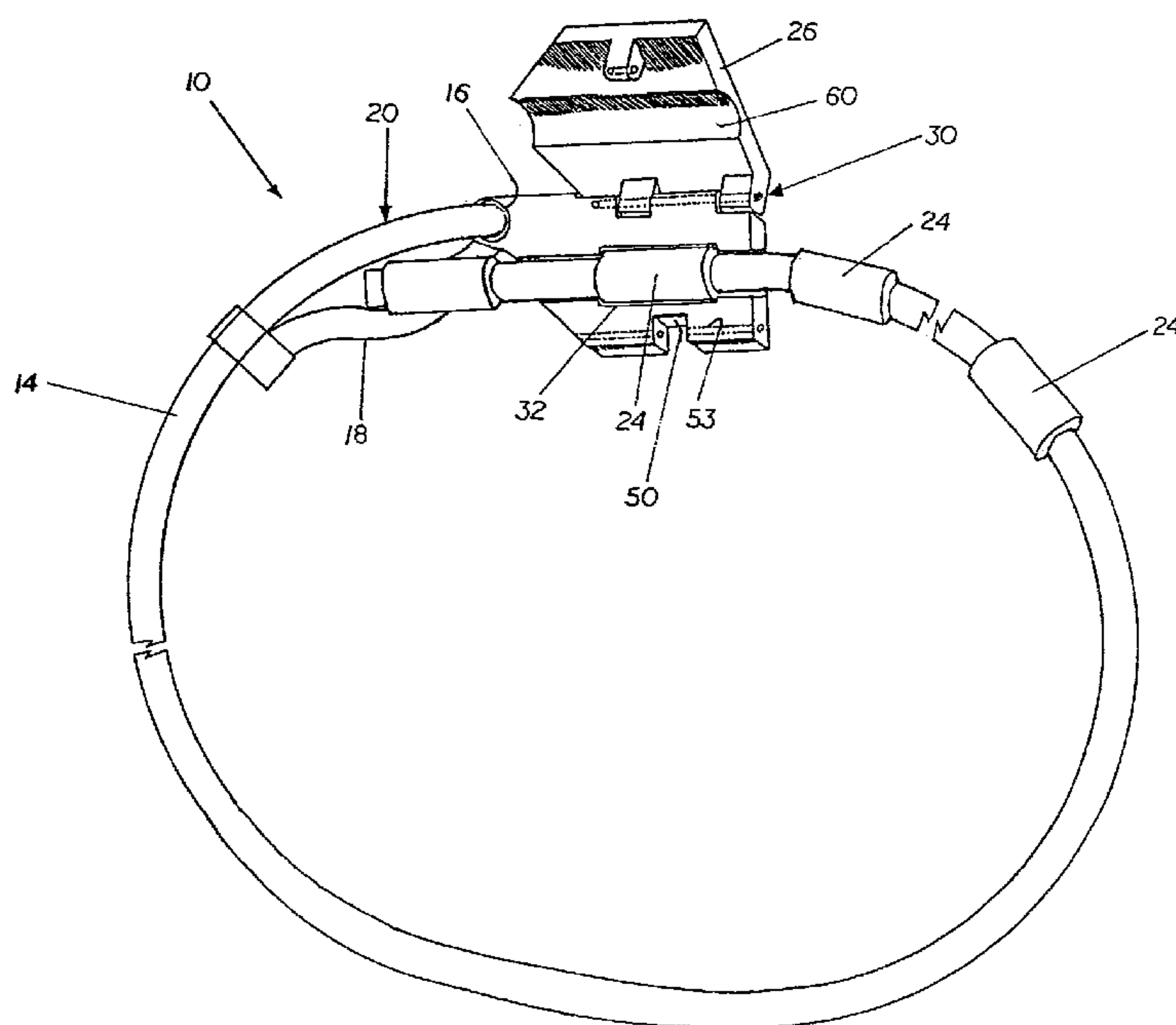




(11) (21) (C) **2,024,882**
(22) 1990/09/07
(43) 1992/03/08
(45) 2000/02/08

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(54) **SERRE-CABLE**
(54) **CABLE LOCK ASSEMBLY**



(57) A cable lock assembly for the bundling of lengths of material such as logs includes a lock affixed to a first end of a cable. One of a number of buttons rigidly affixed to the cable at a second end thereof may be placed in a complementarily shaped socket in a base of the lock. The button may be retained in the socket by a cover which is rotatably connected to the base and may be releasably secured thereto in its button retaining closed position. The cable lock assembly of the present invention is easy to handle without the requirement of specific tools and is reusable, thus reducing operating costs. Slipping of the cable through the lock in the closed position of the cover is substantially prevented, thus improving the reliability of the cable lock assembly.

ABSTRACT

A cable lock assembly for the bundling of lengths of material such as logs includes a lock affixed to a first end of a cable. One of a number of buttons rigidly affixed to the cable at a second end thereof may be placed in a complementarily shaped socket in a base of the lock. The button may be retained in the socket by a cover which is rotatably connected to the base and may be releasably secured thereto in its button retaining closed position. The cable lock assembly of the present invention is easy to handle without the requirement of specific tools and is reusable, thus reducing operating costs. Slipping of the cable through the lock in the closed position of the cover is substantially prevented, thus improving the reliability of the cable lock assembly.

CABLE LOCK ASSEMBLY

The present invention relates to cable locks, in particular to cable locks for the bundling of lengths of wood.

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During logging operations, lengths of wood or logs which are produced by cutting and debranching of trees, are generally hauled over unimproved terrain and access roads to a logging camp by using cable skidding. Subsequently, the logs are transported from the logging camp to a sawmill or
10 other wood processing installation by trucks or barges. During transport, the logs are generally bundled for safety and ease of handling.

Cable lock assemblies conventionally include a cable and a cable lock. One or more cables are generally laid in a loop around the logs to be
15 bundled and tightened to form the bundle. To secure the bundle the free ends of each cable are fastened together at their crossover point by the cable lock. A number of different cable lock assemblies, which are mainly distinguished by their lock constructions, are known in the art. One device includes a cable, a hollow, cast lock and a wedge. The cable ends are
20 pulled through the lock in the same direction and are prevented from slipping through the lock by a wedge which is driven between the ends of the cable or between the cable ends and the lock. It is a disadvantage of such a cable lock assembly that tools are needed for the installation and removal of the wedge. It is a further disadvantage that forcing the wedge against
25 the cable and the lock casting will eventually lead to serious damage of both the cable and the lock thus reducing the service period of such a cable lock assembly. Furthermore, since a hammer is generally used for installation to the wedge, damage of the wedge frequently occurs.

30 In another cable lock assembly the free ends of the cable are pulled through a sleeve which fittingly receives the cable ends in opposite directions. Subsequently, the sleeve is crimped to prevent the cable ends from sliding therethrough and along each other. It is a disadvantage of such a cable lock assembly that hydraulic or pneumatic crimpers are required
35 to provide a crimping force which is sufficiently high to prevent cable

slipping. Due to the high force employed, damage to the cable frequently occurs. It is a further disadvantage that the crimped sleeve must be destroyed to release the cable ends for opening of the bundle, thus ruling out any reuse of the sleeve and increasing operating costs.

