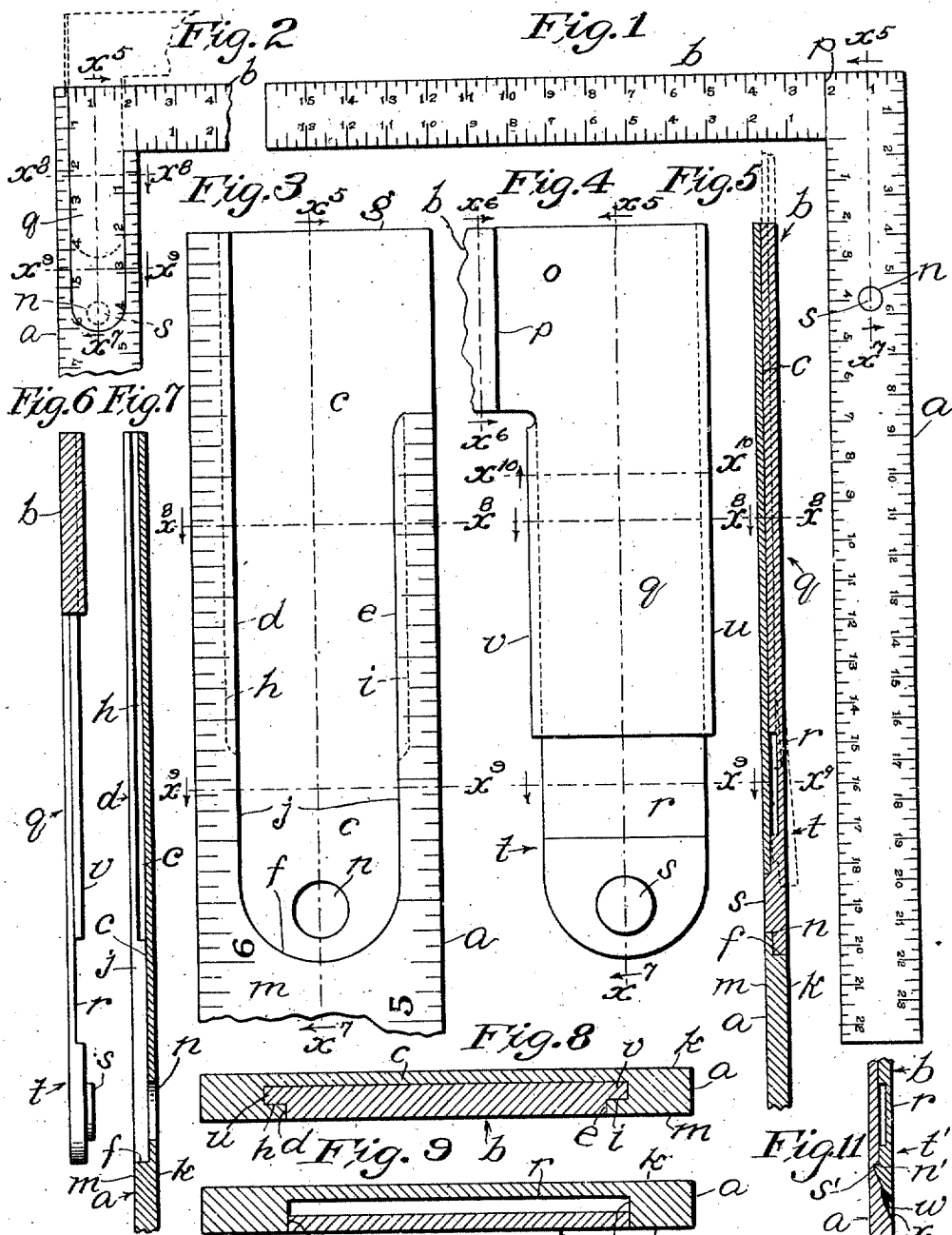


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SEPARABLE STEEL SQUARE.  
APPLICATION FILED NOV. 8, 1909.

985,314.

Patented Feb. 28, 1911.



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# UNITED STATES PATENT OFFICE.

JAMES A. WRAY, OF LOS ANGELES, CALIFORNIA.

## SEPARABLE STEEL SQUARE.

985,314.

Specification of Letters Patent. Patented Feb. 28, 1911.

Application filed November 8, 1909. Serial No. 526,911.

*To all whom it may concern:*

Be it known that I, JAMES A. WRAY, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Separable Steel Squares, of which the following is a specification.

This invention is an improvement on the square patented to me Aug. 20, 1901, by Letters-Patent of the United States No. 680,830.

