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(54) **SCAFFOLDING SECUREMENT SYSTEM**

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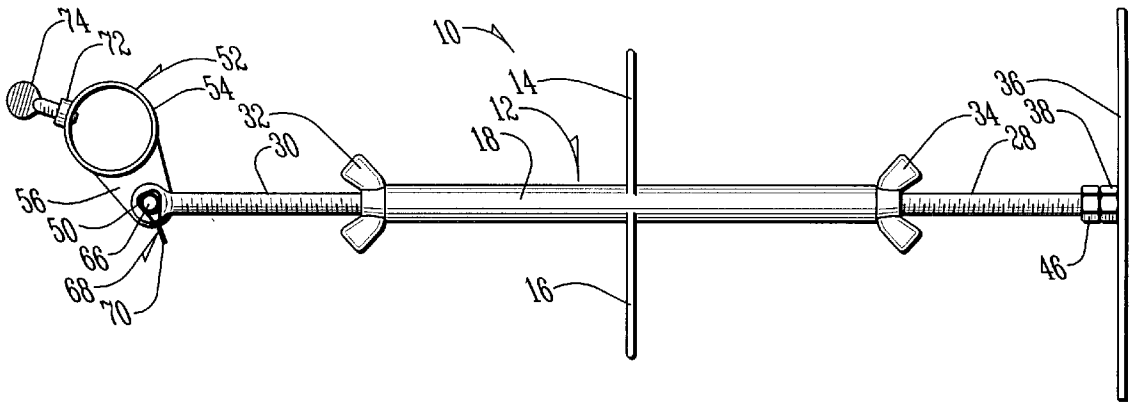
(57) **ABSTRACT**

An improved scaffolding securement system is provided which is adjustable and reusable. By securing a first threaded bar to a building and a second threaded bar to a scaffold, a turnbuckle provided therebetween allows for incremental adjustment of the distance between the scaffold and the building as desired. Additionally, as the profile of the portion of the scaffolding securement system connected to the structure is slightly smaller than a standard brick, only one brick need be left out of the structure and subsequently placed when the scaffolding securement system is removed. By utilizing a collar around the scaffold, the scaffolding securement system allows for incremental lateral adjustments of the scaffolding securement system relative to the scaffold, with a set screw locking the scaffolding securement system relative to the scaffold when the desired orientation has been achieved.



