O. R. ALTWEIN.

SEPARABLE SQUARE.

APPLICATION FILED AUG. 14, 1911.

1,064,953. **Patented June 17, 1913.**

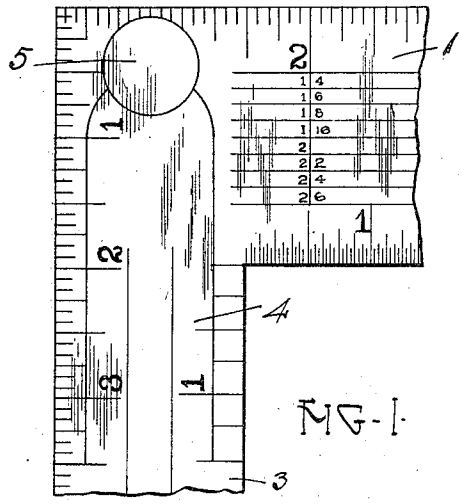

FIG-1.

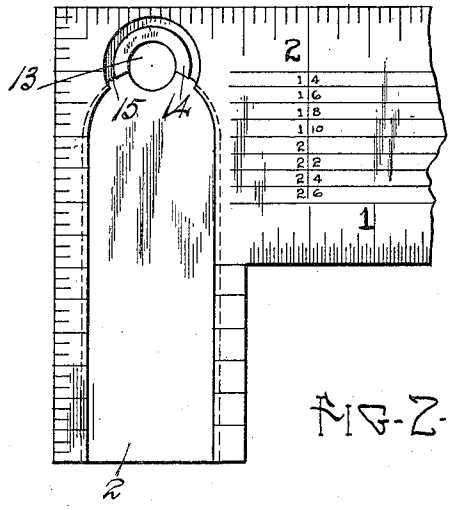

FIG-2.

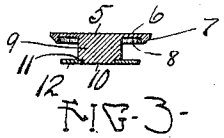

FIG-3.

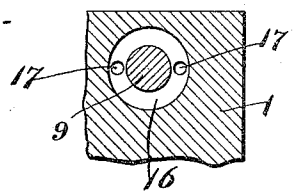

FIG-8.

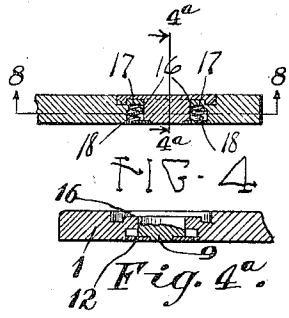

FIG-4.

Fig. 4a.

FIG-5.

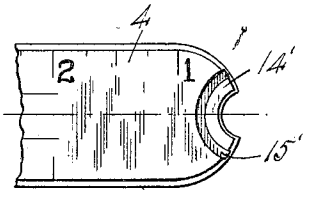

FIG-7.

FIG-6.

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SEPARABLE SQUARE.

1,064,953. Specification of Letters Patent. Patented June 17, 1913.

Application filed August 14, 1911. Serial No. 643,836.

To all whom it may concern:

Be it known that I, OSCAR R. ALTWEIN, a citizen of the United States, and a resident of Southington, county of Hartford, and State of Connecticut, have invented a new and useful Improvement in Separable Squares, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to separable, or take-down squares, which consist of two blades, one of which may be regarded as the main body portion, the other of the blades being adapted to detachably engage therein. The two blades of my square may be engaged instantly by merely pressing the second blade into the groove on the main blade, where it is securely locked. Disengagement is accomplished by simply pressing a button and withdrawing the second blade.

To the accomplishment of the aforesaid and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing: Figure 1 is a plan view showing my improved square when the two blades are engaged; Fig. 2 is a plan view of the main blade, showing the undercut groove for the second blade and the projecting rib and aperture in the blade; Fig. 3 is a longitudinal section through the central axis of the locking member; Fig. 4 is a central section through the aperture in the blade showing the springs adapted to act on the locking member; Fig. 4ª is a section on the line 4ª—4ª in Fig. 4; Fig. 5 is a section through the grooved blade and engaging second blade; Fig. 6 is a longitudinal vertical section through the second blade; Fig. 7 is a plan view of the second blade; Fig. 8 is a plan section on the line 8—8 in Fig. 4, but omitting to show the button illustrated in the latter figure.

In Fig. 1 a separable square is shown having a main blade 1 with a recess in the form of an undercut groove 2 which a second blade 3 is adapted to engage by having one end thereof formed into a tongue 4. When thus in engagement the two blades are securely locked by a locking member 5, mounted in and reciprocable longitudinally of an aperture that extends through such first blade at substantially right angles to the same.

The locking member 5 comprises a disk 6 with an externally beveled flange 7 and undercut head 8, a shank 9 having a projection 10 of smaller size than the shank, thereby providing a shoulder 11 against which a second disk 12 is adapted to be held by upsetting the projection 10, thus securely riveting the independent parts of the locking member together.