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The present invention provides a cable lock assembly which is easy to handle, obviates the requirement for tools for the fastening and release of the cable ends, has a substantially lower occurrence of damage to the cable and the lock, and is readily reusable thus reducing operating costs.

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Accordingly, the invention provides a cable lock assembly used, for example, for the bundling of lengths of material which assembly includes a lock affixable to a cable, the lock including a base having a socket for at least partly fittingly receiving a button affixable to the cable and means for retaining the button in the socket. In a preferred embodiment, the cable lock assembly includes a lock which is affixable to a cable, includes a base which has a socket to at least partly, fittingly receive one of at least one button affixable to the cable and a cover releasably fastened to the base for retaining the one button in the socket, the one button, when affixed to the cable, being spaced along the cable from the lock so that a loop is formed in the cable when the button is retained in the socket. Thus, the cable is substantially prevented from slipping through the lock when the one button is retained in the socket.

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In another preferred embodiment, the lock is fastened to a first end of the cable through a thimble engaging an eyelet of the lock. The base is preferably provided with a socket for fittingly receiving at least part of a button and cable grooves each co-axially adjacent the socket for receiving at least part of the cable extending from both ends of a button located in the socket. The socket is preferably of semi-circular cross-section to at least partly receive one button of substantially cylindrical shape and extends centrally along a top surface of the base defining an axial direction. In a further preferred embodiment, the cover and the base are rotatably connected along one of their axially outer edges. The lock is preferably provided with a latch means to releasably fasten the cover in a

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closed position wherein an underside of the rotatable cover engages the button for retaining the button in the socket. The latch means may include a latch nose, which is integral with the cover and, in the closed position of the cover, engages a latch socket of the base, a first bore axially
 5 piercing the base to both sides of the latch socket, a second bore extending in axial direction through the latch nose in such a way that it is co-axial with the first bore in the closed position of the cover, and a pin, such as a split pin which may be selectively inserted into the co-axial first and second bores to secure the cover in the closed condition.

10

The invention will now be further described by way of example only and with reference to the following drawings, wherein:

Figure 1 is a perspective view of a cable lock assembly in accordance with
 15 the invention, with the lock in the open condition;

Figure 2 is a perspective view of the cable lock assembly shown in Figure 1, a button being placed in the socket of the open lock.

Figure 3 is a perspective view of the lock of the cable lock assembly shown in Figure 1;

20 Figure 4 is a cross section along line IV-IV of the lock shown in Figure 3;

Figure 5 is an axial cross-section of the lock shown in Figure 3;

Figure 6 is a transverse cross-section of a closed lock of a cable lock assembly in accordance with the invention, the lock enclosing a button;

25 Figure 7 is a bottom view of a closed lock of a cable lock assembly in accordance with the invention, the lock enclosing a button;

Figure 8 is a top view of a closed lock of the cable lock assembly shown in Figure 7; and

Figure 9 is a top view of a preferred embodiment of the cable lock assembly shown in Figures 7 and 8.

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In a preferred embodiment, the cable lock assembly of the invention as shown in Figure 1, in the following generally referred to by reference numeral 10, includes a lock 12 and a cable 14 affixed at a first end 20 to an eyelet 16 of lock 12 through a thimble 18. At a second end 22, cable 14
 35 is provided with one or more equally sized and shaped, spaced apart

cylindrical buttons 24, which are permanently affixed to cable 14, for
 example, through casting, welding, or crimping. Lock 12 includes a cover 26
 which is rotatably connected to a base 28 through a hinge 30, the
 construction of which will be described below in detail. Any one of
 5 cylindrical buttons 24 may be placed in a complementary socket 32 of
 semicircular cross-section extending in axial direction of lock 12 in a top
 surface 33 of base 28. Button 24 may be retained in socket 32 by rotating
 cover 26 into engagement with button 24 only or with base 28 and button 24.
 Cover 26 may be locked in this position through a latch 34 which will be
 10 described in detail, to prevent cable 14 from slipping through lock 12. As
 is readily apparent from Figure 3, cable 14 forms a loop when one of the
 cylindrical buttons 24 is secured in lock 12. The size of the loop may be
 adjusted by selecting an appropriate button 24 for insertion into socket
 32. The loop size may be increased or decreased by selecting a button 24
 15 which is located farther away from or closer to lock 12 respectively.

Turning now to Figs. 3 to 6, hinge 30 includes outer and inner hinge
 knuckles 36 and 38 which are integral with cover 26 and base 28 respectively
 and are provided with a central bore 40 which extends therethrough in an
 20 axial direction and is adapted to receive a hinge pin 42. Outer and inner
 hinge knuckles 36, 38 are provided with rounded edges to allow rotation of
 cover 26 around hinge bolt 42. Cover 26 is provided with a central button
 groove 60 of substantially semicircular cross-section which extends in axial
 direction from end to end of an underside 27 of cover 26 and is exactly
 25 opposite socket 32 in the closed position of cover 26 to reliably retain a
 button 24 in socket 32 (see Figures 4 and 6). Central button groove 60 is
 adapted to receive part of button 24 inserted in socket 32. Latch 34
 includes a latch nose 46 centrally positioned along an axially outer edge of
 underside 27 remote from hinge 30. Latch 34 further includes a latch socket
 30 50 remote from hinge 30 and centrally positioned along an axially outer edge
 52 of base 28. Latch socket 50 is adapted to receive latch nose 46 in the
 closed condition of cover 26. A first bore 53 pierces base 28 in axial
 direction parallel to outer surface 52 and extends to both sides of and
 communicates with latch socket 50. Latch nose 46 is pierced in axial
 35 direction by a second bore 58. First and second bores 53, 58 are co-axial

in the closed condition of cover 26 so that a lock pin 56, preferably a split pin, may be inserted therethrough to secure cover 26 in its closed condition (see Figures 6 and 7). Base 28 is further provided with central axial cable grooves 44, which extend coaxial from and communicate with both ends of socket 32 in upper surface 33 (see Figure 5) and are adapted to receive those parts of cable 14 which are adjacent that button 24 which is placed in socket 32. Of course, cover 26 may also include a mirror image of the socket-cable groove combination of base 28 instead of central button groove 60 for further improvement of the reliability of lock 12. As is apparent from Figures 1 to 8, cable lock assembly 10 of the present invention is preferably used by laying cable 14 in a loop around a number of logs to be bundled, tightening the cable around the logs to form the bundle, inserting that button 24 which is closest to open lock 12, after tightening of cable 14, into socket 32 in such a way that first and second ends 20 and 22 of cable 14 are extending from the same axial end of lock 12, closing cover 26 to retain button 24 in socket 32 and inserting latch pin 56 into co-axial first and second bores 53, 58 to secure cover 26 in its closed position. It is readily understood, that additional cable lock assemblies in accordance with the invention may be positioned around the same bundle of logs at various locations for further securing of the bundle. After the bundle has been transported to its destination, such as a sawmill, the individual logs contained in the bundle may be released by reversing the above described bundling procedure.

