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(54) Modified key retaining device.

(57) A modified key retaining device (10) for retaining a plurality of modified keys (18) having uniformly shaped, encapsulated head elements (20). The device includes a pair of half members (30, 32) for sandwiching therebetween a plurality of the head elements (20) of the modified keys (18). One of the half members 830) has a cylindrical portion (34) with a threaded connection means (36') thereon to allow detachable threaded connection to the other half member (32). A substantially rigid, elongate planar backing member (22) is also provided. The backing member (22) has an outwardly extending flange means (24) perpendicularly disposed therto. The flange means (24) has a circular aperture means (25) through which the cylindrical portion (34) may be slidably inserted.

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Description

MODIFIED-KEY RETAINING DEVICE

Introduction

The present invention relates to a device for retaining modified keys in a convenient retainer.

Background of the Invention

Numerous devices exist for grouping or retaining a group of individual keys together. Key rings such as those of the split ring spiral configuration, wherein each of the split rings are resiliently biased together, have traditionally been used. However, such devices possess the inherent disadvantage that addition and removal of selected keys from the key ring is difficult, often resulting in broken fingernails and pinched fingers.

Ball chains, having a mating socket at one end thereof to allow the other end to be snap-fitted therein to form a closed loop are also commonly used. Again, a similar disadvantage is present when a single key is frequently desired to be removed from, and added to the chain, such as occurs during a frequent loan to and from a friend, for example. With such device, the manual dexterity required to remove the ball chain end from the mating socket is often great, and can be tiring if frequent removal and addition of keys is necessary.

A further known type of key retainer exists, comprised of a plurality of resiliently biased "S"-shaped members suspended in side-by-side arrangement along a common support member, such support member being affixed to a backing member. The key retainer is usually wrapped with a flexible cover member for enclosing all keys therewithin. The upper and lower curvatures of each "S"-shaped member form near-closed loops, allowing the upper curvature of each of the "S"-shaped loops to pass around the common support member, thereby suspending the "S"-shaped member therefrom, while the lower near-closed loop of the lower curvature of each "S"-shaped member is passed through an eyelet in a key, to thereby suspend the key from the key retainer. Significantly, however, the keys are required to be suspended from such S-shaped members, since the varying location of the aperture on each key prevents uniform location of the keys on the support member, and interference with the backing member would otherwise result were it not for the intermediary "S"-shaped member.

Summary of the Invention

The present invention, in contradistinction with the prior art, relates to a specialized key retainer for retaining specially modified keys in a more compact carrying form than presently exists.

The modified-key retainer device of the present invention contemplates utilizing keys that have had portions thereof milled or blanked off to eliminate excess size and weight. More particularly, the modified-key contemplated for use with the present invention is comprised of a normal household or automotive key, wherein the normal "head" portion thereof is uniformly milled off or blanked to form a uniformly rounded shape of reduced size, with a uniformly located eyelet located therein.

Accordingly, keys modified in such fashion are more particularly suited to be mounted within a key retainer of the present invention, and a selected key from such device can thus easily be inserted into a lock without the heads of other keys mounted on such module abutting the lock or otherwise interfering, preventing complete insertion of the key into the lock. Such would otherwise occur if conventional, unmodified keys with irregularly shaped and oversized heads were used with the device of the present invention.

Because the modified keys are, except for the toothing pattern thereon, virtually indistinguishable, variously coloured sleeves, preferably of lightweight plastic, are affixed to the "head" portion of the keys to allow them to be easily distinguished.

The actual present invention disclosed in this application, however, relates to the provision of a novel device for maintaining these specially modified keys in alignment for easy deployment within a household lock or vehicle ignition.

Accordingly, in a preferred embodiment of the modified-key retainer device of the present invention, such device provides for a plurality of modules, each module containing one or more modified keys thereon, to be nestably engageable one within the other. In such manner one or more of such modified keys may be easily and quickly removed from nesting engagement with the other modules whenever desired. Additional modules containing other keys may be quickly and easily added, if desired. By virtue of the nestable arrangement of modules in such preferred embodiment, the difficulties relating to removal and interchangeability of keys that are inherent in presently known devices are largely eliminated.

