Aug. 25, 1931. T. R. SMITH 1,820,840

KING BOLT

Filed Oct. 2, 1929

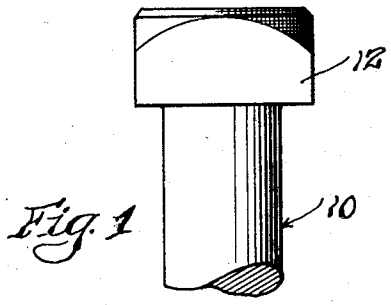
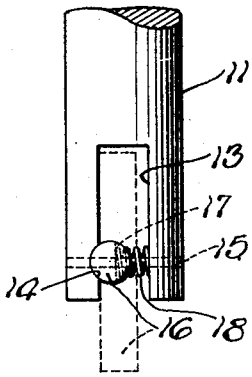


Fig. 1



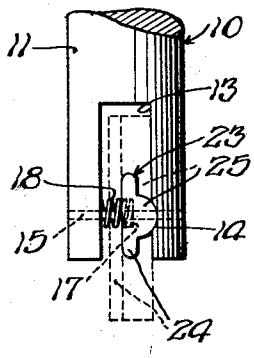


Fig. 4

Fig. 2

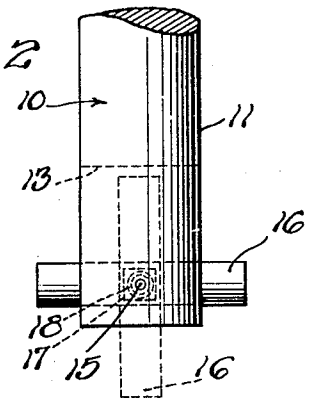
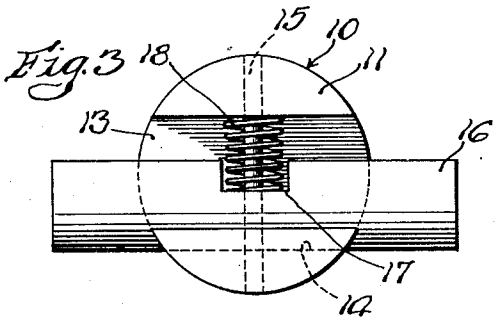


Fig. 3



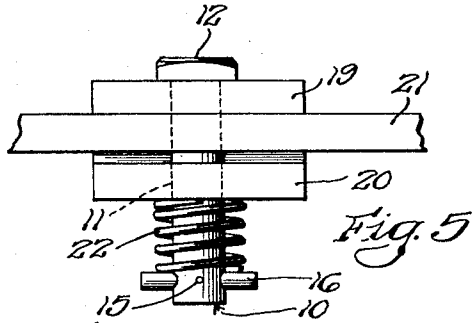


Fig. 5

Theodore R. Smith INVENTOR

BY Victor J. Evans

HIS ATTORNEY.

Patented Aug. 25, 1931

1,820,840

UNITED STATES PATENT OFFICE

THEODORE R. SMITH, OF ROLFE, IOWA

KING BOLT

Application filed October 2, 1929. Serial No. 396,892.

This invention relates to certain novel improvements in king bolts and has for its principal object the provision of an improved construction of this character which will be safe and positive in operation and economical in manufacture.

It is among the objects of my invention to provide a king bolt which may expeditiously be installed or removed from operative position and one which may be used in the place of any ordinary king bolt without requiring any alterations in the mechanisms with which it is to be associated.

A further object of the invention is to provide a king bolt which may be held in position without employing the usual screw threads and nut construction.

A still further object of the invention is to provide a king bolt construction in which a spring may be employed so as to maintain proper tension of the king bolt at all times.

A still further object of the invention is to provide a retaining member in connection with the king bolt which may be firmly held in retaining position and which may be expeditiously moved from retaining position when so desired.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings, showing the preferred form of construction and in which:

Fig. 1 is an elevational view depicting a preferred form of construction for my invention;

Fig. 2 is a fragmental elevational view of the lower portion of the device as illustrated in Fig. 1 looking in at the righthand side of the device as illustrated in said Fig. 1;

Fig. 3 is a bottom plan view of the device as illustrated in Fig. 2;

Fig. 4 is a view similar to Fig. 2 depicting a modified form of construction; and

Fig. 5 is an elevational view depicting a typical installation of my improved king bolt,

In the accompanying drawings wherein I have illustrated a preferred form of construction for my invention 10 generically indicates my improved king bolt which includes a shank 11 and an enlarged head 12 having a polyhedral configuration on the periphery thereof. This king bolt 10 is constructed in a manner identical with the construction of king bolts of the prior art with the exception that the usual screw threads provided are omitted and the lower end of the shank 11 is bifurcated as indicated by 13 and it is in this bifurcated portion 13 that I arrange my improved construction.