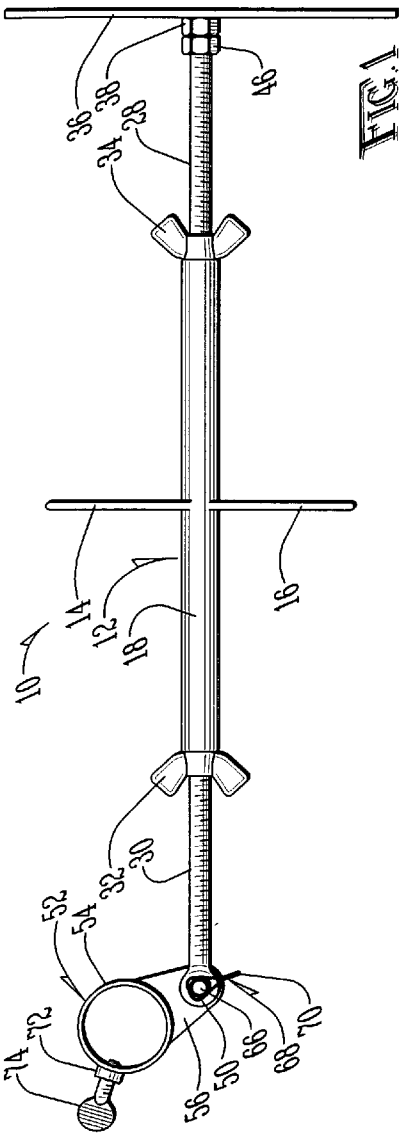


FIG. 1
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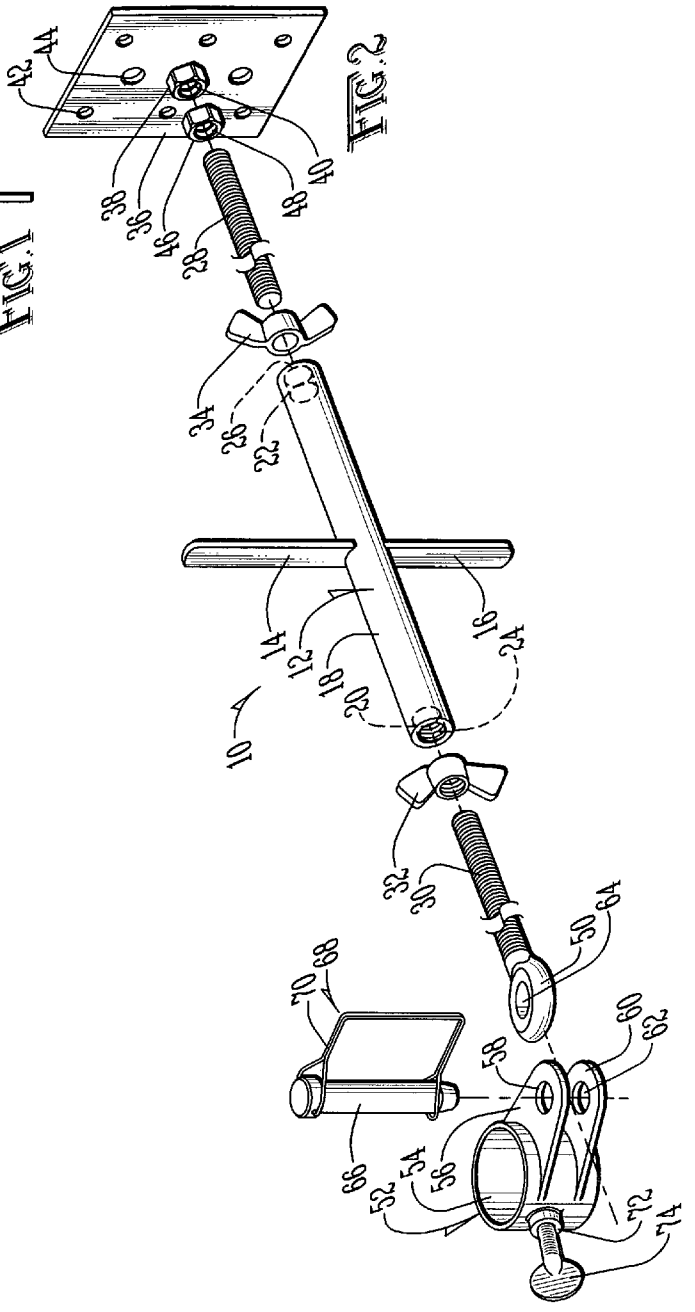
FIG. 2
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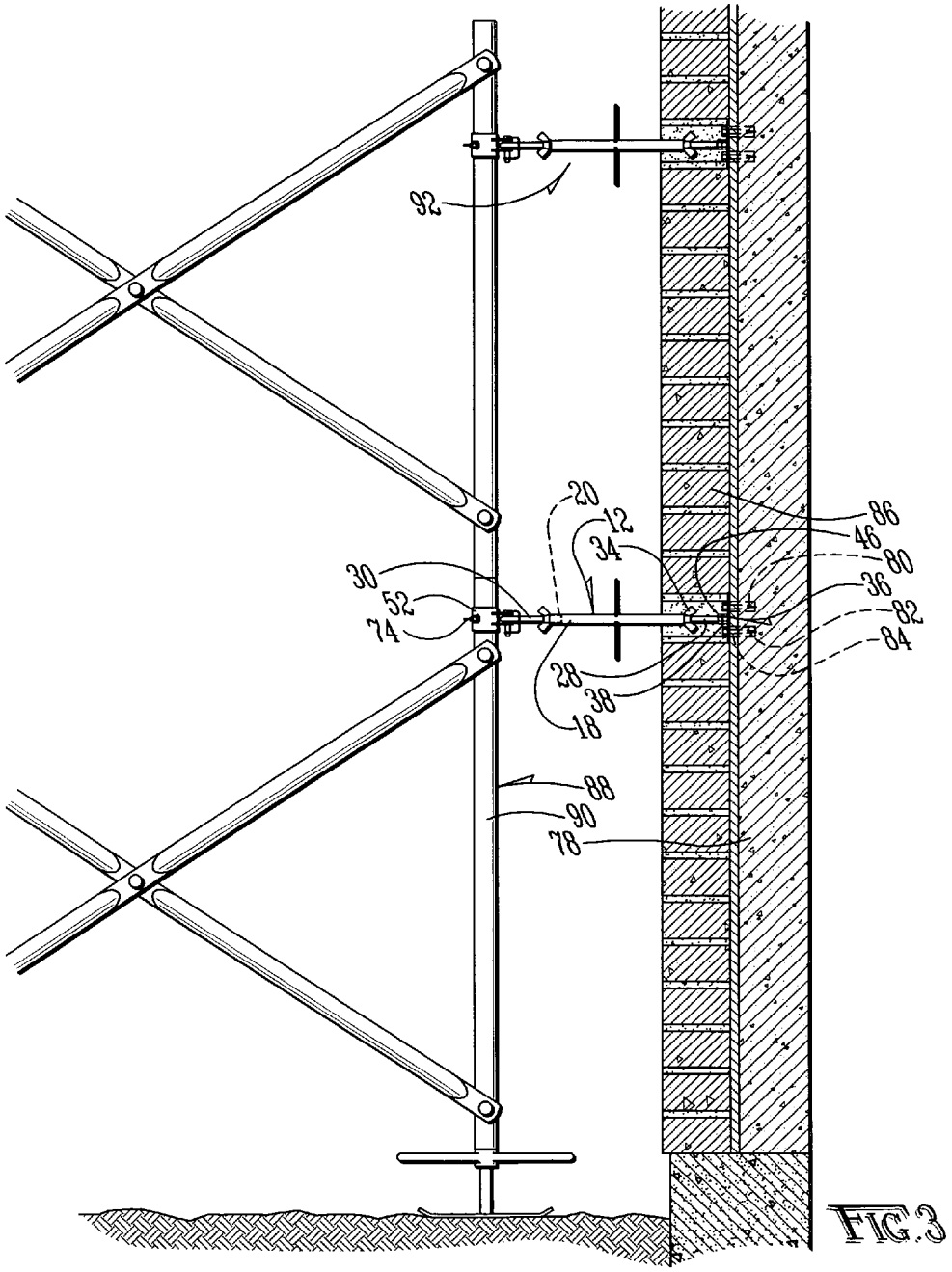

