No. 843,459. PATENTED FEB. 5, 1907.

H. S. HUMES.

COMBINED RULE AND SQUARE.

APPLICATION FILED FEB. 7, 1905.

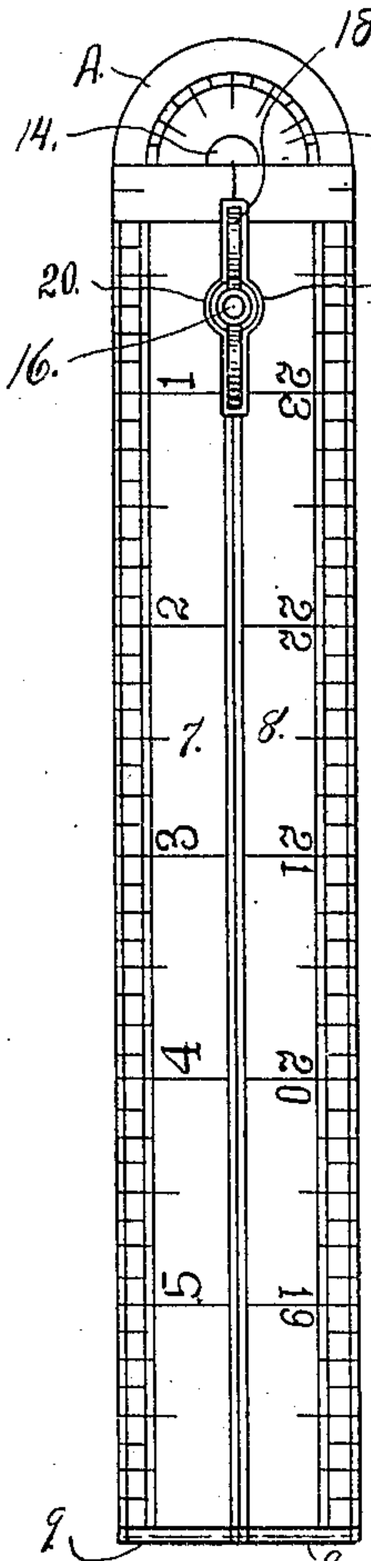


Fig. 1.

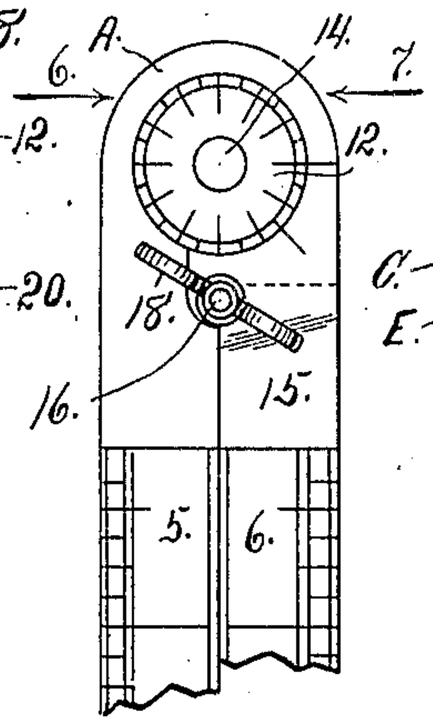


Fig. 2.

Fig. 3.

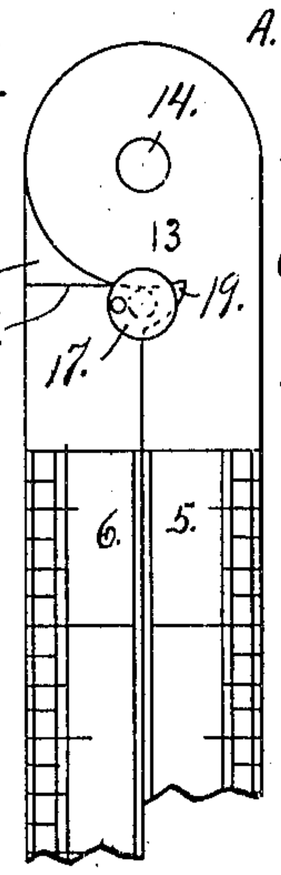


Fig. 4.