In a preferred embodiment of the heretofore described cable lock assembly 10 in accordance with the invention, cover 26 and base 28 have been extended in transverse direction beyond first bore 53 and latch nose 46 to overlap and protect a hitch pin 59. Hitch pin 59 is removably inserted into first bore 53 for locking cover 26 in a closed position. A locking nose 57 of base 28 cooperates with hitch pin 59 to retain hitch pin 59 in first bore 53. In axial direction, cover 26 is shorter than base 28, but extends sufficiently over socket 32, in its closed condition, to provide for a reliable fastening of a button 24 in socket 32. An accidental removal of hitch pin 59 and opening of cable lock assembly 10 is substantially prevented, since only a loop portion 61 of inserted hitch pin 59 projects

from a closed cable lock assembly in accordance with this preferred embodiment of the invention, the remainder of hitch pin 59 being overlapped and preferably enclosed by cover 26 and base 28.

5 Although it is preferred for practical reasons to provide lock 12 of the heretofore described cable lock assembly 10 in accordance with the invention with a latch 34 and a hinge 30, it is readily apparent to a skilled person that hinge 30 may be replaced by at least one further latch not necessarily of the same construction as latch 34 so that lock 12 may
10 include two or more latches to allow complete separation of cover 26 from base 28. In the alternative, other latch assemblies than the one heretofore described, including automatic latches such as snap together mechanisms, may be employed to releasably secure cover 26 to base 28 as long as it is guaranteed that cover 26 will not accidentally open during transport. It
15 will be readily apparent to a person skilled in the art, that buttons 24 may be of any cross-section such as triangular, square or rectangular and the like but that all buttons 24 on cable 14 must be the same size and shape. Socket 32 preferably has a cross-section complementary to and adapted to fittingly receive any one of buttons 24. Accordingly, a socket 32 of
20 V-shaped cross-section is required, for example, to receive a button 24 of triangular cross-section. It will further be apparent to a skilled person that buttons 24 may be provided along the whole length of cable 14.

 Cover 26 may be provided with a depending web along each of its
25 axially outer edges which webs are adapted to frictionally engage a pair of complementary spaced grooves extending in axial direction in top surface 33 of base 28. Thus, cover 26 and base 28 may be snapped together by way of these webs and grooves for retaining a button 24 in socket 32. The grooves may also be adapted to slidably receive the webs of cover 26 so that cover
30 26 may be removably affixed to base 28 by moving it parallel top surface 33 in such a way that the webs axially slide into the grooves to be retained therein.

 In still another preferred embodiment, lock 12 is not permanently
35 affixed to cable 14 and includes a part of sockets 32. Thus, cable 14 may

be laid around a bundle of lengths of material and the loop which is formed in cable 14 may be fastened by locking those two buttons 24 in lock 12 which are closest to the crossover point of cable 14 and are each affixed to different ends of the cable. In this embodiment, buttons 24 are provided
5 along the whole length of cable 14. Alternatively, two locks 12 each including one socket 32 may be affixed together to each receive one of the two buttons 24 closest to the cross-over point of cable 14.

In a further preferred embodiment of the invention, buttons 24 of
10 various shapes and sizes and a different lock 12 for each button variant are affixed to cable 14.

Still other ways of retaining a button 24 in socket 32 and of affixing
lock 12 to cable 14 will be readily apparent to a person skilled in the art.
15

Button 24 may also be retained in socket 32 by means altogether different from the aforescribed cover 26. For example, socket 32 may be deep enough to completely fittingly receive a button 24. A safety pin such as a cotter pin may be inserted into a safety pin bore which centrally
20 extends through base 28 in a transverse direction. The safety pin bore is positioned so that a safety pin inserted therein comes to lay above and adjacent a button 24 placed in socket 32 in order to retain the button. In another preferred embodiment of the invention, base 28 of lock 12 includes a socket which is adapted to completely receive a button 24 and is provided,
25 at an axial end, with a counterbore to at least partly fittingly receive an axial end of a button 24. Button 24 is retained in the counterbore of socket 32 when cable 14 is pulled from that axial end of lock 12 adjacent the counterbore. Base 28 may be further provided with a retaining member which may be clipped into socket 32 between a button 24 placed therein and
30 that end of socket 32 opposite the counterbore so that button 24 is retained in the counterbore. The retaining member may be rotatably affixed to base 28 to be displaced between a disengaged position where button 24 may be selectively inserted into socket 32 and an engaged position where button 24 is retained in the counterbore. Thus, in this embodiment, button 24 may be
35 disengaged from lock 12 by pulling a cable 14 from that axial end of lock 12

which is remote from the counterbore. Socket 32 may also be provided with a counterbore at each of its axial ends. In such an embodiment, button 24 is disengaged from lock 12 by moving cable 14 in an appropriate direction until button 24 does not engage either of the counterbores and may be removed from socket 32. In yet another preferred embodiment, buttons 24 have a tapered cross-section and socket 32 has a complementary tapered cross-section to fittingly receive a button 24 in such a way that button 24 will be frictionally retained in socket 32 when cable 14 is pulled from the tapered end of socket 32. Button 24 may be released by pulling cable 14 in the opposite direction.

In still a further preferred embodiment, a button 24 is retained in socket 32 by way of a clamp which is positioned in a transverse direction around lock 12.

Therefore, the cable lock assembly of the invention may be employed without the requirement for specific tools and is reusable thus reducing operating costs. Furthermore, the cable lock assembly of the invention provides a means for reliably securing a bundle of logs in a tightened condition, since cable 14 is substantially prevented from sliding through lock 12 in the closed condition of cover 26.

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THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A cable lock assembly comprising:
a lock affixable to a cable, said lock including a base having a socket for at least partly fittingly receiving a button affixable to said cable and means for retaining said button in said socket.
2. A cable lock assembly comprising:
a lock affixable to a cable and including a base having a socket for at least partly fittingly receiving one of at least one button affixable to said cable, and a cover releasably fastened to said base for retaining said one button in said socket, said one button, when affixed to said cable, being spaced from said lock so that a loop is formed in said cable when said button is received in said socket, and said cable being prevented from slipping through said lock when said one button is retained in said socket.
3. A cable lock assembly comprising:
a lock, a cable and at least one button affixed to said cable, said lock being affixed to said cable and including a base and a cover, said base having a socket for at least partly fittingly receiving one of said at least one button affixed to said cable and, hinge means for rotatably connecting said base with said cover, said cover being rotatable between an open position wherein said one button may be selectively inserted into said socket and a closed position wherein said cover is adjacent said base for releasably retaining said button in said socket and substantially preventing said cable from slipping through said lock.
4. A cable lock assembly as defined in Claim 2 or 3, further comprising a latch means for releasably securing said cover to said base in said closed position.

5. A cable lock assembly as defined in Claim 4, said lock being affixed to said cable through a thimble which engages an eyelet of said base.

