(No Model.)

2 Sheets—Sheet 1.

J. G. ZUCK.

STEEL SQUARE.

No. 523,500. Patented July 24, 1894.

Fig. 2.

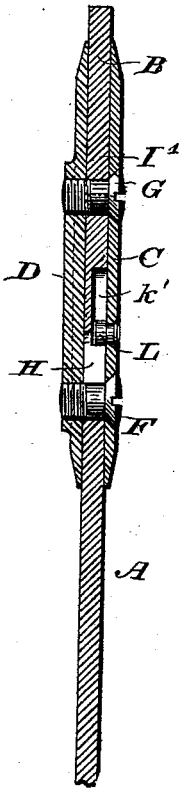


Fig. 1.

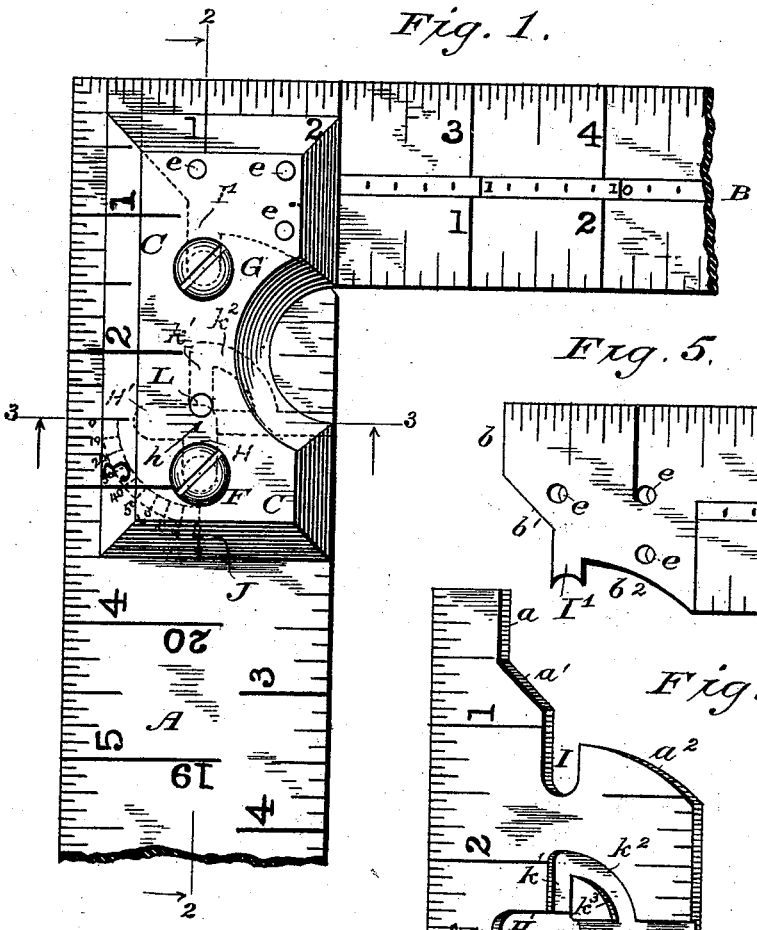


Fig. 5.

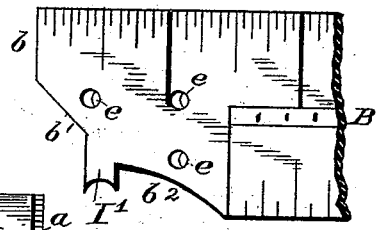


Fig. 4.

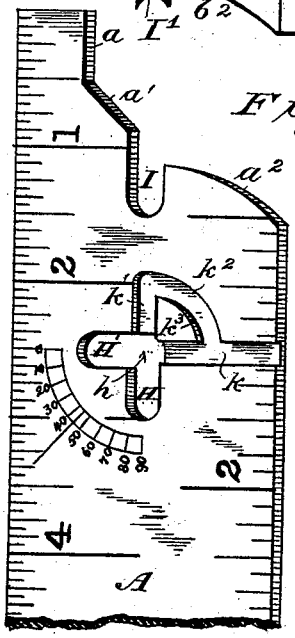
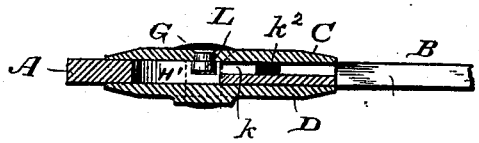


Fig. 3.



Witnesses

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Wm P. Dunlavy.

Inventor

John George Zuck

By his Attorney

Wm A. Skinkle

(No Model.)

2 Sheets—Sheet 2.

J. G. ZUCK.

STEEL SQUARE.

No. 523,500.