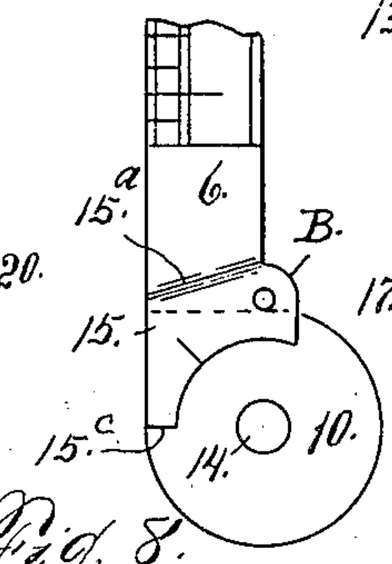


Fig. 8.

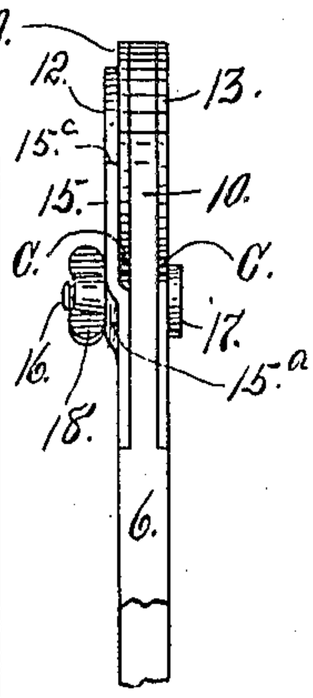


Fig. 7.

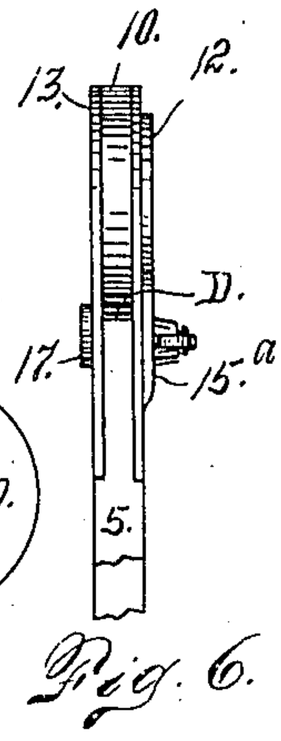


Fig. 6.

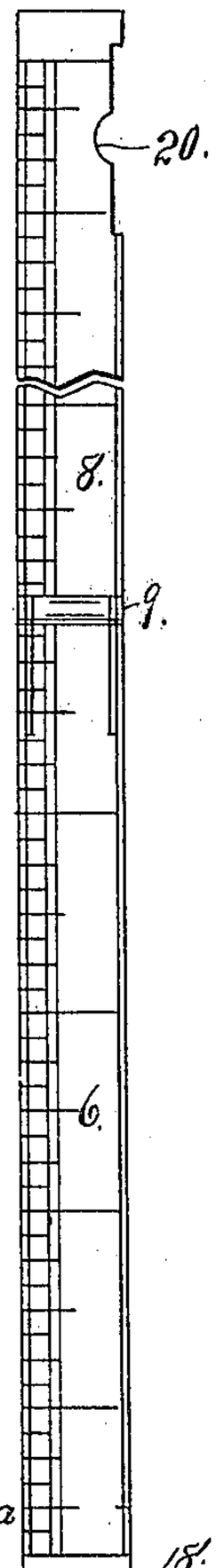


Fig. 7.

