A. RANDOLPH.

DRAFTING SQUARE.

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1,237,385.

Patented Aug. 21, 1917.

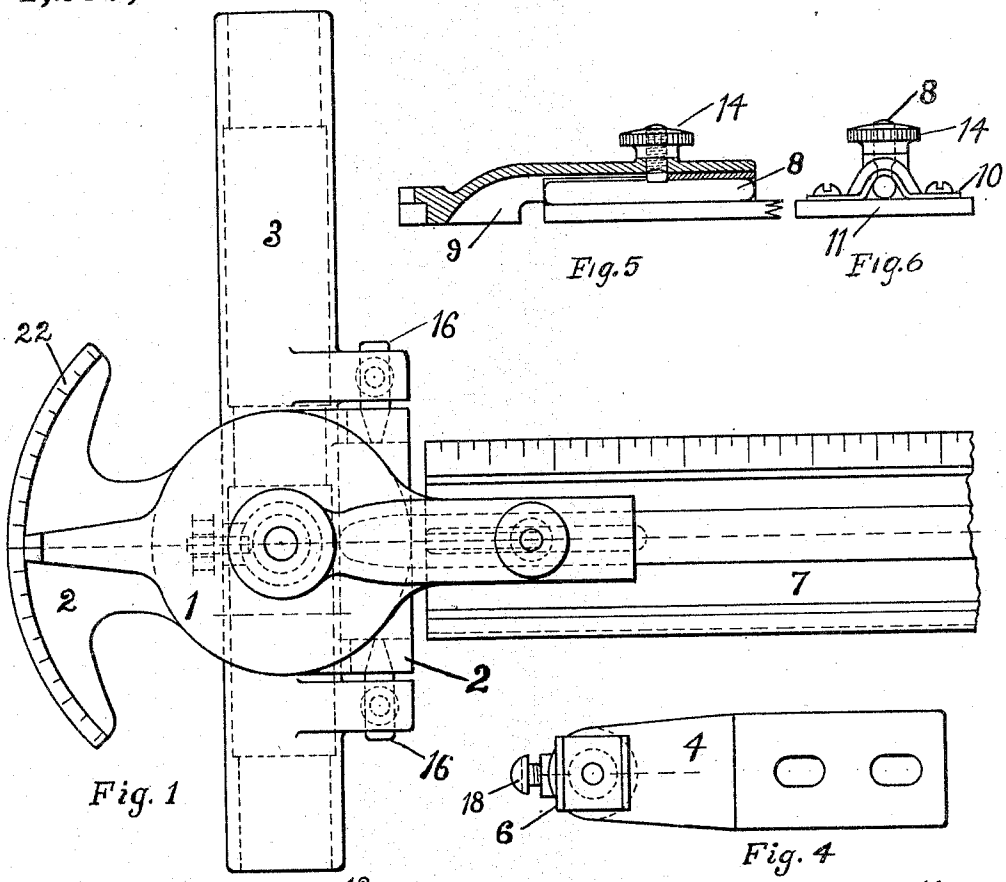

Fig. 1

Fig. 5

Fig. 6

Fig. 4

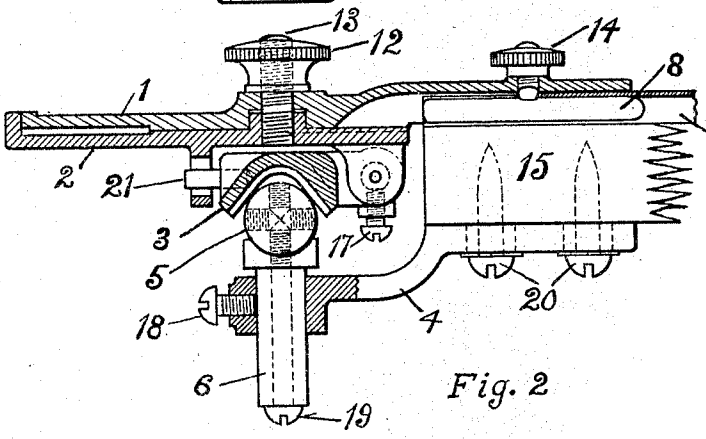

Fig. 2

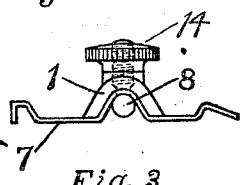

Fig. 3

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DRAFTING-SQUARE.

1,237,385. Specification of Letters Patent. Patented Aug. 21, 1917.

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To all whom it may concern:

Be it known that I, ALFRED RANDOLPH, a citizen of the United States, residing in Salem, Columbiana county, Ohio, have invented a new and useful Improvement in Drafting-Squares, of which the following is a specification.

My invention relates to the parallel ruling type of square which is guided in its movement without the aid of the hand to hold it against its guide, and it may be readily understood from the following description in connection with the accompanying drawing in which:—

Figure 1 shows a plan view of the square, Fig. 2 is a vertical section through Fig. 1 and a guide bar supporting bracket, Fig. 3 is an end view of a ruling blade and blade holder, Fig. 4 is a plan of a guide bar supporting bracket and Fig. 5 is a vertical section and Fig. 6 an end view showing how a wood blade may be secured to the blade holder.