In a further improvement over prior art devices, the key retaining device of the present invention allows the modules to be mounted on a substantially rigid, planar, elongate backing member. When not in use, the keys that are retained in modules within the modified-key retaining device are positioned parallel to the plane of the backing member. When a particular modified-key is selected from the group of keys retained within the device of the present invention, it is rotatably pivoted until it extends substantially perpendicularly outwardly from the plane of the backing member, ready for positioning within a lock. Advantageously, then, upon insertion of the modified key into the lock, the substantially rigid backing member, now disposed at a 90° angle to the longitudinal axis of the key, is then able to act as an elongated handle, thereby facilitating manual turning of such key within the lock. Because of the reduced size of the head element on each of the modified keys, rotation of the key within the lock would otherwise be impossible without the assistance of the backing member acting in the above-de-

scribed manner.

Accordingly, in one broad aspect of the present invention, a modified-key retaining device for retaining a plurality of modified keys therein having uniformly shaped, encapsulated head elements is provided, comprising: (1) a pair of half members for sandwiching therebetween a plurality of said head elements of said modified-keys, one of said half members having a cylindrical portion with threaded connection means thereon to allow detachable threaded connection to said other half member; and (2) a substantially rigid, elongate planar backing member having outwardly extending flange means perpendicularly disposed thereto, said flange means having circular aperture means through which said cylindrical portion may be slidably inserted.

In a further preferred embodiment of the invention, a nestable feature is added to allow keys or groups of keys to be easily added to or substracted from the device. More particularly, a first module, comprised of two half-members, is provided with nesting means to allow nestable connection of the first module to a second module, wherein the second module is likewise comprised of a pair of half members for sandwiching therebetween at least one head element of a modified key.

In a preferred embodiment, it is contemplated that the key retainer device of the present invention consist of both a first module and a second module. The second module is contemplated as having only one or two keys thereon, and may be easily removed from the first module when desired. The advantages of such design are realized in common situations, such as, for example, where the driver of an automobile when entering a parking garage which requires a key to operate an overhead door, wishes to remove the key from the key retainer without having to remove the remaining keys from the ignition of his automobile. With the present invention, a detachable second module containing such a key can easily and effectively accommodate this situation, wherein by manually applying a small separating force to the second module sufficient to overcome resilient engagement of the nesting means, the second module may be easily and quickly separated from the first module.

The rigid planar backing member above referred to provides a two-fold purpose, serving not only as a handle-lever to assist in turning the modified keys when inserted into a lock, but also serving as a shield to prevent the jagged, toothed edges of the keys, when foldably retracted within the modified-key retainer device, from being exposed.

If desired, a flexible cover member may be further be provided to wrapplingly surround the key retainer. The present design of the key retainer easily provides that such flexible cover may be sandwiched between the half members, or between one of the half members and a flange means protruding from the backing member, to secure the cover member to both the first module and the backing member.

Brief Description of the Drawings

Figure 1 is a perspective view of a preferred embodiment of the modified-key retainer device of the present invention, showing a first module and a key located thereon, and a second module, with a key located thereon;

Figure 2 is an enlarged cross-sectioned view of the preferred embodiment shown in Figure 1 taken along plane A-A; showing a first and second module;

Figure 3 is an enlarged cross-sectioned view of an alternative embodiment of the second module shown in Figure 2;

Figure 4 is an enlarged cross-sectioned view of a further embodiment of the key-retainer device of the present invention;

Figure 5 is a view taken along line B-B of Figure 3, showing the washer element in detail;

Figure 6 is an alternate embodiment for the first and second module of the key retainer device of the present inventing, showing an alternate nesting arrangement; and

Figure 7 is a side view of the snap locking ring shown in Figures 4 and 6.

Detailed Description of the Preferred Embodiments

Figure 1 shows a perspective view of a preferred embodiment of the modified-key retainer 10 of the present invention. Such key retainer 10 is adapted to retain a plurality of modified-keys 18 therein, such keys 18 each having a plastic sleeve member 19 which encapsulates the head portion 20 of each key.

Figure 1 shows the key retainer 10 of the present invention provided with both a first module 12 and a second module 14 (see Figure 2 for clear definition of the first 12 and second 14 modules).

