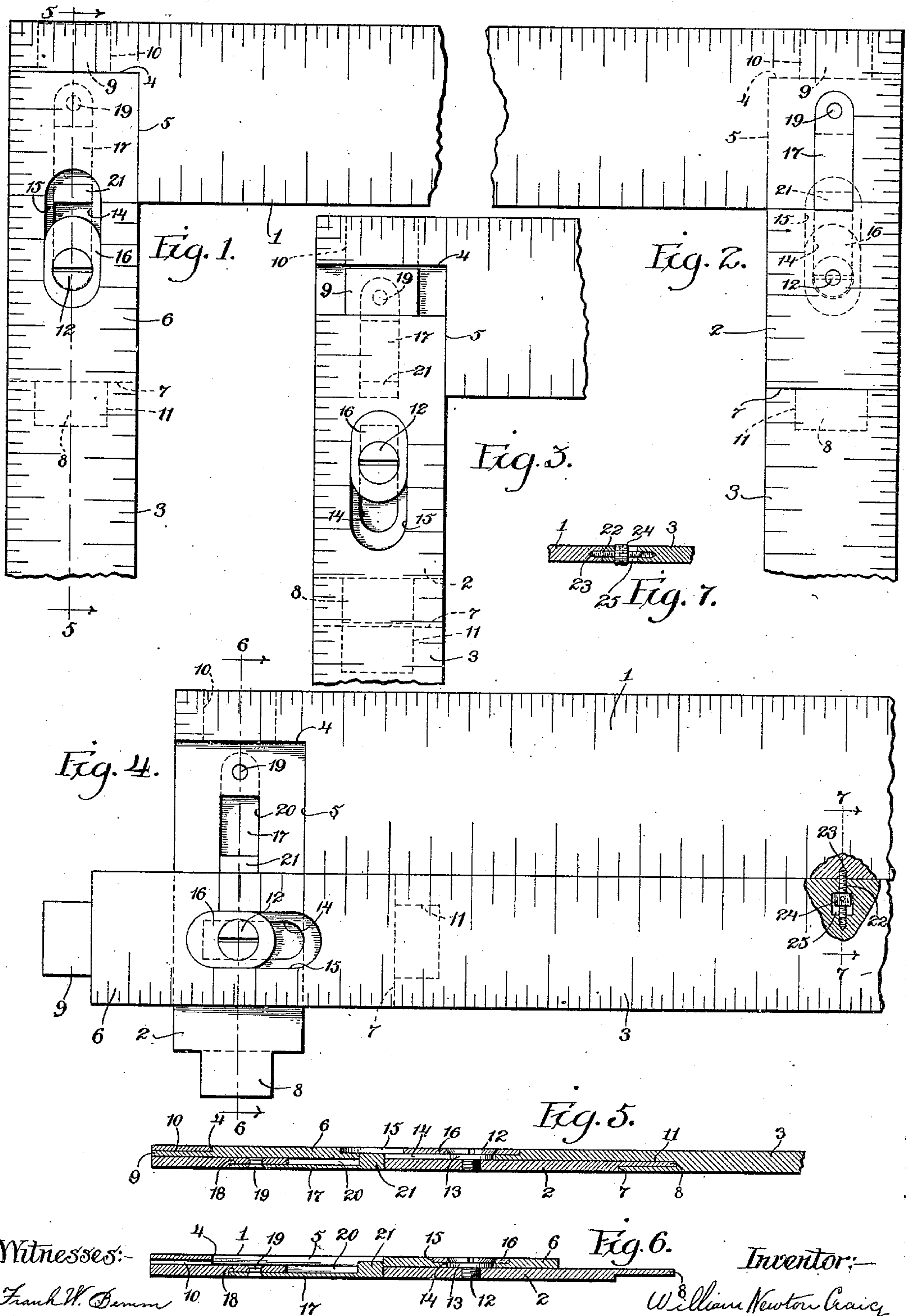


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FOLDING SQUARE.  
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944,541.

Patented Dec. 28, 1909.



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# UNITED STATES PATENT OFFICE.