FIG.3

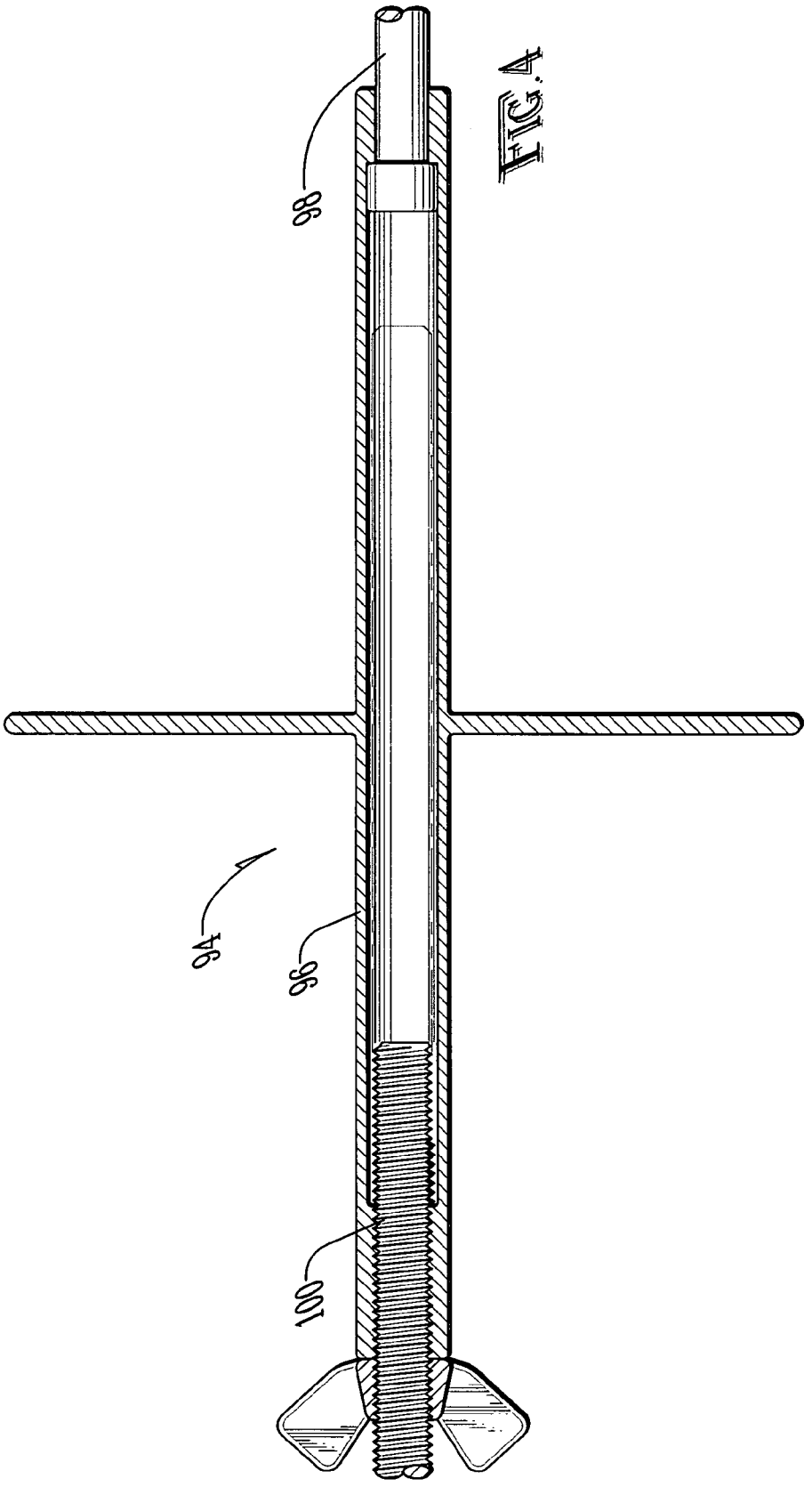

FIG. 4

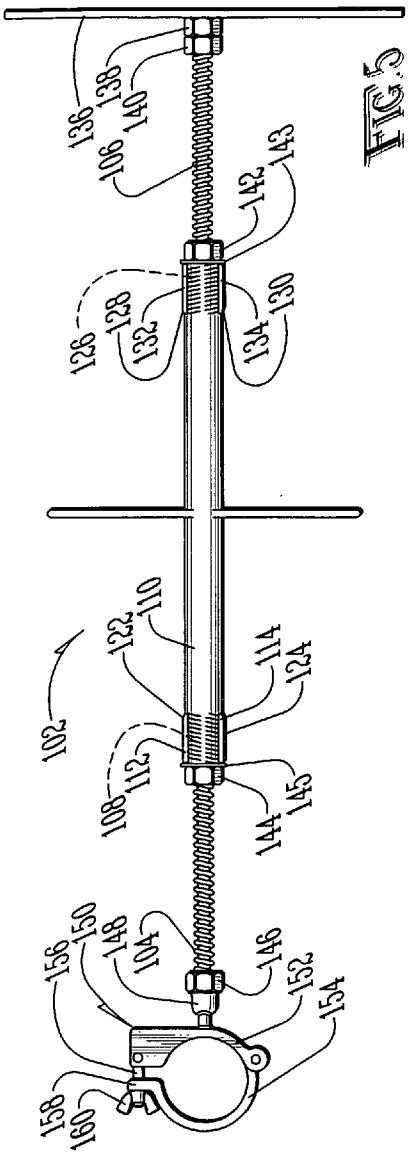
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FIG. 5

