July 1, 1958 A. C. BORGMAN ET AL 2,841,452

AUTOMATIC BRACE LOCKS FOR SECTIONAL SCAFFOLDING

Filed Feb. 24, 1953

Fig. 1.

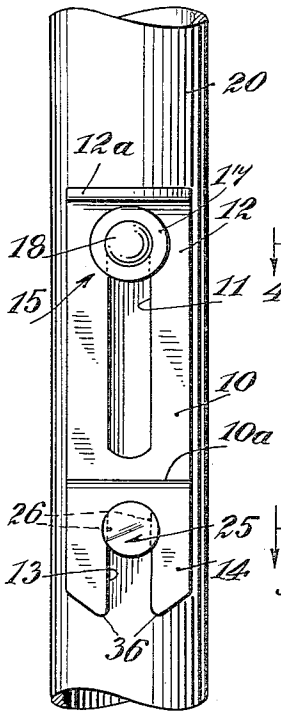


Fig. 2.

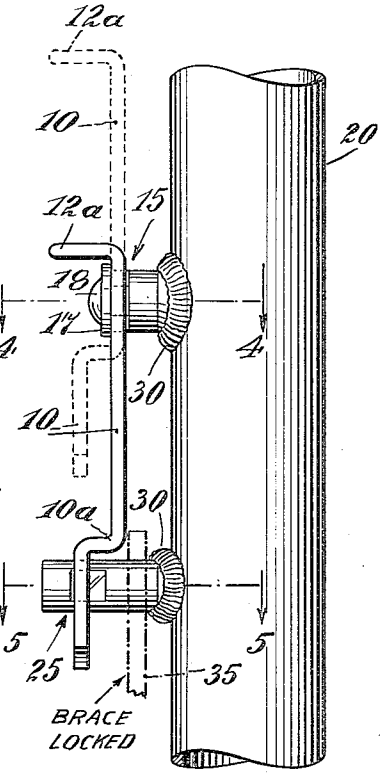


Fig. 3.

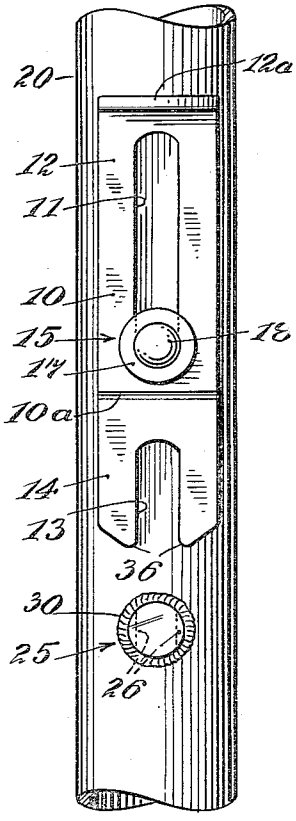


Fig. 4.

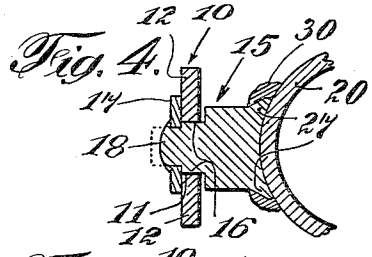


Fig. 5.

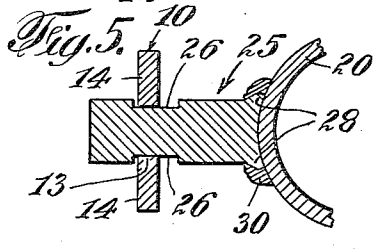


Fig. 6.

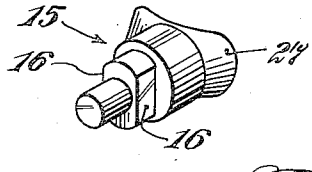
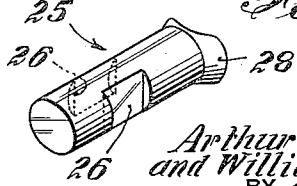


Fig. 7.



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AUTOMATIC BRACE LOCKS FOR SECTIONAL SCAFFOLDING

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Application February 24, 1953, Serial No. 338,296

1 Claim. (Cl. 304—40)

This invention relates to automatic locks, preferably for use in sectional or fabricated steel scaffolding, and the object of the invention is to provide an improved lock for locking or retaining on a pin or post secured to a leg of the scaffold, the cross bars, runners or other attachments used in a fabricated scaffold frame.