It is not necessary, however, that the key retainer device 10 of the present invention consist of first 12 and second 14 modules, as shown in Figures 1 and 2, but may in fact only consist of the first module 12. This is the configuration that results when the second module 14 is removed from nestable engagement with the first module 12, as more particularly described below.

In the preferred embodiment of the key retainer device 10 shown in Figure 1, a substantially rigid, elongate planar backing member 22 is provided, having outwardly extending flange means 24 perpendicular thereto.

The first module 12 is comprised of a pair of half members 30, 32 for sandwiching therebetween a plurality of head elements 19 (see Figure 2) One of the half members 30 is provided with a cylindrical portion 34, which has threaded connection means 36′ to allow detachable threaded connection to the other half member 32. In the configuration shown in Figure 2, the other half member 32 also has corresponding threaded connection means 36″ to allow detachable threaded connection to half member 30. More particularly, in the embodiment shown in Figures 1 and 2, each of the half members 30, 32 of the first module 12 are substantially 'T' shaped in cross-section, and cylindrical portions 34, 34′ of each of half-members 30, 32 are adapted to be inserted through an eyelet 21 within the head portion 20 of a key 18.

Each of the cylindrical portions 34, 34′ of the 'T'

shaped half members 30, 32 is further adapted to be releasably joined to the other by a threadable connection 36. In the embodiment shown in Figure 1, half member 32 possesses male externally threaded portion 36′, adapted for threadable insertion within internally threaded cavity 36″ of half member 30. In such manner a plurality of keys may be placed on the cylindrical portions of each of the 'T' shaped half-members 30, 32, and by threadably connecting the half members 30, 32 together, the keys 18 may be retained thereon.

To allow the half members 30, 32, which comprise the first module 12, to be affixed to the backing member 22, the flange means 24 of the backing member 22 are provided with circular apertures 25 which are co-linear to allow the half members 30, 32 to be slidably inserted through the apertures and joined at threaded connection 36′, 36″.

In the preferred embodiment shown in Figure 1, two flange means 24 are shown, located proximate an end of the backing member 22, between which keys 18 are to be located. However, a single flange means 24 will work just as well. Where two flange means 24 are provided, as shown in Figures 1 and 2, such flange means 24 may be sandwiched between the ends of the 'T' shaped half members 30, 32, as shown in Figures 1 and 2.

An important aspect of the present invention is that the first module 12 may be provided with nesting means to allow nestable connection of the first module 12 to a second module 14, as shown in Figures 1, 2, 4 and 6. Such second module 14 may be constructed similar to the first module 12 and likewise possesses a pair of half-members 40, 42 adapted to sandwich between them the head portion 19 of one or more modified keys 18. Accordingly, one of the half members 40, 42 may have a cylindrical portion 44 with a threaded connection means 46 located thereon to allow threadable connection to a threadable connection 46′ on the other half member 42.

Importantly, the nesting means for allowing nestable engagement of the first and second modules 12, 14 in the preferred embodiment shown in Figure 2 comprises the combination of a recessed cavity 50 in the cylindrical portion of half-member 30, which nestably receives therewithin protruding means 52 extending from half member 40. As may be seen most clearly from Figure 2, recessed cavity 50 in half-member 30 is located at an end thereof opposite internally threaded cavity 36″.

In the preferred embodiment shown in Figures 1 and 2, the protruding means 52 is cylindrical, as is the recessed cavity 50. Each are of a substantially equal diameter. To allow for frictional, spigotted engagement of protruding member 52 within recessed cavity 50, a resiliently compressible 'o'- ring 54 may be provided on protruding member 52, as shown in Figures 2 and 3.

To ensure that second module 12 does not inadvertantly become disengaged from nestable engagement with the first module 12, a flexible cover member 60, may be provided. Such cover member 60 is affixed to the planar backing member 22 by being sandwiched between half members 30, 32, or more particularly, between flange means 24 and half member 32. In such manner the first and second modules 12, 14, when keys 18 of the key retainer 10 are collapsably retracted therein, may be wrappingly surrounded by such cover member 60 thereby ensuring that keys 18 remain in a retracted position, and the first and second modules remain nestably engaged. In a preferred embodiment, a snap 70 is provided, which when the cover is in the closed position, (not shown), snaps onto nub 72 to retain the cover 60 in a closed position over the keys 18.