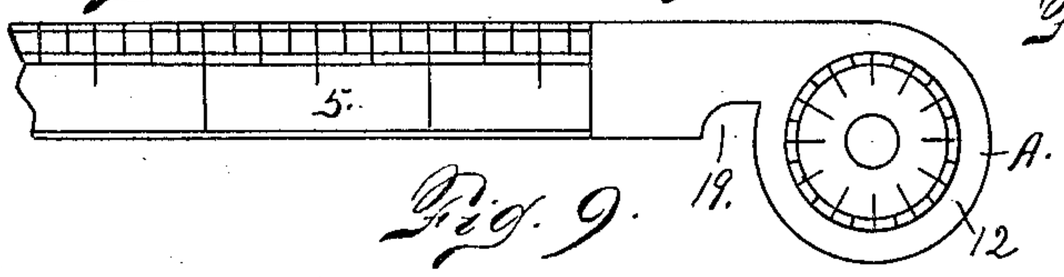


Fig. 9.

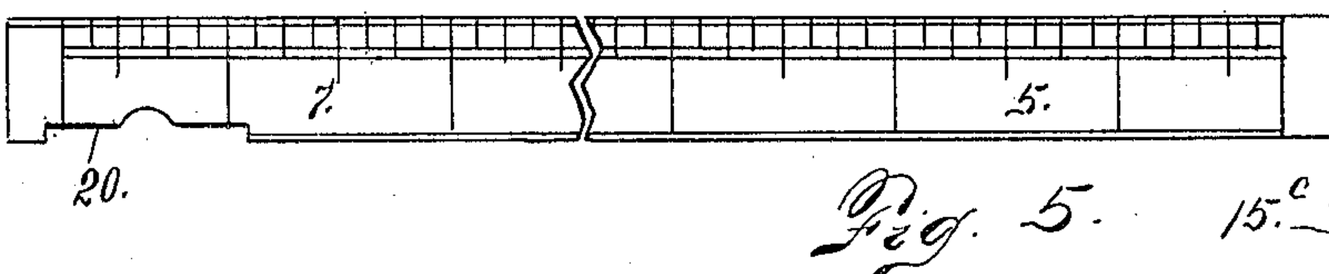
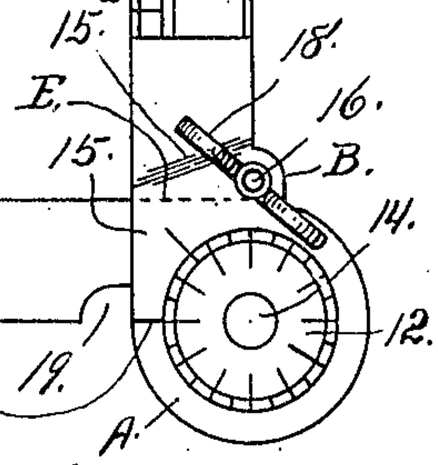


Fig. 5.



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UNITED STATES PATENT OFFICE.

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COMBINED RULE AND SQUARE.

No. 843,459. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed February 7, 1905. Serial No. 244,528.

To all whom it may concern:

Be it known that I, HARRY S. HUMES, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in a Combined Rule and Square; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a measuring instrument adapted to perform the functions of a carpenter's rule and square. The performance of these two functions usually requires two instruments.

My chief object is to so modify the construction of the measuring instrument ordinarily termed the "carpenters' rule" that, while still adapted to perform all the functions of a rule, its members shall be allowed to assume the position of the members of a square or any other position between the straight-line position and the position forming right angles with each other.

It is well known that an ordinary carpenter's rule has reached its limit of movement when the members are moved away from each other whereby they are caused to assume the straight-line position.

In my improved device the members after assuming the straight-line position are capable of moving an additional ninety degrees, whereby the two members occupy positions at right angles to each other.

My improved instrument is also equipped with a locking device whereby the two rule members may be locked in any position of adjustment. The members have a movement of two hundred seventy degrees, while the ordinary rule, as will be understood, only has a movement of one hundred eighty degrees.