Patented July 24, 1894.

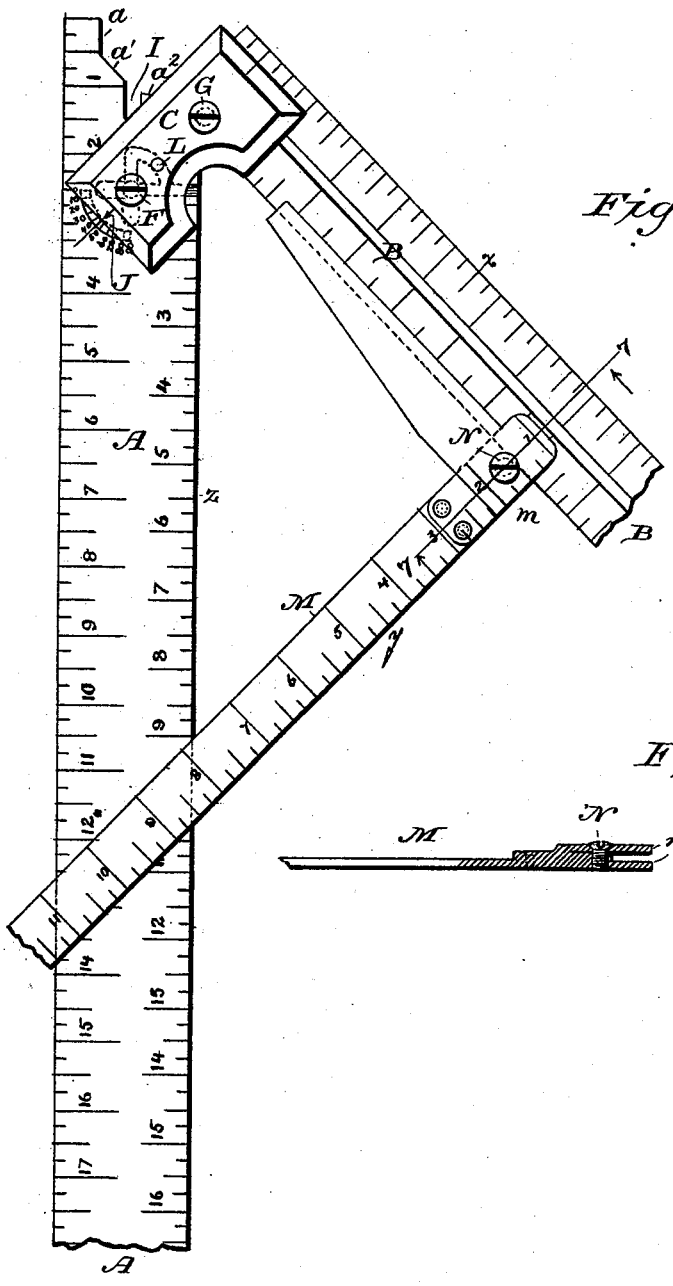

Fig. 6.

Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN GEORGE ZUCK, OF CLEVELAND, OHIO.

STEEL SQUARE.

SPECIFICATION forming part of Letters Patent No. 523,500, dated July 24, 1894.

Application filed February 17, 1894. Serial No. 500,600. (No model.)

To all whom it may concern:

Be it known that I, JOHN GEORGE ZUCK, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Steel Squares, of which the following is a specification, that will enable those skilled in the art to which my invention pertains to make and use the same.

My invention relates to that class of instruments commonly known as steel squares, one side or member of which, is generally two feet in length and the other from sixteen to eighteen inches, these two members being solidly connected at their point of intersection. An instrument so constructed and of the dimensions above stated is cumbersome and awkward to carry as a box large enough to contain it is much larger than is necessary to hold the other tools that usually form a workman's kit, and is unwieldy; or if the box is made to suit the other tools, one member of the square necessarily projects out of it a long distance. I seek to overcome these objections and to secure some other incidental advantages by making a folding steel square which may be folded and packed in a small space and also, if desired, used as a bevel.

One feature of my invention consists in the peculiar construction of the joint by which the two members of the square are united, and another in the use of a small supplementary square in connection with the main instrument when the latter is used as a bevel to facilitate laying out stair stringers, roof framing, &c.

The accompanying drawings show my invention in the best form now known to me but many changes within the skill of a good mechanic might be made in the details thereof without departing from the spirit of my invention as set forth in the claims at the end of this specification.

Figure 1, is a side view of the joint which unites the two members of my square. Fig. 2, is a longitudinal section through the same on the line 2. 2. of Fig. 1. Fig. 3, is a section on the line 3. 3. of Fig. 1. Figs. 4, and 5, are detached views of the adjacent ends of the two members. Fig. 6, is a view on a reduced scale showing the instrument when set as a bevel and the application of the supplementary square thereto. Fig. 7, is a section through the clamping head of the supplementary square on the line 7. 7. of Fig. 6.