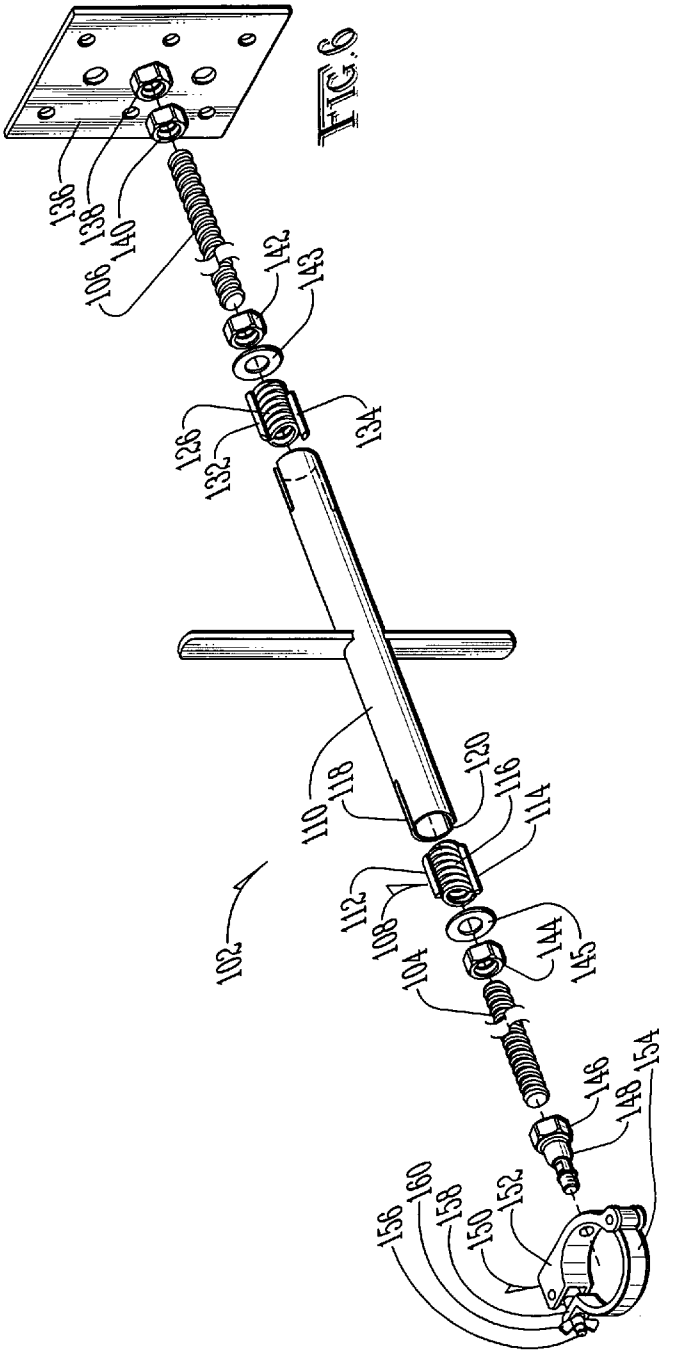
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FIG. 6