Figure 3 shows an alternative configuration for the second nestable module 14, wherein half members 40 and 64 are provided to retain one or more keys 18. Half member 64, more clearly shown in Figure 5, is actually a lock-washer which is swaged onto half member 40 to retain the key 18 on such half member 40. Washer 64 is provided with a star-shaped orifice which allows a deformed interference fit with protruding member 52. This prevents removal fo the washer and any keys 18 on the second module.

Figure 4 shows still another configuration, for the key retainer device of the present invention, wherein half-member 30 of first module 12 has being modified to provide for a resiliently-biased snap-ring 66, more clearly shown enlarged in Figure 7. Such snap-ring 66 lockingly engages groove 80 in protrusion member 52 when such protrusion member 52 is nestably inserted in recessed cavity 50.

Figure 6 shown still another configuration for the key retainer device of the present invention, wherein instead of protrusion member 52 being located on second module 14, it is located on first module 12, and the recessed cavity 50 is located in second module 14. A resiliently-biased snap ring 66 may further be provided to lockingly engage protrusion member 52 when slidably received within cavity 50. Hex nut 90, threadably inserted on thread means 46″, along with washer 92 and locking tab 94, are used to sandwich key 18 against half-member 40. Advantageously, the configuration shown in Figure 6 accommodates varying numbers of keys on second module 14, since the position of hex nut 90 washer 92 and locking tab 94 may vary according to the number of keys located on such second module 14.

Although the disclosure describes and illustrates preferred embodiments of the invention, it is to be understood that the invention is not limited to these particular embodiments. Many variations and modifications will now occur to those skilled in the art. For a definition of the invention, reference is to be made to the appended claims.

Claims

1. A modified-key retaining device for retaining therein a plurality of modified-keys having uniformly shaped, encapsulated head elements, comprising :
a pair of half members for sandwiching therebetween a plurality of said head elements of said modified-keys, one of said half members having a cylindrical portion with threaded connection means thereon to allow detachable

threaded connection to said other half member; and

a substantially rigid, elongate planar backing member having outwardly extending flange means perpendicularly disposed thereto, said flange means having circular aperture means through which said cylindrical portion may be slidably inserted.

2. The modified-key retaining device as claimed in claim 2, said pair of half members comprising a first module, said first module having nesting means to allow nestable connection of said first module to a second module comprised of a pair of half members for sandwiching therebetween at least one head element of a modified key.

3. The modified-key retaining device as claimed in claim 2 further comprising said second module.

4. The modified-key retaining device as claimed in claim 3, said nesting means comprising a recessed cavity within said first module and protruding means extending from said second module, wherein said protruding means is nestably engageable within said recessed cavity in said first module.

5. The modified-key retaining device as claimed in claim 4, at least one of said half members of said second module having a cylindrical portion with threaded connection means thereon to allow threadable connection to said other half member of said second module.

6. The modified-key retaining device as claimed in claim 5, said cylindrical portion of said one half member of said first module having at one end thereof an internally threaded cavity to allow threaded engagement with an externally threaded protrusion on said other half member of said first module.

7. The modified-key retaining device s claimed in claim 6, said recessed cavity located in said cylindrical portion located at an end thereof opposite said internally threaded cavity.

8. The modified-key retaining device as claimed in claim 7, said recessed cavity on said first module being a cylindrical recess, said protruding means on said second module also being cylindrical and of a diameter substantially equal to said recessed cavity for spigotted engagement within said recessed cavity.

9. The modified-key retaining device as claimed in claim 8, said cylindrical protruding means having a resiliently compressible portion which frictionally engages said recessed cavity when said protrusion means is in spigotted engagement within said recessed cavity.

10. The modified-key retaining device as claimed in claim 9, said flange means comprised of two spaced-apart flange members located proximate an end of said elongate backing member, each of said circular aperture means therein being collinear with the other.

11. The modified-key retaining device as claimed in claim 10, said half members of said first module sandwiching therebetween said two flange members.

12. The modified-key retaining device as claimed in claim 11, said half members further sandwiching therebetween a flexible cover member, said cover member of a size sufficient to wrappingly surround said backing member and said first and second modules.