Having briefly outlined my improved construction, as well as the function it is intended to perform, I will proceed to describe the same in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is an elevation of a carpenter's rule shown in the closed position and equipped with my improvements. Fig. 2 is a similar view with the outer jointed arms removed and the two main members partly broken away. Fig. 3 is a view of the outer extremities of the outer hinged members when thrown backwardly from the main members. This view illustrates the opening or socket which the thumb-nut enters when the parts are in the position shown in Fig. 1. Fig. 4 is a view similar to Fig. 2, but with the reverse side exposed. Fig. 5 illustrates the device after the members have been moved through two hundred seventy degrees from the parallel position, whereby the outer edges of the rule are made to assume positions at right angles to each other. Fig. 6 is an edge view of the two main members of the rule equipped with my improvements. Fig. 7 is a similar view looking at the opposite edge. Fig. 8 is a detail view of the joint extremity of one of the main members. Fig. 9 is a similar view of the corresponding extremity of the other main member. In Figs. 8 and 9 the members are made to assume positions similar to those shown in Fig. 5, the only difference being that in Figs. 8 and 9 the two main members are detached from each other.

The same reference characters indicate the same parts in all the views.

Let the numerals 5 and 6 respectively designate what I will term the two "main members" of a pocket-rule adapted for use by carpenters, bricklayers, and other mechanics.

The ordinary so-called "two-foot rule" consists of four members—two main members 5 and 6 and two other members, designated 7 and 8 and hinged to the outer extremities of the members 5 and 6, as shown at 9.

My invention relates more particularly to the construction whereby the two main members 5 and 6 are so connected that they are adapted to turn from the position shown in Figs. 1 and 2, to the position shown in Fig. 5, thus permitting a movement of two hundred seventy degrees instead of a movement of one hundred eighty degrees, as in an ordinary rule. The member 6 is provided with a part 10, adapted to enter the bifurcated extremity of the member 5, the said bifurcated extremity consisting of two separated parts 12 and 13. The parts 10, 12, and

13 are connected by a centrally-located rivet 14. Surrounding this rivet the part 12 of the member 5 is graduated to indicate angles. The part 6 is further provided with a plate 15, having an offset 15ª, whereby it is adapted to overlap the outer portion A of the part 12, which part A passes between the plate 15 and the part 10 of the member 6. This part 15 is provided with a shoulder 15ᶜ, which travels around the graduated dial of the part 5 and serves as an indicator to designate the various angles formed by the two members during their travel. The parts 15 and 10 of the member 6 are provided with an apertured lug B to receive a screw 16, which passes therethrough and is provided with a head 17, which slightly overlaps the part 13 of the member 5. The threaded extremity of this screw projects beyond the plate 15, and to this extremity is applied a thumb-nut 18. By tightening this nut the bifurcated ex-extremity of the number 5 is clamped between the nut-head 17 and the plate 15, whereby the two rule members 5 and 6 may be locked at any point of their two hundred seventy degrees of travel. The member 5 is provided with a recess 19, adapted to receive the lug B of the member 6 when the parts 5 and 6 are adjusted to occupy the parallel or closed position, as shown in Figs. 1, 2, and 4.

In order to prevent the thumb-nut from being lost or accidentally removed from the screw 16, the threaded extremity of the nut is upset or enlarged sufficiently to prevent the removal of the nut. The length of the screw is such that this upset or enlarged end will prevent the nut when loosened from moving farther than the position shown in Fig. 1. This feature will facilitate the manipulation of the device, since when the nut is loosened it will always be in position to enter the recess formed in the auxiliary folding members 7 and 8.

In order to allow the two members 5 and 6 to assume the position shown in Fig. 5, the member 6 is cut away on opposite sides, as shown at C, while the bifurcated extremity of the part 5 is cut away, as shown at D, Fig. 6, and when the parts are in the position shown in Fig. 5 the shoulders E on opposite sides of the part 6 abut against the part 6, whereby the movement of the members 5 and 6 ceases.

The auxiliary members 7 and 8 of the rule are cut away on their inner edges, as shown at 20, in order to make room for the thumb-nut when the members 7 and 8 are folded to the position shown in Fig. 1.