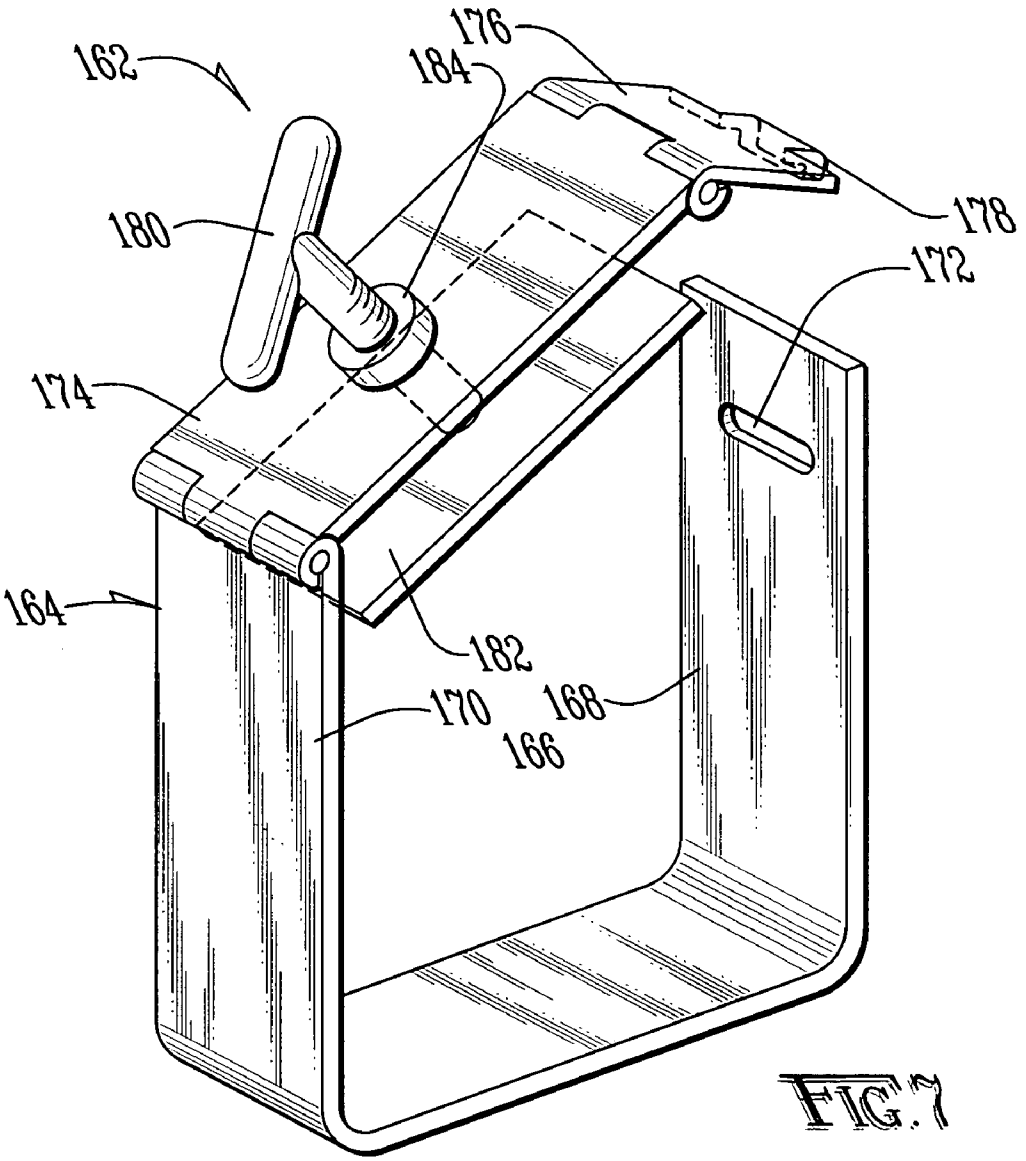

FIG. 7

SCAFFOLDING SECUREMENT SYSTEM

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates in general to a scaffolding securement system and, more particularly, to a reusable scaffolding securement system which is reusable and adjustable.

[0003] 2. Description of the Prior Art

[0004] It is known in the art to secure scaffolding to buildings during construction to reduce dangers to workers associated with the scaffolding moving or falling in relationship to the building. Typically, in prior art construction, scaffolding is retained to a building utilizing thick wire wound back and forth between a leg of the scaffolding and a stud or joist associated with the building. One drawback associated with such prior art securement methods is the availability of a securement device. If a worker relies on scrap wire to secure the scaffolding and scrap wire is not available, often times the scaffolding cannot be properly secured. An additional drawback associated with prior art securement methods is the inaccessibility of wire cutters and other tools which may be necessary to secure the scaffolding to the building using wire.

[0005] Still another drawback associated with the prior art is the lack of safety associated with the prior art method of wiring scaffolding to a building. As there are no standards associated with the thickness of the wire used to secure scaffolding or the method of connecting the scaffolding using the wire, the use of old, rusted or thin wire, and the insecure tying or lack of tying of the wire, can result in the wire failing to secure the scaffolding at a critical time, resulting in the scaffolding shifting or falling relative to the structure.

[0006] Another drawback associated with prior art scaffolding securement systems is the use of unprotected wire may result in the wire becoming rusted and weakened through exposure to the elements. Such weakened and rusted wire may fail at a critical juncture, causing death or injury to workers falling from the scaffolding. Yet another drawback associated with prior art scaffolding securement means is the time required for installation. In addition to the time required for locating a sufficient length of wire or similar securement material, it can often take a substantial amount of time to secure the wire to the scaffolding against movement relative thereto, as well as to the building. It would, therefore, be desirable to provide a weather resistant scaffold securement system which is quickly installed to both the scaffolding and the building.

[0007] An additional drawback associated with the prior art is that the scrap wire used to secure the scaffolding to the building may be used for other projects. If a worker is in need of a piece of scrap wire and sees a piece of scrap wire securing the scaffolding to the building, the worker may be tempted to remove the wire for the alternate project, thereby leaving the scaffolding unsecured. It would, therefore, be desirable to provide a consistent, lightweight, inexpensive method for securing scaffolding to a building. It would also be desirable to provide a secure connection of the scaffolding to the building without the use of tools. It would furthermore be desirable to provide a dedicated connection system for connecting scaffolding to a building to reduce the likelihood of the securement method being scavenged for another project. The difficulties encountered in the prior art discussed hereinabove are substantially eliminated by the present invention.

SUMMARY OF THE INVENTION

[0008] In an advantage provided by this invention, a scaffolding securement system is provided which is of a low-cost, lightweight manufacture.

[0009] Advantageously, this invention provides a scaffolding securement system which is weather resistant and requires low maintenance.

[0010] Advantageously, this invention provides a scaffolding securement system which may be quickly installed and uninstalled from both a scaffolding and building.

[0011] Advantageously, this invention provides a scaffolding securement system which is modular, allowing for quick on-site maintenance.

[0012] Advantageously, this invention provides a scaffolding securement system which is adaptable to a plurality of buildings.