In the main blade 1 adjacent to the undercut groove is an aperture 13 around which is a projecting rib 14 and a groove 15 around the rib 14.

As will be seen in Fig. 2 the undercut groove 2 extends to the groove 15 and part of the projecting rib 14 is cut away. This allows the rib 14 to receive the complementary rib 14′ on the tongue 4 around which is the complementary groove 15′ adapted to complete the groove 15 on the main blade. Thus, when the two blades are in engagement there is a projecting rib 14 encircling the aperture 13 and surrounded by the groove 15. The inner wall of the groove 15′ is slightly beveled to facilitate engagement by the locking member or button.

The locking member 5 when engaging the aperture 13 is adapted to engage the groove 15 with the flange 7 thus retaining the two parts of the projecting rib 14 within the undercut head 8 of the disk 6. To provide means for retaining the button over the ribs, the under side of the main blade is cut away into a shallow main recess 16 concentric with the aperture 13. In this recess two holes or smaller recesses 17 are bored into which helical springs 18 may be inserted which will bear, resiliently against the disk 12 attached to the shank 9, (see Fig. 8). In this way the locking member 5 normally retains the two blades in engagement.

The projecting ribs 14 and 14′ are cut away so that they are below the face of the blade and the disk 6 is thin enough through the undercut head so that the locking mem-

ber is normally flush with the face of the blade on its upper side. The length of the shank and the thickness of the disk 12 are likewise proportioned so that the disk is normally flush with the under side of the blade.

When the locking member is in the aperture 13 the second blade may be engaged with the main blade by engaging the tongue with the undercut groove. The projecting rib 14′ is slightly beveled (see Fig. 6) and this beveled edge will contact the beveled flange 7 on the button, thus forcing the latter up without difficulty, until the tongue is completely engaged in the groove 2 when the two ribs 14 and 14′ will be in their complementary position, thus permitting the springs 18 to draw the disk 6 into its locking position over the ribs 14 and 14′. To disengage the blades a slight pressure on the disk 12 will force the disk 6 from off the ribs 14 and 14′ and the second blade may then be withdrawn from the main blade.

From the above description it will be evident that my two blades may be engaged or disengaged almost instantly without the aid of tools. The exact form of aperture or projecting ribs here shown may of course be modified in various ways so long as the locking member operates in substantially the same way as here shown.

Other modes of applying the principle of my invention may be employed instead of the one explained change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a separable square, the combination of two blades adapted to detachably engage each other, one of said blades being provided with an aperture extending through said blade at substantially right angles to the plane of the same, said apertured blade being formed with a main recess on one face surrounding said aperture, and with smaller recesses located within such first-named main recess on opposite sides of such aperture, a locking member reciprocably mounted in such aperture and having a disk adapted to enter such main recess, said member being adapted to securely engage said other blade upon its engagement with said apertured blade, and helical springs disposed in such smaller recesses and adapted to contact said disk and to retain said locking member in such engagement with said other blade.

2. In a separable square the combination of two blades, one of said blades having an undercut groove on one side thereof and an aperture adjacent to one end of such groove, said other blade having a tongue adapted to enter said groove, such tongue having a projecting rib adjacent to the engaging end thereof; and a reciprocable locking member disposed in said aperture and including a disk adapted to engage such projecting rib on said second blade, a second disk normally flush with the other side of said first-named blade, a shank connecting said two disks, and resilient means adapted to retain said member in its normal position, whereby said two disks are flush respectively with the two sides of said first named blade.

3. In a separable square the combination of two blades, one of said blades having an undercut groove on one side thereof and an aperture adjacent to one end of such groove, said other blade having a tongue adapted to enter said groove, such tongue having a projecting rib adjacent to the engaging end thereof; and a reciprocable locking member disposed in said aperture and normally contained wholly within said first-named blade, said member comprising a disk adapted to engage such projecting rib on said other blade, a second disk normally flush with the other side of said first-named blade, a shank connecting said two disks, and a plurality of springs between said first named blade and said second disk adapted to retain said member in its normal position, whereby said two disks are flush respectively with the two sides of said first-named blade.

4. In a separable square, the combination of two blades, one of said blades having an undercut groove on one face, and a circular hole at the inner end of said groove, a projecting rib extending partially around said hole, and a second groove extending around said rib, said other blade having a tongue adapted to engage said first-named groove, a complementary groove and rib adjacent to one end of said tongue, thereby extending said second groove and rib completely around said circular hole, said rib having its inner wall slightly beveled; and a locking member disposed in this hole, and comprising a flanged disk adapted with such flange to encircle said complementary ribs and to engage said complementary grooves, a shank connected to said disk and extending through said hole, a disk attached to the other end of said shank and springs mounted in said first-named blade and adapted to resiliently press against said last named disk, thereby retaining said locking member in its normal position.

Signed by me this 27 day of July 1911.

OSCAR R. ALTWEIN.

Attested by—

L. C. FICHTHORN,

R. G. ANDREWS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."