The invention consists of two vertically aligned and spaced posts secured to a leg of a scaffold at about the place where the ends of the usual crossbars are fastened, one of said posts having a reduced grinding portion for engaging a slot in a slotted slide piece, above which a handle is formed to manipulate the slide piece. This slot of the slide piece is closed at both ends to hold the slide piece to its post, and the slide piece is capable of sliding on said post from one end to the other of said slot. This slide piece has another slot having one closed and one open end, with the slide piece offset from the leg of the scaffold a greater distance than the distance of the slide piece at its upper post is from the leg. This lower end of the slide piece passes like a fork or yoke around part of the second post which acts as a brace holder. This second post has lateral cutouts, with bounding shoulders, preferably at both sides of the post for the grinding engagement of the open slotted portion end of the sliding piece.

When the slide piece is moved upwards to the extent of the length of the long upper slot, the lower open slot is above the brace post. This permits the insertion of the braces on this brace post, the brace being usually provided with openings, to slip over the brace post. Then the slide piece is moved downwardly, so that its lower open slotted end embraces the brace post, and presses slightly against the brace to press it against the leg.

The invention will be further described, an embodiment shown in the drawings, and the invention will be finally pointed out in the claims.

In the accompanying drawings, Fig. 1 is a front view of an embodiment of this invention, the parts being shown in normally locked position;

Fig. 2 is a side view of Fig. 1;

Fig. 3 is a front view in unlocked position;

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 perspective view of the guide post, and

Fig. 7 is a perspective of the brace post.

Similar characters of reference indicate corresponding parts.

Referring to the drawings, the slide piece **10** consists of a piece of material with a closed slot **11**, in the upper end portion **12** and an open-ended slot **13** in the lower end portion **14**. This second slot **13** has its upper end closed and its lower end open and is therefore U or fork shaped and of shorter length than the upper slot portion **12**, which has a handle portion **12***a*. Both slots have constant widths and have aligned axes. The slide piece **10** may or may not have an offset **10***a* in a direction perpendicular to long axes of the slide piece slots **11** and **13**, and parallel to the short axes of the slide piece slots,

dependent on whether a constant number or a varying number of braces, runners or other attachments are to be retained or locked.

This slide piece **10** is mounted upon the scaffold frame by means of a special guide post **15**, which is fastened or attached directly to the scaffold frame by welding or the like. This guide post **15** has at one place along its length, an elongated or flattened or rectangular cross-sectional cutout **16**. The length of the cutout **16** is substantially equal to the thickness of the slide piece **10** in the direction of the longitudinal axis of the post **15**. The longitudinal axis of the guide post is perpendicular to the axis of the frame leg **20** with the long axis of the rectangular portion cross-section of the post **15** parallel to the longitudinal axis of the legs **20** of the scaffold frame. The narrow shorter axis of the guide post cut out **16** has substantially the same width as the upper slot **11** in the slide piece **10**. The upper slot **11** in the slide piece **10** engages the sides of cutout **16** of the guide post **15** and slides thereon as the length of the slot **11** in the slide piece is longer than the dimensions of the longer axis of the cutout **16** of the guide post. The slide piece **10** is retained upon the rectangular cutout **16** of the post by means of a washer **17** and the head of the stud **15** is preferably upset by riveting as at **18**. A nut, snap-ring, welding, cotter pin, straight or any other suitable means could be used.

A brace post **25** has a constant cross-section except at one section near the outer end which is either notched or grooved on the diametrically opposite sides or circumferentially grooved. This notch **26** is the locking groove. The width across the post from the bottom of the groove or notch on one side to bottom of the groove or notch on the other side is substantially the same as the narrow width of the U slot **13** in the lower end of the slide piece **10**.

This brace post **25** is mounted upon the scaffold frame **20** directly below the guide post **15** and with its grooved surfaces **26** parallel to the axis of the leg **20**, and in line with the long axes of the slots **11** and **13** in the slide piece **10** and in the same plane as slot **13** and directly on the projection of the edges of slot **13** parallel to the slide piece **10**. The distance between the guide post **15** and brace post **25** is governed by the length of the slide piece **10** and length of slots **11** and **13** in the slide piece **10**. The longitudinal axis of the brace post **15** is perpendicular to the axis of the leg **20** of the frame.