[0013] Advantageously, in a preferred example of this invention, a scaffolding securement system is provided with a scaffold securement and a support securement. Means are provided for moving the scaffold securement and the support securement toward one another in response to the application of rotational force. Preferably, the moving means is a turnbuckle threadably coupled to the scaffold securement and the support securement.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The present invention will now be described, by way of example, with reference to the accompanying drawings in which:

[0015] FIG. **1** illustrates a side perspective view of the scaffolding securement system of the present invention;

[0016] FIG. **2** illustrates an exploded side perspective in cross-section of the scaffolding securement system of FIG. **1**;

[0017] FIG. **3** illustrates a side elevation in partial cross-section of a plurality of scaffolding securement systems securing scaffolding to a building;

[0018] FIG. **4** illustrates a side elevation in cross-section of a turnbuckle of an alternative embodiment of the present invention;

[0019] FIG. **5** illustrates a side perspective view of an alternative embodiment of the present invention;

[0020] FIG. **6** illustrates an exploded side perspective of the alternative embodiment of FIG. **5**; and

[0021] FIG. **7** illustrates a side perspective view of an alternative collar.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0022] A scaffolding securement system is shown generally as (**10**) in FIG. **1**. As shown in FIGS. **1** and **2**, the scaffolding securement system (**10**) includes a turnbuckle (**12**). The turnbuckle (**12**) is preferably constructed of galvanized steel and is provided with a pair of handles (**14**) and (**16**) welded thereto. The handles (**14**) and (**16**) may be of any suitable size, dimension or construction, but are preferably galvanized steel shafts one-half centimeter in diameter and ten centimeters in length, welded to the body (**18**) of the turnbuckle (**12**). The shaft (**18**) is preferably a one-inch diameter galvanized steel pipe.

[0023] The shaft (**18**) may be provided with any desired number of handles and/or knurled or otherwise made easier to rotate. The shaft (**18**) is preferably twenty-four inches in length. Welded into each end of the shaft (**18**) is a nut (**20**) and (**22**), each having its edges turned down so as to fit within the shaft (**18**) and be welded thereto. Each of the nuts (**20**) and (**22**) preferably defines a one-half inch threaded interior (**24**) and (**26**). The nuts (**20**) and (**22**) are preferably reversed so that the threaded diameters (**24**) and (**26**) are threaded in opposite directions. Alternatively, the shaft (**18**) may simply be constructed with each end having a reversely threaded interior diameter.

[0024] As shown in FIG. **2**, the scaffolding securement system (**10**) is also provided with a threaded straight bar (**28**) and a threaded eye-bar (**30**). The threaded straight bar (**28**) and threaded eye-bar (**30**) are preferably threaded in opposite directions to fit into mating engagement with the nuts (**20**) and (**22**) respectively. The threaded straight bar (**28**) is preferably fourteen inches long, one-half inch in diameter and provided with standard threading. The threaded eye-bar (**30**) is preferably nine inches long, one-half inch in diameter, and provided with reverse threading. As shown in FIG. **2**, the threaded straight bar (**28**) and threaded eye-bar (**30**) are each provided with a wing nut (**32**) and (**34**), with the wing nut (**32**) secured to the threaded straight bar (**28**) provided with standard threading, and the wing nut (**34**) secured to the threaded eye-bar (**30**) provided with reverse threading.

[0025] The scaffold securement system (**10**) is also provided with a brace plate (**36**) having a nut (**38**) welded thereto. The brace plate (**36**) is also provided with six holes 5/16" in diameter (**42**) and two holes 3/8" in diameter (**44**). Also secured to the threaded straight bar (**28**) is a standard thread lock nut (**46**) defining a standard thread 1/2" interior (**48**).

[0026] The threaded eye-bar (**30**) is provided with an eyelet (**50**) which engages with a collar (**52**) (FIG. **2**). The collar (**52**) is constructed out of galvanized steel. The collar (**52**) includes a ring (**54**) welded to a first shoulder (**56**) defining a first hole (**58**) and a second shoulder (**60**) defining a second hole (**62**). The first shoulder (**56**) and second shoulder (**60**) are preferably of a thickness and spaced apart a sufficient distance to accommodate the eyelet (**50**) of the threaded eye-bar (**30**) therebetween. Once the hole (**64**) of the eyelet (**50**) is aligned with the first hole (**58**) of the first shoulder (**56**) and second hole (**62**) of the second shoulder (**60**), a shaft (**66**) of a spring clip (**68**) is provided therethrough and secured with a spring (**70**). The threaded eye-bar (**30**) is thereby journaled to the collar (**52**). As shown in FIG. **2**, the collar (**52**) is also provided with a threaded hole (**72**) through which is provided a set screw (**74**).

[0027] When it is desired to utilize the scaffold securement system (**10**) of the present invention, the brace plate (**36**) is secured to a building (**76**), such as a building. Depending on the type of building (**76**), the brace plate (**36**) may be secured to a wooden stud or to concrete (**78**), as shown in FIG. **3**. If the brace plate (**36**) is to be secured to a wooden stud, standard lag bolts (**80**) may be secured into the stud (not shown). In the preferred embodiment, holes (**82**) are drilled into the concrete (**78**) which are then fitted with redhead drop-ins (**84**) or similar bolt retainers, such as those known in the art, to receive the lag bolts (**80**) provided through the 3/8" holes (**44**) of the brace plate (**36**). If desired, instead of providing 3/8" lag bolts (**80**) through the 3/8" holes (**44**) of the brace plate (**36**), 5/16" lag bolts (not shown) may be provided through the 5/16" holes (**42**) of the brace plate (**36**). Alternatively, any combination of 3/8" lag bolts (**80**) and 5/16" lag bolts (not shown) may be utilized in any combination of 5/16" holes (**42**) and 3/8" holes (**44**) of the brace plate (**36**).