The two members A, and B, of the square are united by side plates C, and D. These plates are secured rigidly to the member B, by rivets *e*, or otherwise, and to the member A, by frictional contact induced by clamping screws F, and G, the first of which lies in the right angled slot H, H′, and the other in a notch I, in the member A. The abutting ends of the members are peculiarly formed, A, having a straight portion *a*, an inclined portion *a′*, and a curved portion a^2, against which rest the correspondingly shaped portions *b*, *b′*, b^2, of the edge of the member B, when the instrument is used as a square. The member B, has also a lug or projection I′, which fits into the outer end of the notch I, and serves to positively lock the two members of the square against accidental disarrangement. The screw G, lying in the slot does to some extent effect the same purpose but it is not as accurate and reliable in this particular as the projection I′.

When it is desired to set the instrument as a bevel or to fold it, the set screws are loosened and the member B, raised or moved endwise until the set screw F, lies in the upper end of the slot H, and the projection I′, and set screw G, are raised far enough out of the notch I, to swing along past the surface a^2, which is curved concentrically about the center *h*.

It will be observed that one of the clamping plates is provided with a pointer or index sign J, and that the member A, has a graduated arc, by means of which the instrument when used as a bevel may be set to any desired angle as will be clear from an inspection of Fig. 6.

To insure greater accuracy in the setting of the instrument at any of its angles either as a square or a bevel, I form in one face of the member A, a groove *k*, *k′*, k^2, which is taken into by a stud pin L, on the inner face of the plate C. When the instrument is used as a square this stud stands in the lower end of the groove *k′*. When it is to be used as a bevel the stud swings around the groove k^2, bearing against its inner wall k^3, the set screw F, forming the pivot at the center *h*. When

it is desired to take the two members apart, the set screw F, is taken out and the stud pin L, may then be withdrawn from the groove *k*.

The supplementary square M, shown in Fig. 6, is provided with a spring clamping head *m*, and a set screw N, by means of which it may be clamped upon the member B, of the main instrument.

When the instrument thus equipped is used for laying out stair work and other like purposes it may be at once set to any desired dimensions for risers and treads and the work marked off without further calculation, the tread line being given by the outer side *x*, of the member B, the riser line by the outer side *y*, of the supplementary square, while the inner edge *z*, of the main member A, slides along the edge of the stair board or stringer which is being laid out.

The right angled portion or extension H′, of the slot H, admits of the screw F, being moved far enough back to permit the edges of the two members of the square being brought close together when the instrument is folded for transportation.

Having thus described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

1. The combination of the separable members A, B, of a square having correspondingly shaped abutting edges and having respectively the interlocking notch I, and projection I′, and the side plates rigidly attached to one member and embracing the end of the other which is also slotted at H, with the clamping screw F, lying in the slot H, all arranged and operating substantially as set forth.

2. The combination of the separable members A, B, of a square having correspondingly shaped abutting edges, the side plates rigidly attached to member B, and embracing the end of member A, the two clamping screws passing through the plates and lying respectively in the slot H, and notch I, of member A, substantially as hereinbefore set forth.

3. The combination of the separable members A, B, of a square, the side plates rigidly attached to one of the members, the clamping screws passing through the plates and lying respectively in the slot H, and notch I, of the other member which is also provided with the guide groove *k*, *k*′, *k*², in its face, and the stud pin L, all arranged and operating substantially as hereinbefore set forth.

4. The combination of the separable members A, B, of a square, the side plates, the clamping screws lying respectively in the slot H, H′, and in notch I, the abutting edges of the two members having correspondingly curved portions, the radius of which is equal to the distance from the center of one set screw to the nearest side of the other, substantially as hereinbefore set forth.

5. The combination of the separable members A, B, of a square, the side plates, the clamping screw F, passing through the right angled slot H, H′, the steady pin L, and the guide groove *k*, *k*′, *k*², in one of the members the portion *k*², of which is curved about a center located at the intersection of the portions H, H′, of the slot, substantially as and for the purpose hereinbefore set forth.

6. The combination of the separable members A, B, of a square, hinge jointed together so as to flex edgewise, with the supplementary try square M, having a screw clamping head adapted to embrace the edge of one member of the main square and a blade extending to and across the other member, substantially as and for the purpose set forth.

In testimony whereof I affix my signature, in the presence of two witnesses, at Cleveland, Ohio, November 10, 1893.

JOHN GEORGE ZUCK.

Witnesses:
WM. A. SKINKLE,
CORNELIA A. SKINKLE.