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## FOLDING SQUARE.

944,541.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, WILLIAM NEWTON CRAIG, a citizen of the United States, and a resident of Moline, county of Rock Island, and State of Illinois, have invented certain new and useful Improvements in Folding Squares, of which the following is a specification.

The invention relates to folding squares or the like and seeks to provide a device of this character which consists of sections that may be conveniently folded when the device is not in use, means being provided whereby the sections can be rigidly and securely held in extended position when the workman desires to use the same.

The invention consists in the features of improvement hereinafter set forth, illustrated in the accompanying drawings and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a plan view of one side of the corner of the square; Fig. 2 is a plan view of the other side; Fig. 3 is a view similar to Fig. 1 showing the interlocking parts of the two sections disengaged so that the square can be folded; Fig. 4 is a plan view showing the parts folded, portions being shown in section to illustrate the device for connecting the two sections when in folded position; Fig. 5 is a section on the lines 5—5 of Fig. 1; Fig. 6 is a section on the line 6—6 of Fig. 4; Fig. 7 is a detail section on line 7—7 of Fig. 4.

The improved square comprises an L-section having a long arm 1 and a short arm 2 at right angles to each other and a straight section 3. These sections are preferably formed of thin, flat bars of steel such as are commonly employed for making carpenters' squares. The straight section 3 is pivotally and slidably connected to the short arm 2 of the L-section and the straight section and short arm preferably overlap as shown. The adjacent faces of the overlapping portions of the straight section 3 and short arm 2 are cut away to reduce the overlapping portions to one-half the thickness of the main body of the sections, so that the two sections will lie in the same plane. At the inner end of the short arm 2, two shoulders 4 and 5 are formed which are at right angles to each other; the shoulder 4 is at

right angles to the side edges of the short arm 2 while the shoulder 5 is in line with the inner edge thereof. At the inner end of the reduced portion 6 of the straight section 3, a shoulder 7 is formed that is at right angles to the side edges of the straight section. The straight section 3 and the short arm of the L-section 1 are of the same width and are both provided at the outer ends of their reduced overlapping portions with projecting tenons 8 and 9. These tenons are preferably rectangular in outline and are of less width than the short arm 2 and straight section 3. The tenons 8 and 9 are still further reduced in thickness, preferably by cutting away the outer portions thereof thereby leaving the inner faces of said tenons in the same plane with the abutting faces of the reduced, overlapping portions of the two sections. The shoulder 4 of the L-section is provided with an inclosed mortise 10 arranged to receive the tenon 9 upon the end of the straight section 3, the inner wall of the mortise 10 being in the same plane with the inner face of the reduced portion of the short arm 2. The shoulder 7 of the straight section is provided with an inclosed mortise 11 arranged to receive the tenon 8 upon the end of the short arm 2 of the L-section, the inner wall of the inclosed mortise 11 being in the plane of the inner face of the reduced portion 6 of the straight section.

The interlocking tenons and mortises of the two sections are engaged and disengaged by the movement of the straight section 3 longitudinally of or in line with the short arm 2 of the L-section. The engaged position of the interlocking parts is shown in Figs. 1 and 2, and the disengaged position in Fig. 3. To fold the square, the straight section 3 is swung from the position shown in Fig. 3 to that shown in Fig. 4. To permit this combined sliding and pivotal movement, the two sections are connected by a pin or pivot fixed to one of the sections and extending through a slot in the other. In the form shown, a pivot screw 12 is threaded into an opening in the short arm 2 of the L-section and is provided with an enlarged portion or shoulder 13 that abuts against the inner face of the short arm 2 and is arranged within a longitudinal slot 14 formed in the reduced



portion 6 of the straight section 3. To add rigidity to the pivotal connection between the two sections, the outer face of the reduced portion 6 of the straight section 3 is provided with a recess or rabbet 15 about the slot 14 and an oblong plate or washer 16 is fitted and guided within the recess and is provided with an opening engaged by the conical head of the pivot screw 12, so that the plate or washer 16 is thereby held in position. The ends of the connecting pivot screw and the outer face of the washer 16 are flush with the outer faces of the two connected sections, so that they do not interfere with the use of the square. At the same time, they form a rigid, durable connection between the two sections.