[0028] As shown in FIG. **3**, the brace plate (**36**) is preferably sized slightly smaller than a standard brick (**86**). Accordingly, as the bricks (**86**) are applied to the concrete (**78**), a single brick (**86**) may be left out of the pattern to allow the brace plate (**36**) to be secured to the concrete (**78**). As shown in FIG. **3**, once the brace plate (**36**) has been secured to the concrete (**78**), the lock nut (**46**) is secured over the threaded straight bar (**28**), and the threaded straight bar (**28**) is thereafter threaded into the nut (**38**) of the brace plate (**36**).

[0029] Once the threaded straight bar (**28**) has been secured fully to the nut (**38**), the lock nut (**46**) is then tightened toward the nut (**38**) of the brace plate (**36**) to prevent undesired rotation of the threaded straight bar (**28**) relative to the brace plate (**36**). Thereafter, the wing nut (**34**) is secured to the threaded straight bar (**28**) and the turnbuckle (**12**) is then rotated onto the threaded straight bar (**28**). The wing nut (**32**) is then threadably secured to the threaded eye-bar (**30**), and the threaded eye-bar (**30**) is thereafter threaded into engagement with the nut (**20**) of the shaft (**18**) of the turnbuckle (**12**). Depending on the distance that is desired to secure a scaffold (**88**) from the building (**76**), the threaded straight bar (**28**) and threaded eye-bar (**30**) are secured sufficiently into the shaft (**18**) so as to allow additional room for the turnbuckle (**12**) to draw the threaded straight bar (**28**) and threaded eye-bar (**30**) toward one another or away from one another as desired. The length of the shaft (**18**), threaded straight bar (**28**) and threaded eye-bar (**30**) may also be adjusted as desired in length and thickness to accommodate various sizes of scaffolds (**88**) at various distances from the building (**76**).

[0030] Preferably, the scaffold (**88**) is erected at the desired distance from the building (**76**), and the collar (**52**) is fitted over a vertical post (**90**) associated with the scaffold (**88**). The first shoulder (**56**) and second shoulder (**60**) of the collar (**52**) are then aligned with the hole (**64**) of the eyelet (**50**) and journaled thereto using the spring clip (**68**). Once the height of the collar (**52**) along the vertical post (**90**) has been set to provide the turnbuckle (**12**) on a substantially level plane, and the collar (**52**) has been rotated relative to the threaded eye-bar (**30**) so as to reduce any undesired torsion between the scaffold securement system (**10**) and scaffold (**88**), the set screw (**74**) is tightened to secure the collar (**52**) against undesired movement. As shown in FIG. **3**, as the scaffold (**88**) increases in height, a second scaffolding securement system (**92**) may be secured between the scaffold (**88**) and the building (**76**) to secure the scaffold (**88**) at various desired heights.

[0031] An alternative embodiment of the scaffold securement system of the present invention is shown generally as (**94**) in FIG. **4**. In this embodiment, the straight bar (**98**) is simply journaled to the turnbuckle (**96**) while the eye-bar (**100**) is threaded to the turnbuckle (**96**). In this embodiment of the scaffold securement system (**94**), as the turnbuckle (**96**) rotates, only the eye-bar (**100**) moves relative to the turnbuckle (**96**). The straight bar (**98**) merely allows the turnbuckle (**96**) to rotate relative to the straight bar (**98**). Alternatively, the straight bar (**98**) may be threaded to the turnbuckle (**96**) and the eye-bar (**100**) simply journaled to the turnbuckle (**96**).

[0032] An alternative embodiment of the scaffold securement system is shown generally as (**102**) in FIG. **5**. The scaffolding securement system includes a first piece of coil rod (**104**) and a second piece of reversely threaded coil rod

(106). The coil rod (104) and (106) is preferably one-half inch in diameter and is a type known in the art for securement of concrete for the construction of bridges and the like.

[0033] As shown in FIG. 6, a first piece of coil (108) designed for mating engagement with the coil rod (104) is slid into a piece of galvanized pipe (110), such as that described above. The coil (108) is preferably approximately two inches long and is provided with support bars (112) and (114) welded to the coiled spring (116), as is known in the art for such coils to prevent the coil (108) from unraveling. As shown in FIG. 6, the pipe (110) is provided with cutouts (118) and (120) to accommodate the support rods (112) and (114). As shown in FIG. 5, once the coil (108) is provided into the pipe (110), the support rods (112) and (114) are secured to the pipe (110) by weldments (122) and (124), provided along the lengths of the supports rods (112) and (114). As shown in FIG. 5, the weldments (122) and (124) preferably taper from the support rods (112) and (114) to the pipe (110). As shown in FIGS. 5 and 6, the coil rod (106) is provided within the coil (126). The coil (126) is secured to the pipe (110) by weldments (128) and (130), securing the support rods (132) and (134) to the pipe (110). The coil (126) is preferably threaded in reverse from the coil (108) to fit into mating engagement with the coil rod (106).

[0034] The alternative scaffold securement system (102) is preferably provided with a brace plate (136) similar to that described above. A coil nut (138) is preferably welded to the brace plate (136) to receive the coil rod (106). A lock coil nut (140) is preferably provided around the coil rod (106) to lock the coil rod (106) against undesired movement relative to the brace plate (136). Another lock coil nut (142) is secured around the coil rod (106) to lock the coil rod (106) against undesired movement relative to the pipe (110). Welded to the lock coil nut (142) is a flat washer (143) which seats against the pipe (110).