In the drawing:—1 is a swiveling head ruling blade holder, 2 is a swivel head supporter, 3 is a guiding head, 4 is one of the guide bar supporting brackets, 5 is a round guide bar, 6 is a vertical adjusting guide bar post, 7 is a metal ruling blade, 8 is a bolt with a cylindrical shaped head for securing blade 7 to head 1, 10 is a metal piece shaped to fit holder 9 for securing a wood ruling blade 11, 12 is a milled head nut for securing head 1 to holder 2, 13 is the stud for nut 12, 14 is a milled nut for bolt 8, 15 is the end of a drafting board, 16 are hinge pins for pivoting holder 2 to guide head 3, and 17 are set screws for holding the hinge pins, 18 is a set screw for holding the guide bar vertical supporting post, 19 is a screw for holding the guide bar to its supporting post, 20 are wood screws for holding bracket 4 to the drawing board, 21 is a pin secured in guide head 3 working in a slotted lug or holder 2 for the purpose of limiting the movement of the guide head on its pivots and 22 shows graduations of a circle arc on holder 2.

As this is not the first drafting square invented having a mechanically guided head it must be explained how my invention is an improvement over all previous ones.

In all previous squares known to me in which a guiding bar or similar device is used there has in all been some means of holding the guiding head to the bar and such devices are troublesome to detach when it is necessary to remove the head from the guide and they also cause an excessive amount of friction on the guide which prevents the square from being moved freely along it.

The great advantage of the common drafting or T square is that it can be removed from the board at will with the greatest ease and got out of the way when it is not wanted and it is very light in weight. But it has the serious disadvantage that it must always be held against the end of the board with one hand, leaving only the other hand for work on the board which is very often inconvenient.

My invention has the advantages of the common T square and none of its disadvantages. I attain this by using a guide bar 5 at the side of the board supported by brackets 4 secured to the under side of the board by screws. Two brackets are used for a guide bar and they carry posts 6 that have seats in their tops which fit the guide bar and are adjustable vertically to bring the guide bar to the proper height. The guide bar 5 is round but other shapes may be used though I prefer the round one because it is cheaper to make and when worn it may be turned partly over by changing screw 19 to other holes provided in the bar for that purpose, thus presenting true surfaces again for the guide head to bear on. The guiding head has angular sides which bear on the guide bar and this angle is made such that the weight of the guide head will keep it from lifting from the bar when the square is pushed along by its blade, the lighter the head is the more acute the angle must be and when it is just right for the weight it is not necessary to put the hand on the square head to push it along the guide.

The object of having the guide head pivoted to holder 2 is to permit the ruling blade to pass over inequalities on the surface of the board without lifting the guide head from the bar. The pin 21 fixed in the guide head and moving freely in a slot in the holder 2 is to fix limits to the movement of the guide head on its pivots so that the head will not fall down when it is removed from the guide bar.

The metal ruling blade 7 shown in end view at Fig. 3 is made of very thin metal

and has a central rib its entire length, one vertical raised edge and a beveled edge, all of which serve to make it stiff without being heavy like a plain flat metal blade would be if equally stiff. The beveled edge is for ruling with a pencil and may be graduated for measuring as shown in Fig. 1, and the vertical edge is for use with the ruling pen. To bring these edges on the proper side for ruling, the blade is made reversible endwise by having a slot in each end that straddles the bolt 6 and fits inside of a groove in the swivel head 2. By screwing down the nut 14 on bolt 8 the blade is secured in place.

The pivot pins 16 are adjustable and secured by set screws 17 so that any wear of the pivots may be taken up.

The holder 2 is graduated to divisions of the circle on an arc and swivel head 1 has an index arm meeting the arc and carrying a zero mark. This arm may be made adjustable for re-setting. The swivel head turns on a trunnion on holder 2 and is secured to it by the milled head nut 12 on stud 13.

The bracket 4 shown in plan at Fig. 4 has slots through it for the screws 20 so that it may be adjusted to bring the guide bar to the right transverse relation to the board.

Swivel head 9 is a modification of head 2 adapting it for holding wood blades.

Owing to the guide head being itself adjusting to wear on the guide bar and the adjustment being in a vertical direction the accuracy of guiding is not impaired by wear like other forms of guides are.

I claim:

1. A guide bar adapted to be attached to a drafting board, a guide head adapted to slide on the guide bar, a blade head secured to the guide head by a hinge joint and a ruling blade secured to the blade head.

2. A guide bar adapted to be attached to a drafting board, a blade head having conical sockets in it, a guide head adapted to slide upon the aforesaid guide bar, pins in said guide head adapted to fit in the sockets in said blade head and a ruling blade secured to the blade head.

3. A straight cylindrical guide bar adapted to be attached to a drafting board, a guide head adapted to slide on the guide bar, a blade head secured to the guide head by a hinged joint and a ruling blade secured to the blade head.

4. A guide head adapted to slide on a guide bar, a ruling blade secured to the guide head by a hinge joint, brackets adapted to be attached adjustably to a drafting board, posts secured adjustably in the brackets, a guide bar attached to the posts and adapted to carry said guide head.

5. A ruling blade made of sheet metal said blade having a central lengthwise formed rib and slots at each end of the blade, a guiding head having a groove in it formed to fit the rib on the said blade, a bolt in the guiding head having an elongated transverse head adapted to fit the inside of the rib on said blade, the body of the bolt being adapted to pass into the slot in the end of said ruling blade for securing the blade to said guiding head.

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Witnesses:
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