The objects of this invention are maximum simplicity, cheapness, convenience of manufacture and convenience of assembling and disassembling; also to avoid the use of any small parts liable to be lost; and to make a separable steel square of only two parts that can be assembled and disassembled by an unskilled person without the use of tools.

The accompanying drawings illustrate the invention.

Figure 1 is a view of one face of a separable steel square embodying this invention. Fig. 2 is a fragmental view of the other face of said square. Dotted lines indicate the position of the smaller member of the square before it is fully connected with the larger member. Fig. 3 is an enlarged fragmental view of that face of the larger member of the square shown in Fig. 2. Fig. 4 is an enlarged fragmental view of that face of the smaller member of the square partly shown in Fig. 1. Fig. 5 is a longitudinal section on line indicated by  $x^5-x^7$ , Figs. 1, 3 and 4. Dotted lines indicate a position of parts before the sections are fully set together. Fig. 6 is an edge view of the articulating tongue of the smaller member of the square. Said smaller member is shown in cross-section on line indicated by  $x^6$ , Fig. 4. Fig. 7 is a longitudinal section of the articulating seat of the larger member of the square on line indicated by line  $x^5-x^7$ , Figs. 1, 3 and 4. Fig. 8 is a cross-section indicated by line  $x^8$ , Figs. 2, 3, 4 and 5. Fig. 9 is a cross section on line indicated by line  $x^9$ , Figs. 2, 3, 4 and 5. Fig. 10 is a section on line  $x^{10}$ , Fig. 4. Fig. 11 is a section of a modified form on line corresponding to that indicated by  $x^5-x^7$ , Fig. 2.

The arrows on the section-indicating lines indicate the direction of sight for the corresponding sectional views.

The square consists of only two pieces a

large broad section  $a$  and a small narrow section  $b$ . The larger section  $a$  is a straight, thin parallelogram corresponding to that portion of an ordinary carpenter's steel square that would remain if the smaller limb were cut away, and is provided on one side at one end with a dovetail groove forming a seat  $c$  open at one end and having undercut parallel side walls  $d, e$ , extending longitudinally of the section  $a$ , part way toward the closed end of the seat, and a curved end wall  $f$  uniting the walls  $d, e$ , at their innermost ends. The side wall  $d$  extends from the extremity of the articulating end  $g$  of the larger section to the curved end wall  $f$ , and the inner side wall  $e$  terminates at a distance from said end  $g$  equal to the width of the main body of the small section  $b$  of the square which main body corresponds to the smaller limb of a carpenter's steel square and is provided with a thin rectangular lateral extension or attaching arm hereinafter described, to fit the seat  $c$ . Said seat  $c$  is open at one side, one edge and one end of the large section  $a$ .

The walls  $d, e$ , are provided for a suitable distance from their outer ends toward the rounded wall  $f$  with rabbet grooves  $h, i$ , and the transverse traces of the wall  $f$  and of the intermediate walls  $j$  that form extensions from the walls  $d, e$ , to the rounded wall  $f$  are normal to the side faces  $k, m$ , of the larger section  $a$ , thus affording a vertical walled chamber into and from which a spring tongue hereinafter described may move. Near the inner end of the seat  $c$  and adjacent the rounded wall  $f$  thereof, an orifice in the form of a perforation  $n$  is provided, extending through the bottom of the seat  $c$  and being preferably circular in cross-section to receive a catch on said spring tongue.

The smaller section  $b$  is provided on one side with a gain  $o$  terminating in a wall  $p$  that is preferably normal to the edges and faces of the section  $b$ . The width of the gain  $o$  from the wall  $p$  to the end of the section nearest thereto, is equal to the width of the seat  $c$  on the larger section  $a$ . The smaller section  $b$  is provided at its articulating end with a right angle attaching arm  $q$  to seat in the recess  $c$ . Said arm  $q$  is recessed on its inner face to form a spring portion  $r$  and is provided with a catch in the form of a stud  $s$  adapted to fit tightly in the orifice  $n$  in the larger section  $a$  when the attaching arm

*g* is seated in the seat *c*. The recessed portion of the attaching arm *g* and the end portion beyond the recess, forms a spring-latching tongue *t* and the body of the arm *g* is provided between said recess *r* and the edges of the smaller section *b* with rabbet tongues *u* and *v* to fit the grooves *h*, *i*, respectively. The latching tongue *t* is of such width as to slide between the walls *d*, *e*.