6. A cable lock assembly as defined in Claim 5, said cover comprising a central axial button groove complementary to and adapted to receive at least part of said button in said socket in the closed position of said cover, wherein said button groove is opposite said socket and said cover is adjacent said base so that said button is enclosed by said lock.

7. A cable lock assembly as defined in claim 1, 2 or 3 wherein said buttons are permanently affixed to said cable through one of casting, welding and crimping.

8. A bundle of lengths of material secured by a cable lock assembly comprising a lock affixable to a cable and including a base having a socket for at least partly fittingly receiving one of at least one button affixable to said cable, and means for retaining said button in said socket so that said cable is substantially prevented from slipping through said lock, said cable being guided around said bundle and fastened by said lock retaining said one button.

9. A method of fastening a bundle of lengths of material, comprising the steps of:

laying a cable around a number of lengths of material to be bundled,
tightening said cable to form a bundle containing said lengths of material

positioning one of at least one button affixable to said cable into a complementary socket in a base of a lock affixable to said cable, said one button being closest to said lock after tightening of said cable, and

selectively retaining said one button in said socket for substantially preventing said cable from slipping through said lock and reliably fastening said cable around said bundle.

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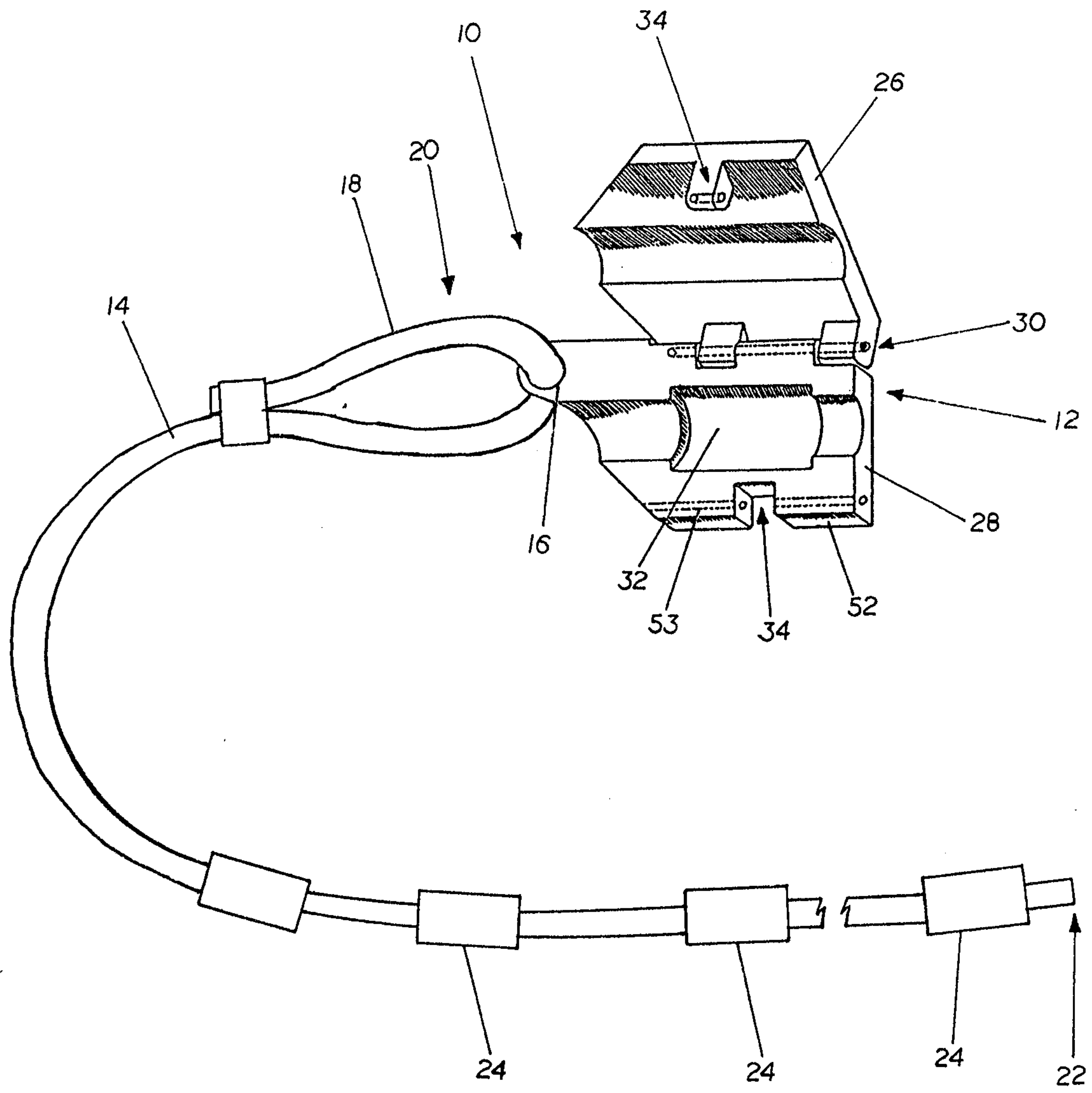


FIG 1

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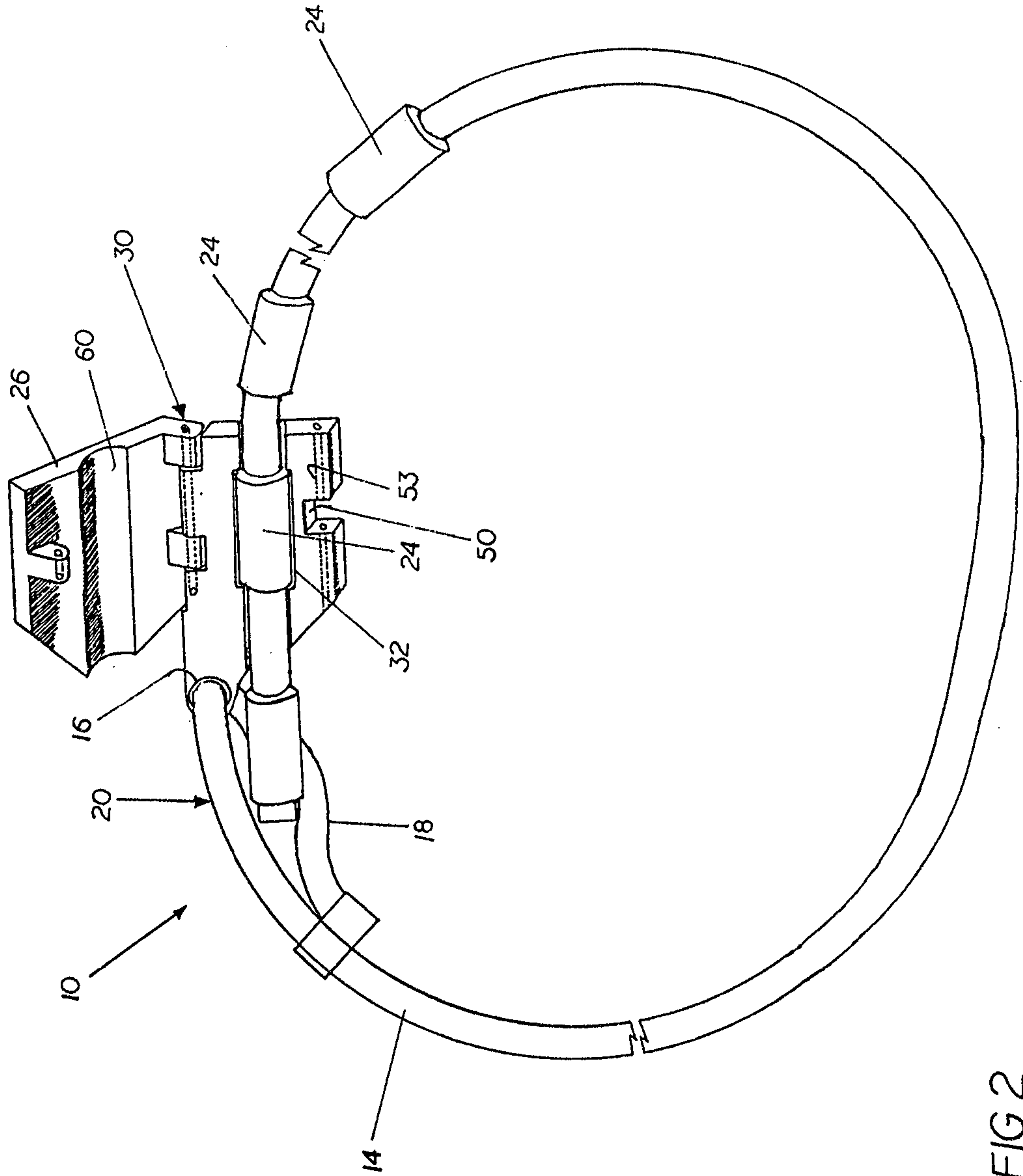