[0035] In a similar manner, the coil rod (104) is provided with a lock coil nut (144) welded to a washer (145) to secure the coil rod (104) against undesired movement relative to the pipe (110). Another lock coil nut (146) is welded to the end of the coil rod (104) and a wobble joint (148) is welded to both the lock coil nut (146) and the coil rod (104). Provided over the wobble joint (148) is a collar (150) secured for wobble movement in relationship to the wobble joint (148). As shown in FIG. 5, the collar (150) is provided with a base (152) secured around the wobble joint (148). Hingeably coupled to the base plate (152) is a clasp (154). As shown in FIG. 5, the base plate (152) and clasp (154) coact to form a circular engagement for accommodation of a leg of a scaffold. Also hingeably coupled to the base plate (152) is a lock screw (156). The lock screw (156) is configured to pivot into engagement with a lip (158) on the clasp (154). Thereafter, a nut (160) provided around the locking screw (156) is secured down against the lip (158) to secure a leg of a scaffold in the collar (150). When it is desired to release the collar (150), the nut (160) is reversed so that the locking screw (156) may be disengaged from the lip (158), and the collar (150) released from the scaffold leg.

[0036] Although the scaffolding securement system (102) may be provided with handles in a manner such as that described above, preferably the support rods (112), (114), (132) and (134) extend sufficiently from the pipe (110) to allow the pipe (110) to be grasp with fixed or adjustable wrenches or pliers, and rotated to extend or retract the coil rods (104) and (106) from the pipe (110), in a manner such as that described above.

[0037] An alternative collar of the present invention is shown generally as (162) in FIG. 7. The collar (162) is configured to receive and secure scaffold legs having a square cross section. As shown, the collar (162) is provided with a generally U-shaped base (164), having a shoulder (166) coupled to a first arm (168) and a second arm (170). As shown in FIG. 7, the first arm (168) is provided with a slot (172). Hingeably coupled to the second arm (170) is a top (174) to which, in turn, is hingeably coupled a latch (176). The latch (176) is provided with an upwardly angled lip (178), which is sized and configured for engagement with the opening (172) in the first arm (168). When it is desired to utilize the collar (162), the collar (162) is provided around the square leg of a scaffolding and the upwardly angled lip (178) is engaged into the opening (172) provided on the first arm (168). Thereafter, a threaded tightening bolt (180) is rotated to engage a foot (182) with the leg of the scaffold.

[0038] As shown in FIG. 7, a nut (184) is welded to the top (174) to engage the thread tightening bolt (180). As the foot (183) engages the leg of the scaffolding, the tightening bolt (180) applies upward pressure on the top (174), thereby further locking the lip (178) into engagement with the first arm (168) through the opening (172).

[0039] The foregoing description and drawings merely explain and illustrate the invention, and the invention is not limited thereto, except insofar as the claims are so limited, as those skilled in the art that have the disclosure before them will be able to make modifications and variations therein without departing from the scope of the invention. For example, the scaffold securement system (10) of the present invention may be provided with any desired dimensions and constructed of any desired material known in the art.

What is claimed is:

1. A scaffold support comprising:
(a) a scaffold securement;
(b) a support securement; and
(c) means coupled to said support securement and to said scaffold securement for moving said support securement and said scaffold securement toward one another in response to application of rotational force.

2. The scaffold support of claim 1, comprising means for locking said moving means against rotational movement.

3. The scaffold support of claim 1, wherein said moving means is a turnbuckle.

4. The scaffold support of claim 3, wherein said scaffold securement is threadably coupled to said turnbuckle.

5. The scaffold support of claim 3, wherein said support securement is threadably coupled to said turnbuckle.

6. The scaffold support of claim 4, comprising means for locking said moving means against rotational movement.

7. The scaffold support of claim 6, wherein said locking means is a nut threadably coupled to said scaffold securement.

8. The scaffold support of claim 3, further comprising a handle coupled to said turnbuckle.

9. The scaffold support of claim 1, wherein said support securement comprises a bar secured is a plate.

10. The scaffold support of claim 9, wherein said plate is threadably secured to a building.

11. The scaffold support of claim 9, wherein said plate is provided with a plurality of holes.

12. The scaffold support of claim **1**, wherein said scaffold securement comprises:

(a) a threaded bar; and

(b) means releasably coupled to said threaded bar for mounting said threaded bar to a scaffold.

13. A scaffold support comprising:

(a) a first bar;

(b) means for securing said first bar to a scaffold;

(c) a second bar;

(d) means for securing said second bar to a building; and

(e) means coupled to said first bar and said second bar for moving said first bar toward said second bar in response to application of rotational force.

14. The scaffold support of claim **13**, wherein said moving means is a turnbuckle.

15. The scaffold support of claim **14**, wherein said moving means is threadably coupled to said first bar and journaled to said second bar.

16. The scaffold support of claim **13**, wherein said first bar is journaled to said turnbuckle and threadably coupled to said second bar.

17. The scaffold support of claim **13**, wherein said first bar and said second bar are threadably coupled to said turnbuckle.

18. The scaffold support of claim **17**, wherein said first bar is reverse threaded relative to said second bar.

19. A scaffold support comprising:

(a) a turnbuckle;

(b) a first bar coupled to said turnbuckle;

(c) means for securing said first bar to a scaffold;

(d) a second bar coupled to said turnbuckle; and

(e) means for attaching said second bar to a building.

20. The scaffold support of claim **19**, further comprising means for locking movement of said turnbuckle relative to said first bar.

* * * * *