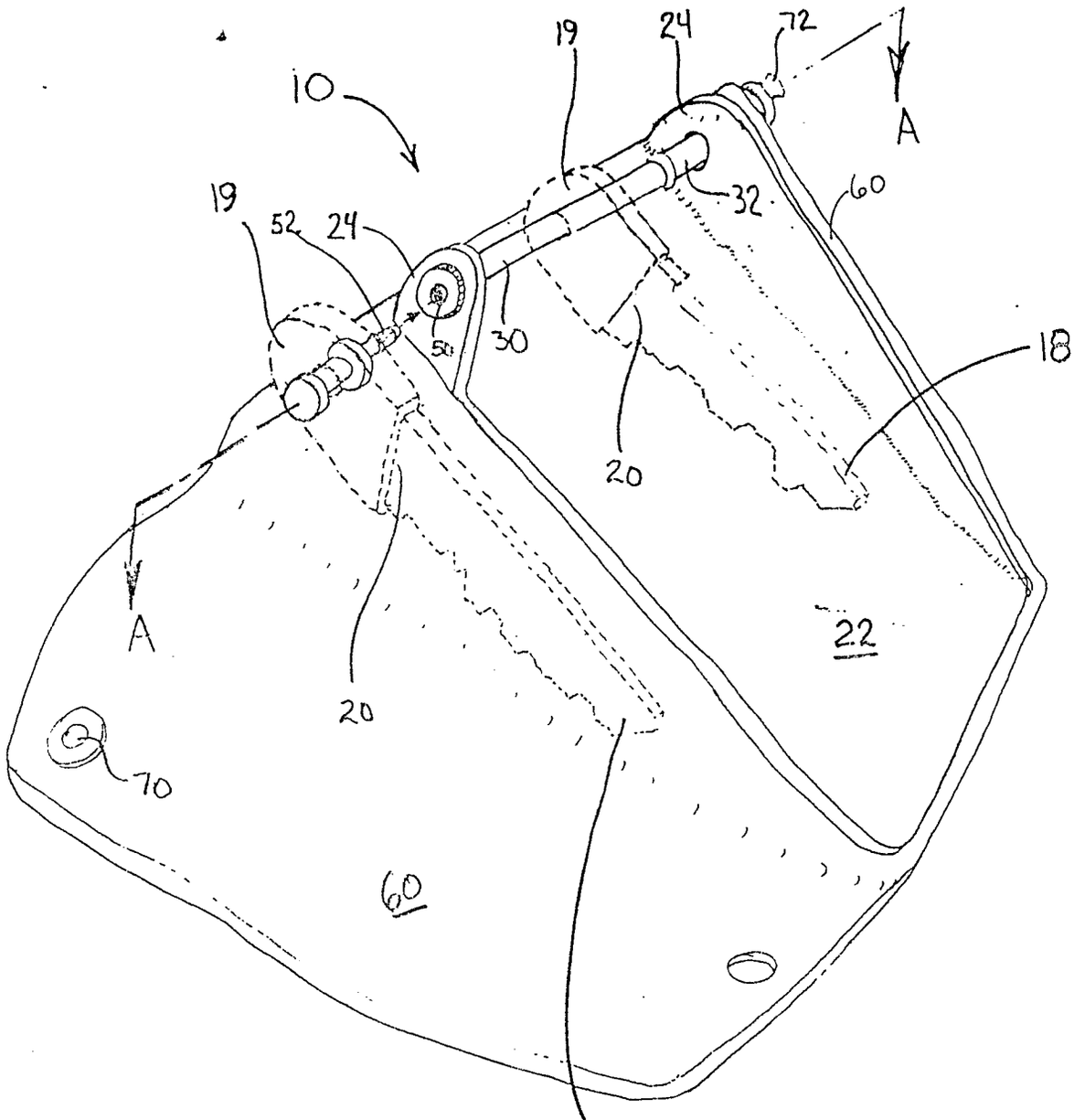

FIG 1

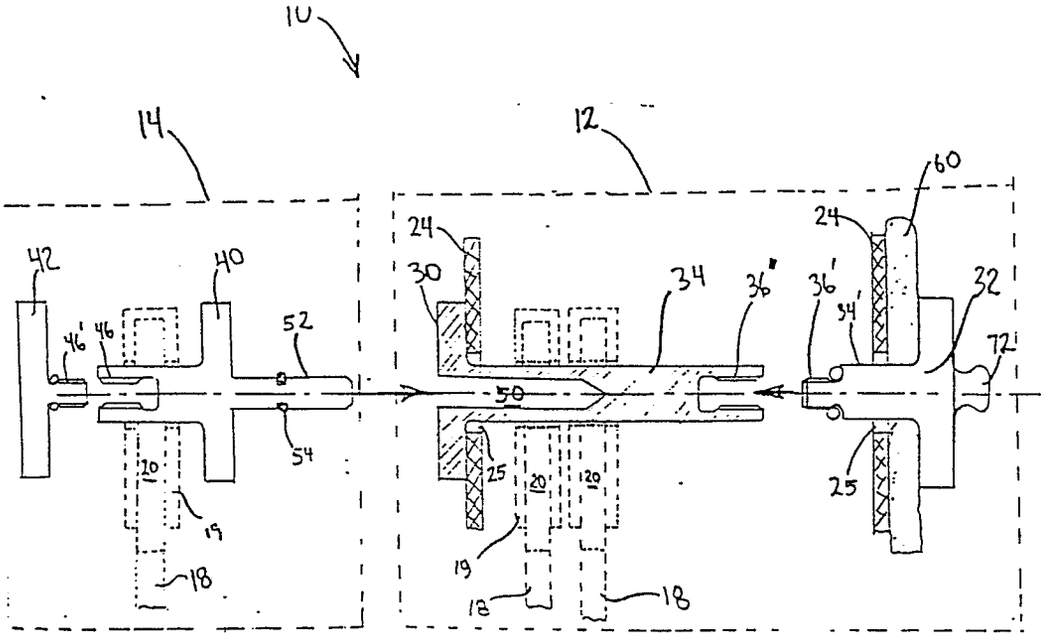

FIG 2