FIG 2

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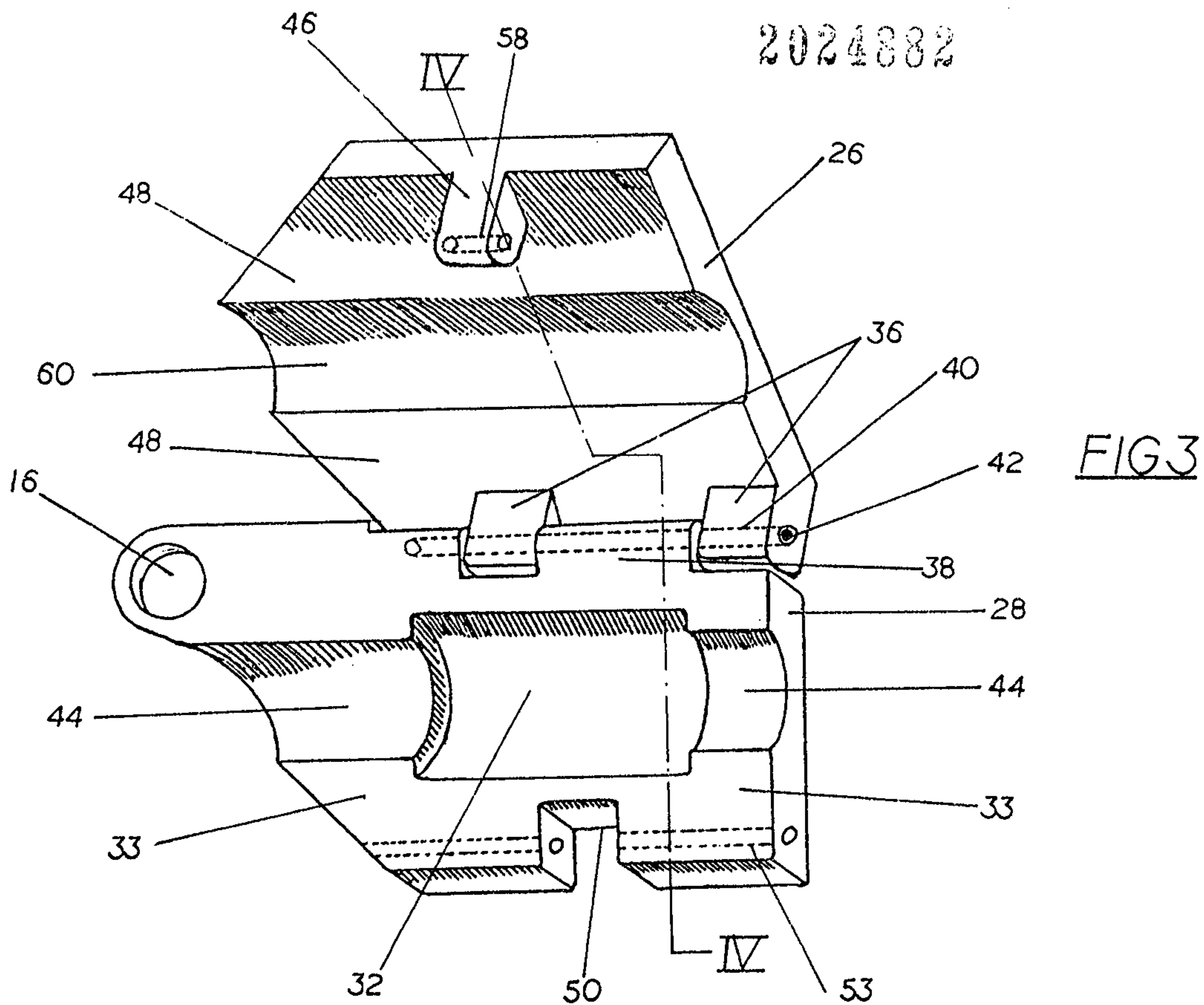