A releasable spring latch is connected to one of the sections and is arranged to automatically engage the other section upon the engagement of the interlocking tenons and mortises to prevent the accidental disengagement of the interlocking parts when the sections are extended for use. In the form shown, this latch comprises a leaf spring 17 set flush within a recess in the outer face of the short arm 2 of the L-section and secured thereto by a rivet 19. The short arm 2 is provided with a slot 20 above the spring latch and the latter is provided at its free outer end with an inwardly projecting lug 21 that engages the inner edge of the straight section 3 in the folded position of the parts and the end of the slot 14 in the extended position of the parts. The spring latch thus holds the two sections in the folded position shown in Fig. 4. To extend the sections for use, the lug 21 of the latch is pressed out of line with the straight section 3 and the latter is then swung into line with the short arm 2, as shown in Fig. 3. The straight section is then moved longitudinally of the short arm and the tenons 8 and 9 are thereby engaged with the mortises 11 and 10. Upon the complete engagement of the tenons and mortises, the lug 21 of the latch 17 automatically snaps into the end of the slot 14 and holds the straight section 3 against accidental movement longitudinally of the short arm, so that the tenons are securely locked in engagement with the mortises. The tenons and inclosed mortises are arranged some distance apart and securely and firmly hold the two sections of the square in proper, relative position. The square shoulders 4 and 5 of the L-section, when the parts are extended for use, abut against the square end and inner side edge of the straight section and the square shoulder 7 of the straight section abuts against the square end of the short arm 2, and these shoulders thereby assist the interlocking tenons and mortises in holding the two sections rigidly in proper relation. The spring-latch is not depended upon, in the present improved construction, to hold

the two sections in true position at right angles to each other. The latch merely serves to prevent the accidental disengagement of the two sections after they have been interlocked.

To fold the square, the lug 21 is pushed out of the slot 14 of the straight section and the latter is then moved longitudinally of the short arm 2 from the position shown in Figs. 1 and 2 to that shown in Fig. 3 so as to disengage the interlocking tenons and mortises. The straight section 3 is then swung from the position shown in Fig. 3 to that shown in Fig. 4, whereupon the lug 21 of the latch engages the inner side edges of the straight section and holds them in folded position. The spring-latch is flush with the outer face of the arm 2, as shown, so that it does not interfere with the proper use of the square. The ends of the recess 15 and of the plate or washer 16 are preferably rounded as shown. One end of the slot 14 is also rounded. The opposite end of the slot and the lug 21 of the latch which engages the same are preferably square.

To more firmly hold the two sections in folded position, one of the sections (in the form shown in section 3) is provided with a screw 22 arranged within a hole extending inwardly from the inner side edge thereof, and this screw is arranged to engage a threaded socket 23 in the inner side edge of the other section (in the form shown in the inner side edge of the straight arm 1 of the L-section). The screw is manipulated by a knurled collar 24 thereon arranged within an opening 25 that extends entirely through the straight section 3. This screw is arranged some distance from the pivotal connection and serves to securely hold the two sections together in folded position, and also relieves the strain upon the pivotal connection between the two sections when the latter are folded.

It is obvious that numerous changes may be made in the details set forth without departure from the essentials of the invention as defined in the claims.

I claim as my invention:—

1. A folding square or the like, comprising two pivotally and slidably connected sections, each of said sections having an inclosed mortise and each having a tenon arranged to extend within the inclosed mortise of the other section, substantially as described.

2. A folding square comprising an L-section, a straight section pivotally and slidably connected to the short arm of said L-section, each of said sections having a mortise and each having a tenon arranged to extend within the mortise of the other section, and a releasable spring latch for preventing the withdrawal of said tenons from said mortises, substantially as described.