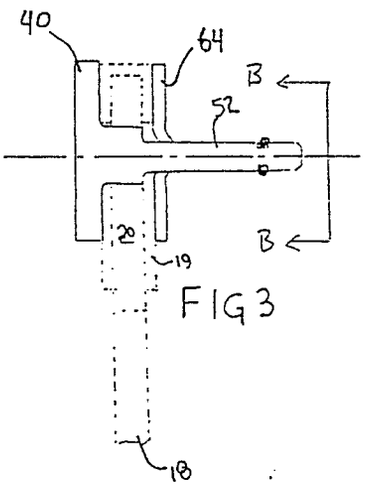

FIG 3

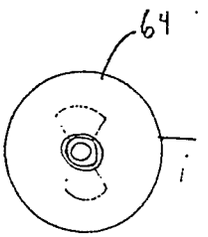

FIG 5

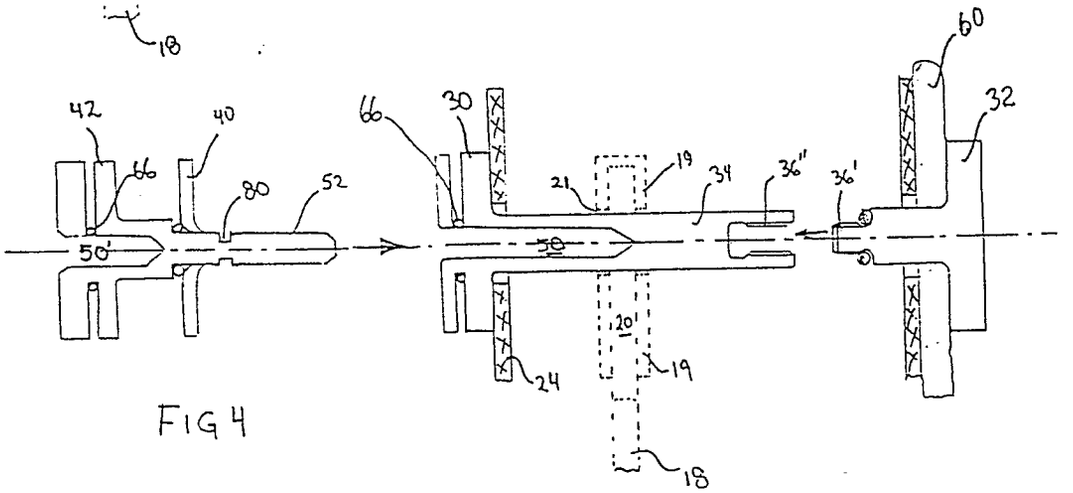