FIG 4

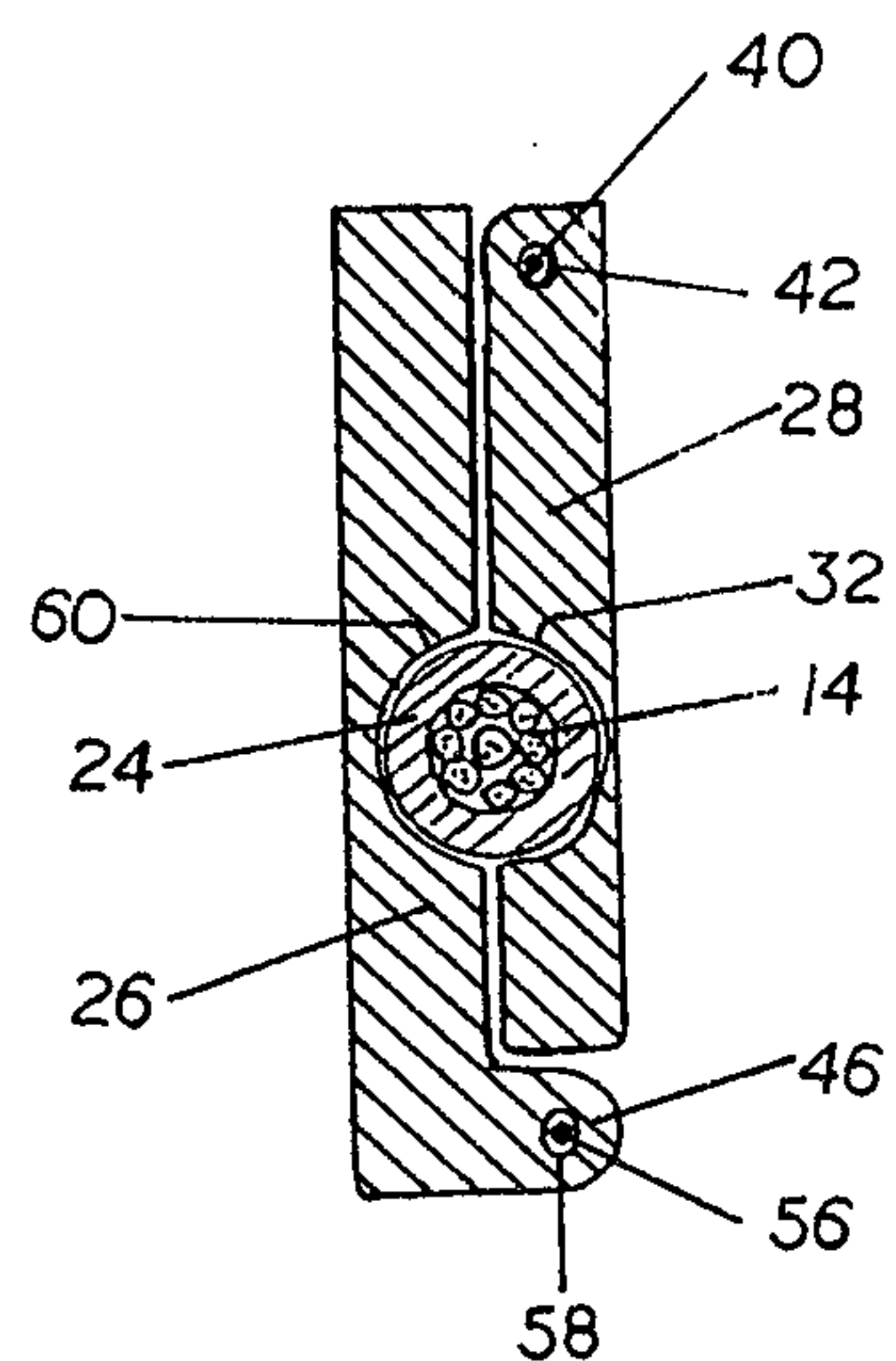
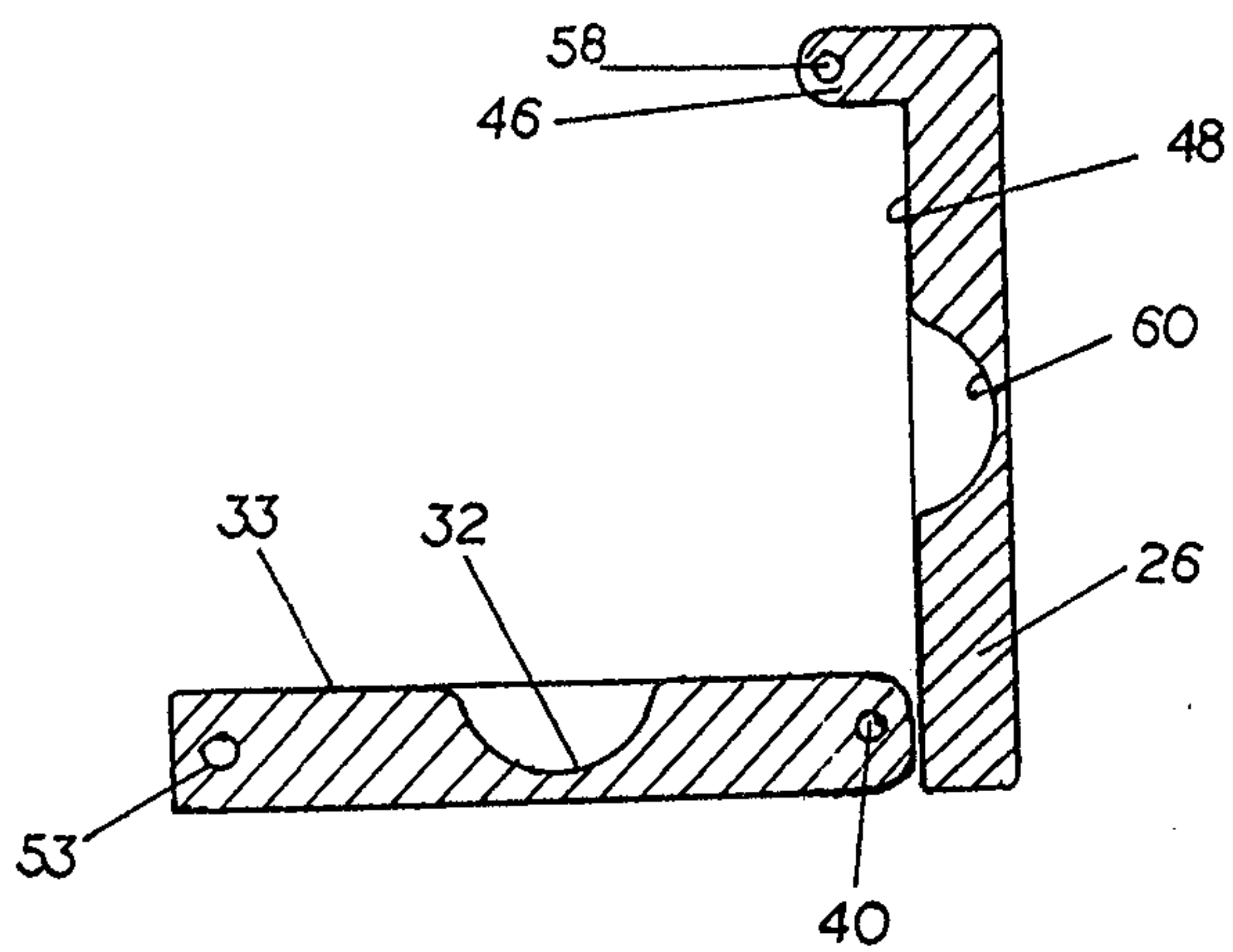