By terminating the dovetail grooves *h*, *i*, at a distance from the end of the seat *c*, both such grooves can be formed by a single operation of a single rotary cutter the edge of which is equal in thickness to that of the rabbet tongues *u*, *v*; thus greatly facilitating and cheapening the manufacture. It is thus seen that the square is formed of two members, one of which is grooved and the other of which slides in the groove and is detachably held therein by a latching tongue.

To disassemble the square, an instrument, as a finger of the operator or the point of a screwdriver or other tool, may be applied to the stud *s* through the perforation *n* and the spring tip of the arm *g* may be thereby pushed outward so as to move the stud *s* from engagement with the floor of the groove *c*. Then by applying force to the member *b* of the square while the member *a* is held, the arm may be slid from its seat.

It is understood that the arrangement and construction of the latching means may be varied without departing from the broad spirit of this invention and that equivalents for the latching stud *s* and its seat *n* may be contrived without departing from the spirit of the invention. One of the modifications which may be employed is illustrated in Fig. 11, where the latching stud *s'* and its seat *n'* do not extend entirely through the floor of the groove *c'*, and the tip of the spring latching tongue *t'* is provided with an undercut opening as shown at *w* and the face of the larger member *a* is cut away to form an opening as indicated at *x*, so that an instrument may be inserted into the opening between the larger member *a* and the tip of the latching tongue *t* to pry the tongue out to release the latch.

I claim:—

1. A separable square comprising a broad section which is a straight thin parallelogram corresponding to that portion of an ordinary carpenter's steel square that would remain if the smaller limb of the square were cut away, said section being provided on one side at one end with a dove-tailed groove forming a seat open at one end and having undercut parallel side walls extending longitudinally of the section part way toward the closed end of the seat, thus forming an articulating end for the section, and a curved end wall uniting the side walls at their innermost ends, one of the side walls

extending from the extremity of the articulating end of said section to the curved end wall and the other side wall terminating at a distance from said articulating end equal to the width of the main body of the small section of said ordinary carpenter's square; said side walls being provided for a distance from their outer ends toward the rounded wall with undercut grooves; a vertical walled chamber being provided at the end of the groove and an orifice being provided near the end of the groove in the floor thereof; and a narrow section corresponding to the smaller section of a carpenter's steel square provided on one side with a gain terminating in the wall that is normal to the edges and faces of said narrow section, the width of the gain from the wall to the end of the section nearest thereto being equal to the width on the seat of the broad section, the narrow section being provided at its articulating end with a rectangular attaching arm to seat in the recess of the broad section; said arm being recessed on its inner face to form a spring portion and provided with a catch in the form of a stud adapted to fit tightly in the orifice in the larger section when the attaching arm is seated in the seat; the recessed portion of the attaching arm and the end portion beyond the recess forming a spring latching tongue; the body of the arm being provided between said recess and the edges of the smaller section with rabbet tongues to fit the undercut of said walls, respectively, and said latching tongue being of such width as to slide between said undercut walls.

2. A carpenter's square comprising two sections that form the usual wide and narrow members of a carpenter's steel square, the narrow section being provided with an extension that projects therefrom at right angles and has parallel walls which are rabbeted a portion of the distance from the narrow section toward the end of the extension, said extension terminating in a resilient latching member provided with a catch, the broad section of said square being provided along its length with a groove one of the walls of which terminates at the end of said section and the other wall of which groove terminates short of such end; said walls being undercut a portion of the way only, to receive the rabbet tongues of the said extension, the end of said extension fitting said groove and being formed for engagement with the floor of the groove.

3. A separable square comprising two sections one of which sections is provided with a groove having undercut parallel walls and the other of which is provided with a dovetail arm in said groove, said arm being provided with a resilient portion near the tip, and said arm and the grooved section being provided with interlocking means beyond

said resilient portion that are releasable by springing the tip from the floor of the groove.

4. The combination with a member provided in one face with a groove extending to one edge and one end of the member, the walls of said groove being undercut a portion of the way toward the tip of the groove, of another member provided with an arm fitted in the groove; said arm having a resilient portion near its end and being provided with latch means to engage the grooved member to latch said members together; said means being releasable by springing the resilient portion away from the floor of the groove.

5. The combination with a member provided in one face with a groove extending to one edge and one end only of the member, the walls of said groove being undercut a

portion of the way toward the tip of the groove, of another member provided with an arm fitted in the groove; said arm having a resilient portion near its end and being provided with latch means to engage the grooved member to latch said members together; said means being releasable by springing the resilient portion away from the floor of the groove, and the floor of said grooved member being provided with a perforation through which an instrument may be inserted to release the latch.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 1st day of November, 1909.

JAMES A. WRAY.

In presence of—

JAMES R. TOWNSEND,  
L. BELLE RICE.

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