Both the guide post **15** and the brace post **25** may have a curved seat-portion **27**, **28**, respectively.

When the slide piece **10**, guide post **15**, and brace post **25** have been fabricated and assembled as previously described, the unit will operate in the following manner: In the closed or locked position, the slide piece **10** will be suspended from the guide post **15** and the post itself will bear against the upper end of the upper slot **11** in the slide piece **10**. The brace post **25** will be located so that its top surface will bear against the closed end of the lower slot **13**. The edges of the slot **13** in the direction of the material thickness parallel to the longitudinal axis of the brace post **25**, will be rising in the grooves or notches **26** of the brace post **25**. The lower end of the slide piece **10** is therefore prevented from moving in any direction by the lower slot **13** in the slide piece **10**, and notches **26** of the brace post **25**, except in an upward direction. The distance of movement is controlled by the length of the upper slot **11** in the slide piece **10** and the location of the guide post **15**. The length of the slots in the slide piece and guide and brace post spacing are such that when the slide piece is raised all the way the lower end of the upper slot **11** in the slide piece **10** bears against the under surface of the guide post **15** that there is sufficient opening between the extreme lower end **36**

of the slide piece **10** and center line of the brace post **25** that a brace, runner, or other attachment used in connection with fabricated scaffolding can be slipped on to this brace stud and moved past the locking groove in this stud. Therefore, when the slide piece is released it will drop by gravity part or all the way dependent upon the number of braces put upon brace post **25**, or be forced down by a spring or other means, not shown, and the U slot or lower slot **13** in the slide piece **10** will again engage the locking grooves **26** in the brace post **25**. The braces **35** or other attachments will then be locked and secured from slipping or moving off the stud by the slide piece **10** which comes between the brace **35** and the free end of the brace post **25**.

The elongated cross-section of the guide post and the upper slot in the slide piece work together in such manner that the slide piece will not rotate about the guide post **15**, but will move only in the direction parallel to the long axis of the slot in the slide piece, which is parallel to the axis of the frame leg. This lock secures the braces on the lower or brace post and locks automatically, provided the scaffold frame is held at or near its normal vertical position.

We wish it to be understood that we do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

We claim:

In an automatic brace lock for a scaffold, said scaffold having an upright, braces with holes in the proximity of extremities thereof, an upper bolt and a lower bolt, said bolts being in alignment and vertically spaced from one another and radially projecting from said upright, each of said bolts having a pair of diametrically opposed vertical recesses laterally of and in the proximity of the outer ends thereof, said lower bolt being adapted to project through said holes in said braces and support said braces between said recesses therein and said upright, the combination of said bolts with a sliding member supported by said upper bolt for vertically reciprocal movement transversely thereof, said sliding member having a pair of vertically spaced elongated slots, the first of said slots being closed at both ends and extending downwardly from the upper extremity of said sliding member, said sliding member including a pair of parallel vertical walls laterally of said first slot reciprocally received in said vertical recesses in said upper bolt for vertically guiding said sliding member transversely of said upper bolt, the length of said movement corresponding to the length of said first slot, the second of said slots being open at its lower end and of a length substantially less than the length of said first slot, and said sliding member having a pair of vertical legs laterally of said second slot for reception in said recesses in said lower bolt when said sliding member descends vertically and transversely of said upper bolt, said legs being above the extremities of braces supported by said lower bolt when said sliding member is moved upwardly substantially the full length of said first slot, whereby braces supported by said lower bolt between said recesses therein and said upright may be removed therefrom.

References Cited in the file of this patent

UNITED STATES PATENTS

455,686	Hopkins et al.	July 7, 1891
935,526	Kneale	Sept. 28, 1909
1,058,608	Lightly	Apr. 8, 1913
1,259,397	Hathaway	Mar. 12, 1918
1,961,383	Nye et al.	June 5, 1934
2,246,457	Schultz	June 17, 1941
2,468,683	Michal	Apr. 26, 1949
2,561,938	Meng et al.	July 24, 1951
2,635,717	Albrecht et al.	Apr. 21, 1953
2,686,086	French	Aug. 10, 1954