FIG 5

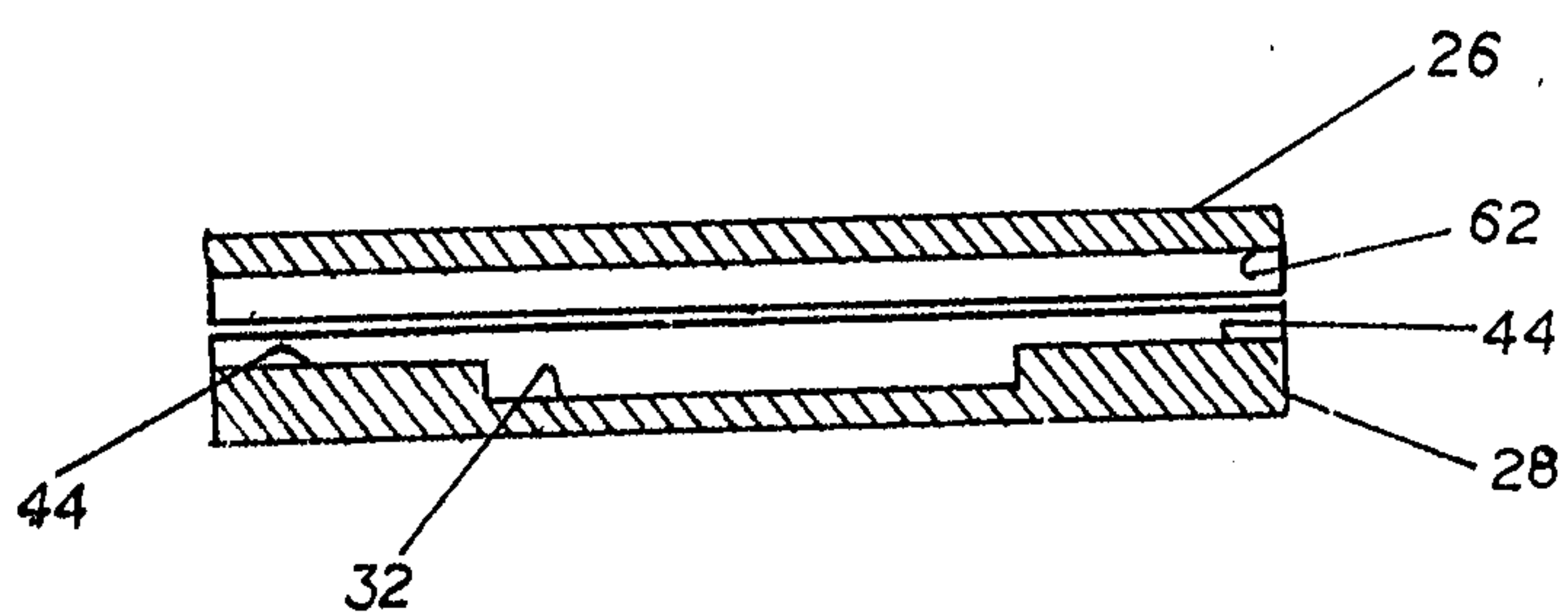


FIG 6

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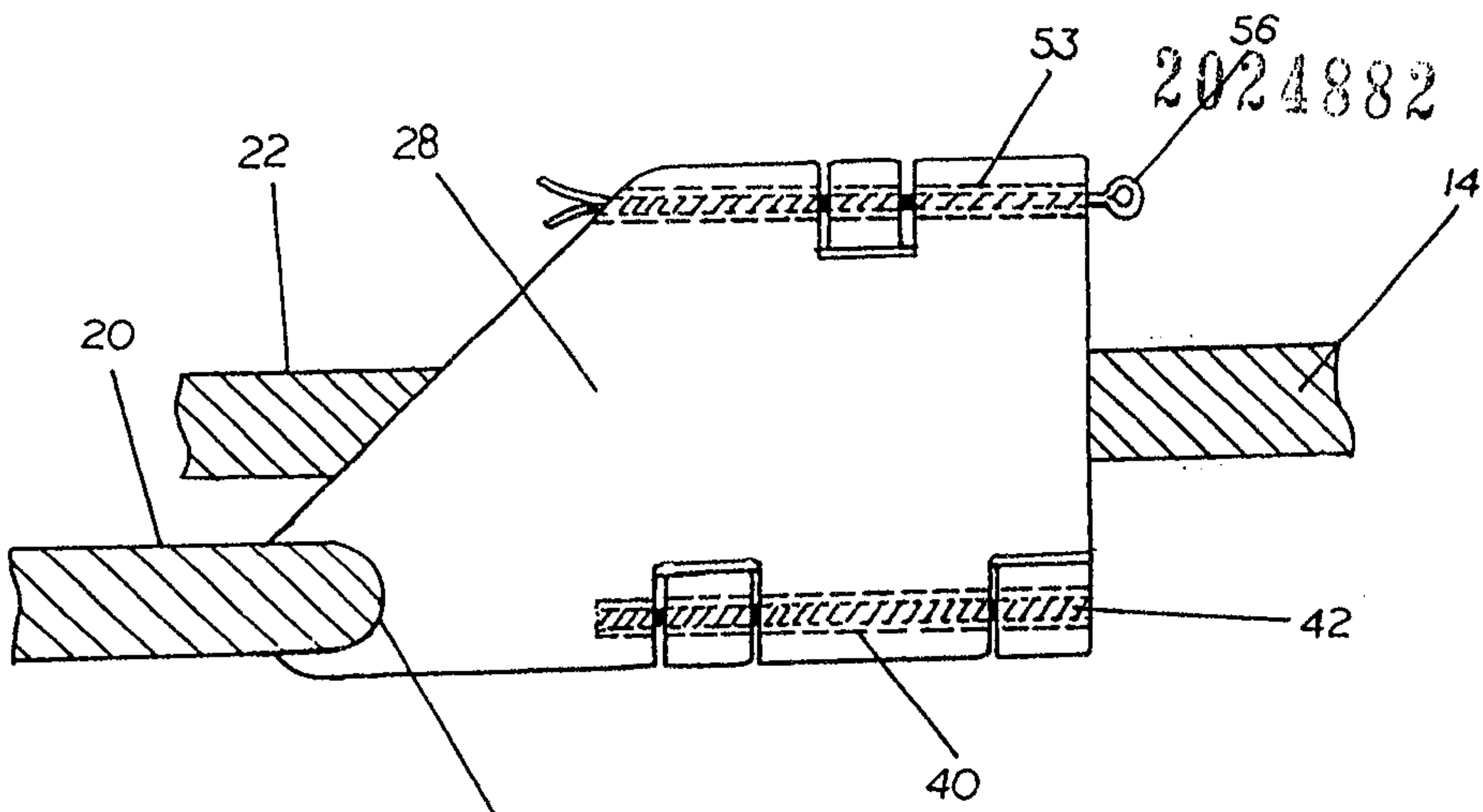