3. A folding square or the like comprising two sections having overlapping portions slidably and pivotally connected together, said overlapping portions being of reduced thickness with shoulders formed at the inner ends thereof and tenons at their outer ends, and said shoulders having inclosed mortises arranged to receive said tenons, substantially as described.

4. A folding square comprising an L-section and a straight section overlapping and pivotally and slidably connected to the short arm of said L-section, the overlapping portions of said straight section and said short arm being of reduced thickness with shoulders formed at the inner ends thereof and tenons further reduced in thickness at their outer ends, and said shoulders having inclosed mortises arranged to receive said tenons substantially as described.

5. A folding square comprising an L-section having a short arm of reduced thickness, a straight section having a portion of reduced thickness overlapping and pivotally and slidably connected to the short arm of said L-section, the reduced overlapping portions of said sections having tenons at their outer ends and shoulders at their inner ends provided with mortises for receiving said tenons, and a releasable spring-latch for holding said straight section against shift longitudinally of said short arm to disengage said tenons and mortises, substantially as described.

6. A folding square comprising an L-section, a straight section pivotally and slidably connected to the short arm of said L-section, each of said sections having a mortise and each having an interlocking tenon arranged to be engaged with the mortise of the other section by the relative, longitudinal shift of said short arm and straight section, and a releasable spring-latch on one of said sections arranged to automatically engage the other section upon the complete engagement of said tenons and mortises, substantially as described.

7. A folding square comprising an L-section, a straight section pivotally and slidably connected to the short arm of said L-section, said section having interlocking parts arranged to be engaged by the movement of said straight section longitudinally of said short arm, and a spring-latch seated flush within a recess in the side face of one section and arranged to engage the other upon the complete engagement of said interlocking parts, substantially as described.

8. A folding square comprising an L-section and a straight section having interlocking parts arranged to be engaged by the movement of said straight section longitudinally of the short arm of said L-section, a pivot connecting said straight section to the short arm of the L-section, one of said

sections having a slot through which said pivot extends, and a spring-latch seated flush in a recess in the other section and having an inwardly projecting lug arranged to engage said slot upon the complete engagement of said interlocking parts, substantially as described.

9. A folding square comprising an L-section and a straight section having interlocking parts arranged to be engaged by the movement of said straight section longitudinally of the short arm of said L-section, a pivot connecting said straight section to the short arm of the L-section, one of said sections having a slot through which said pivot extends, with a recess in the face of said section about said slot, and an oblong plate engaged by the end of said pivot and guided within said recess, substantially as described.

10. A folding square comprising an L-section and a straight section overlapping the short arm of said L-section, the overlapping portions of said sections being of reduced thickness, a shouldered pivot fixed at one end to one of said sections, the other section having a slot to receive said pivot with a recess in the face of the section about said recess and an oblong plate or washer fitting flush and guided within said recess and secured to the end of said pivot, said straight section and said short arm having interlocking parts arranged to be engaged by the movement of said straight section longitudinally of said short arm, substantially as described.

11. A folding square comprising an L-section, a straight section pivotally and slidably connected to the short arm of said L-section, said sections having interlocking parts arranged to be engaged by the movement of said straight section longitudinally of said short arm, and a spring-latch connected to one section and arranged to engage the other section to releasably hold the same both in folded position and in extended position with said interlocking parts in engagement, substantially as described.

12. A folding square comprising an L-section, a straight section pivotally and slidably connected to the short arm of said L-section, said sections having interlocking parts arranged to be engaged by the movement of said straight section longitudinally of said short arm, and a screw carried by one section and arranged to project from the edge thereof to engage a socket in the edge of the other section to hold said sections in folded position, substantially as described.

13. A folding square comprising an L-section, a straight section pivotally and slidably connected to the short arm of said L-section, said sections having interlocking parts arranged to be engaged by the movement of said straight section longitudinally



of said short arm, a fastening device for holding said sections in open position, and a separate fastening device extending between the abutting edge portions of said sections when the latter are folded together, 5 said second fastening device being secured to one of said sections at a distance from the pivotal connection and arranged to engage the adjacent edge portion of the other of said sections, substantially as described. 10

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Witnesses:

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