In one of the walls of the bifurcated portion 13 adjacent the lower end of the shank 11 I provide a groove 14 which is arranged to extend transversely of the extent of the opening of the bifurcated portion. Extended transversely of the limb portions of the bifurcated portion through substantially the midpoint of the groove 14 is a pin 15 which is pivotally retained in position. Mounted on the pin 15 so as to be rotatable thereabout is an annular bar 16 which is mounted on the pin 15 at substantially the midpoint of the extent of the bar 16. The bar 16 is made of sufficient length to extend beyond the sides of the shank 11 of the king bolt 10 but is also of a length which will permit it to be pivoted into the bifurcated end portion 13 as indicated by the dotted line position of the bar 16 in Figs. 1 and 2.

Adjacent the point at which the bar 16 is mounted on the pin 15 and in the face of said bar disposed away from the groove 14 I provide a notch 17. A spring 18 is disposed around the bar 16 and has one end thereof disposed in the notch 17 while the other end thereof bears against the limb of the bifurcated portion 13 opposite the groove 14 and it is, therefore, manifest that the spring 18 acts on the bar 16 to force the same to seat in the groove 14. It is also manifest that this arrangement permits the bar 16 to be moved from the notch 14 when so desired and turned into the substantially vertical position illustrated by the dotted lines in Figs. 1 and 2.

In Fig. 5, 19 and 20 indicate the arms of a typical clevis construction while 21 indicates a typical draw bar which is disposed between the arms 19 and 20. The arms 19 and 20 and the bar 21 have aligned openings therein through which the shank 11 of my improved king bolt is intended to be extended so that the enlarged head 12 may engage the upper surface of the upper arm 19 and thus properly position the king bolt 10 in the openings so as to interconnect the clevis and the draw bar. It has been customary to arrange a bolt and nut construction on the lower end of the king bolt so as to retain the same in position but I provide the following arrangement so as to obviate the necessity of employing such a construction. In order to position the king bolt 10 in the openings as set forth the bar 16 is moved into the vertical dotted line position and it is, therefore, obvious that the king bolt may be passed through the openings. After the king bolt has been passed through the openings the bar 16 is moved so as to extend transversely of the shank 11 and, therefore, said bar 16 will be disposed in the groove 14 and will be held from displacement from said groove by the spring 18. It is manifest that this transverse extending of the bar 16 will prevent retraction of the king bolt through the openings in the clevis arms and draw bar and I have found that this arrangement will serve satisfactorily. However, if desired, the king bolt may be more firmly retained in position by disposing a coil spring 22 about the shank 11 below the lower surface of the lower arm 20 of the clevis and between the bar 16. It is, therefore, manifest that expansion of the spring 22 will act on the bar 16 to properly hold the king bolt 10 in position.

In the embodiment of the invention thus far described the bar 16 has been set forth as being substantially cylindrical in form. While this construction will serve satisfactorily I have found that if desired the bar 16 may be constructed in the manner depicted in Fig. 4 wherein the bar is generically indicated by 23 which includes a relatively wide flat portion 24 which has a rounded boss 25 extending therefrom. The bar 23 is intended to be mounted on the pin 15 in the manner heretofore described and the spring 18 is intended to be disposed in a notch 17 formed in the flat surface of the portion 24 opposite the rounded boss 25 so as to force the rounded portion 25 into the groove 14. It is manifest that this device will operate in substantially the same manner as that disclosed in the other figures of the drawing.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

1. A king bolt comprising a shank having a bifurcated end forming limbs, the inner faces of said limbs being defined by the bifurcation, one of the limbs of said bifurcated end having a groove formed in the inwardly disposed face thereof, a bar pivotally mounted in said bifurcated end, and means acting on said bar to force said bar toward said groove to seat said bar therein whereby said bar may extend transversely of said shank.

2. A king bolt comprising a shank having a bifurcated end forming limbs, the inner faces of said limbs being defined by the bifurcation, one of the limbs of said bifurcated end having a groove formed in the inwardly disposed face thereof, a pin extended transversely of said bifurcated end and extended through said groove, a bar pivotally mounted on said shank, and means for yieldably forcing said bar toward said groove to seat said bar therein to hold said bar in position transversely of said shank and the bifurcated end portion thereof.

3. A king bolt comprising a shank having a bifurcated end forming limbs, the inner faces of said limbs being defined by the bifurcation, one of the limbs of said bifurcated end having a groove formed in the inwardly disposed face thereof, a pin extended transversely of said bifurcated end and extended through said groove, a bar pivotally mounted on said shank, said bar having a notch formed therein at the portion thereof through which said pin is extended, and a spring disposed around said pin intermediate one limb of said bifurcated portion and said bar and extended into said notch whereby said spring may act on said bar to force said bar into said groove to hold said bar against pivotal movement and in transverse position relative to said shank and said bifurcated end.

In testimony whereof I affix my signature.

THEODORE R. SMITH.