FIG 4

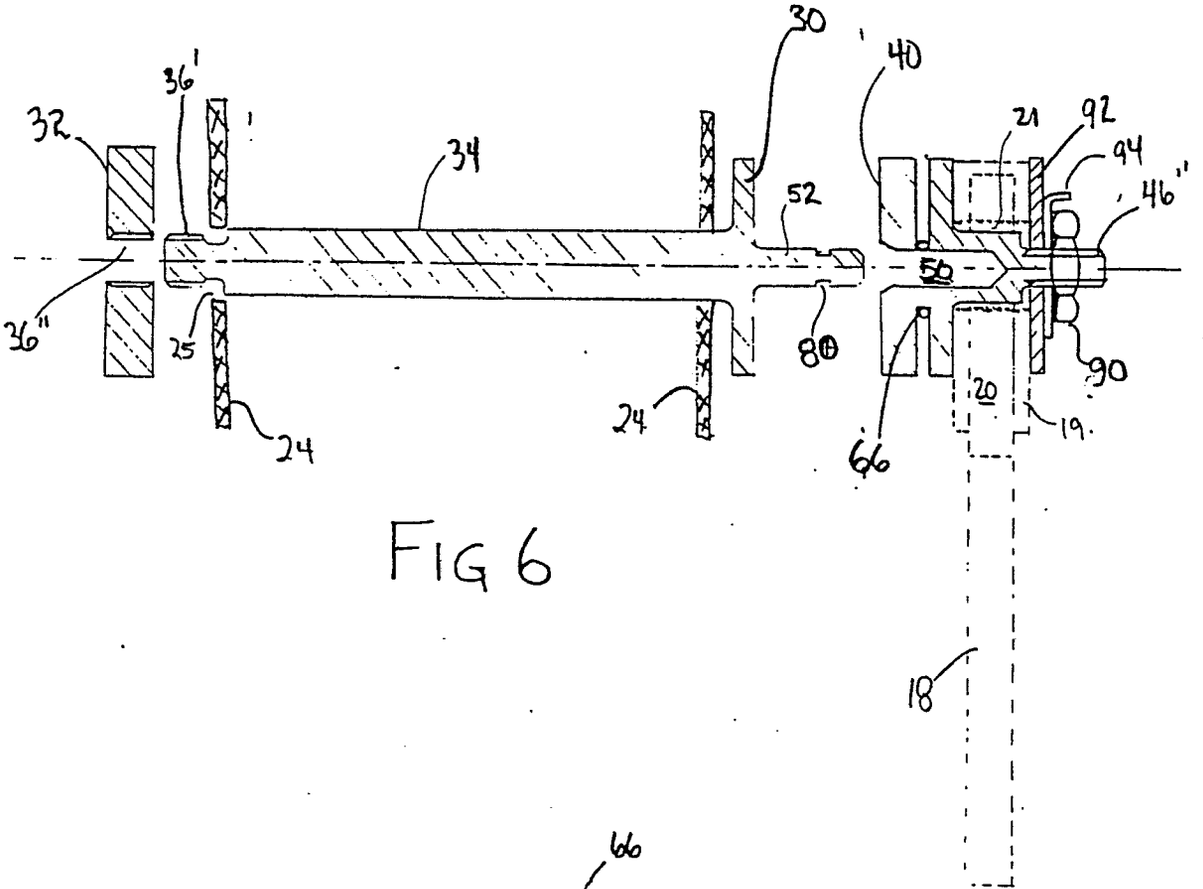

FIG 6

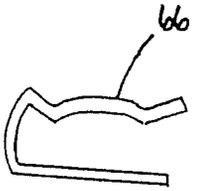

FIG 7