FIG 7

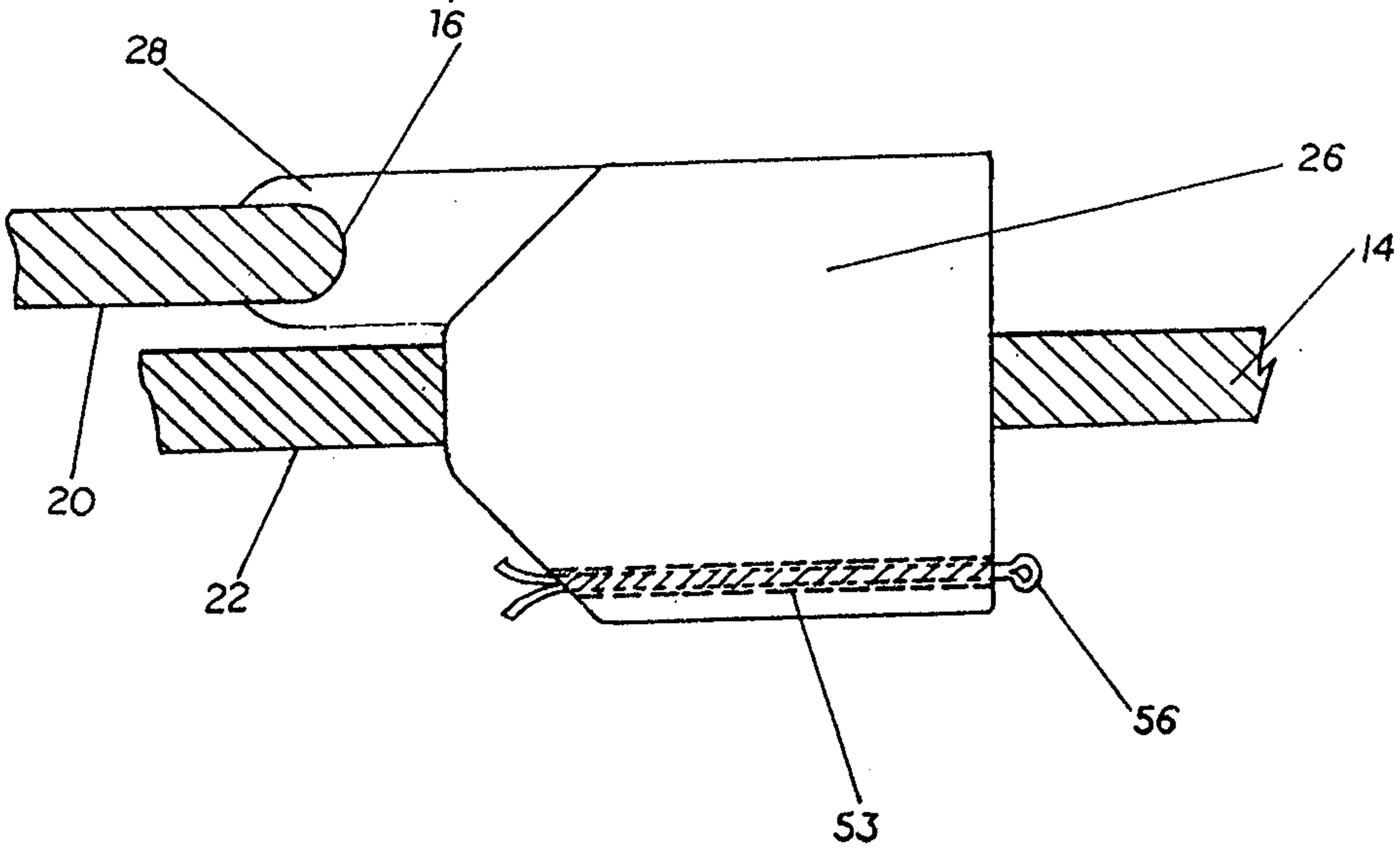


FIG 8

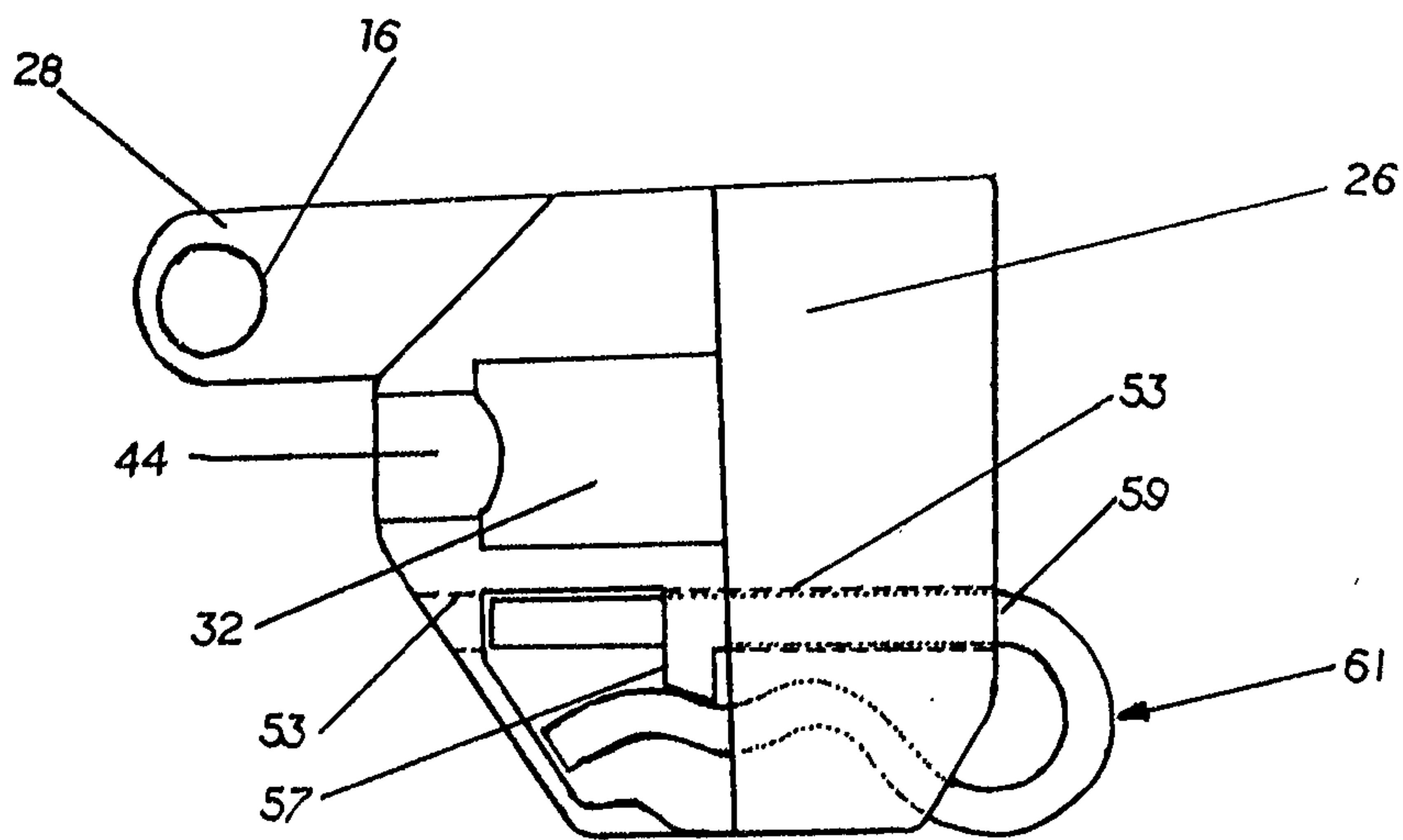


FIG 9

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