From the foregoing description the use and operation of my improved device will be readily understood. The device is capable of use as an ordinary carpenter's rule and may be locked in any position from the parallel to the straight line position or at any point which it assumes during its one hundred eighty degrees of travel, the face of the member 5 being graduated to indicate the various angles formed by the two members during this movement. With this exception the operation of the rule is exactly the same within the said range of movement as the ordinary rule. The ordinary rule, however, is provided with abutting shoulders, which prevent it from moving beyond the straight-line position. On the contrary, my improved device, when the thumb-nut is sufficiently loosened, is allowed to travel ninety degrees farther or to assume the position shown in Fig. 5 of the drawings, whereby the members 5 and 6 are adapted to perform the function of a square, as heretofore stated. When in this position, the outer edges of the members 5 and 6 occupy positions perpendicular to each other and forming a right angle with a sharp unobstructed corner.

It will be understood that after the members have traveled ninety degrees from the parallel position they will occupy a position at right angles to each other and may be locked to retain this position; but the device when in this position does not form a sharp angle, since the inner edges of the said members do not intersect each other. In other words, the parts forming the joint extend into the angle when the members are in this position and prevent the device from performing the function in all respects of a square. When, however, the two members are given an additional half-turn or moved one hundred eighty degrees farther, they assume the position perpendicular to each other, with the planes of the outer edges of the members 5 and 6 intersecting each other, the corner formed by the members having no obstruction whatever, thus adapting the device for use in performing the function of an ordinary square as well as all the other functions of a rule and angle measure.

It must be understood that my invention is not limited to its application to a carpenter's or mechanic's rule of ordinary construction, since it may be employed to advantage in connection with any two members jointed, as the members 5 and 6, and connected as heretofore described.

I further wish it to be understood that I do not limit the invention to the details of construction shown and herein explained, as I am aware that the construction may be modified in its details without departing from the invention.

Having thus described my invention, what I claim is—

1. An instrument of the class described comprising two substantially twin members having a joint provided with overlapping disk portions, the said members being jointed to travel in the same plane two hundred and seventy degrees from the parallel position, causing them to assume positions perpen-

dicular to each other and forming an unobstructed ninety-degree angle, one of the disk portions being graduated and the other being provided with an indicator for the purpose set forth.

2. An instrument of the class described comprising two members having a joint provided with overlapping disk portions, the said members being jointed to travel in the same plane two hundred seventy degrees from a parallel position, causing them to form an unobstructed ninety-degree angle, the said members being provided with means to prevent farther travel.

3. An instrument of the class described, comprising two members jointed to travel in the same plane two hundred seventy degrees from the parallel position causing them to assume positions perpendicular to each other and forming an unobstructed ninety-degree angle, one of the members having a graduated dial and the other an indicator for measuring on the dial-angles assumed by the members during their travel.

4. An instrument of the class described comprising two members having a joint provided with overlapping disk portions, the said members being jointed to travel in the same plane two hundred seventy degrees from the parallel position causing them to assume at their limit of travel positions perpendicular to each other and with the apex of their interior angle unobstructed at the point where the members intersect, and means for locking the two members against movement at any point of travel.

5. In an instrument of the class described, the combination of two members having a pivotal joint provided with overlapping parts, the two members when in the parallel position being adapted to meet each other, one member having a lug located at its inner extremity adjacent to the overlapping parts of the joint, and the other member a recess to receive the lug when the parts are closed, and a fastening device passed through the lug of one member and having its center in the meeting line of the two members when parallel, the parts being connected to interlock when the fastening device is tightened.

6. In an instrument of the class described, the combination of two members having a pivotal joint provided with overlapping disk portions, the two members when in the parallel position being adapted to meet each other, one member having a lug located at its inner extremity adjacent to the overlapping parts of the joint, and the other member having a recess to receive the lug when the parts are closed, and a screw passing through the lug of the one member and having its center in the line of division of the two members, the parts being connected to interlock when the screw is tightened.

7. In an instrument of the class described, the combination of two members having a pivotal joint provided with overlapping parts, the two members when in the parallel position being adapted to meet each other, one member having a lug at its inner extremity adjacent to the overlapping parts of the joint, and the other member a recess to receive the lug when the parts are closed, a screw passing through the lug of the one member and having its center in line with the division of the two members when parallel, and a thumb-nut applied to the screw, the parts being connected to interlock when the nut is tightened.

8. In an instrument of the class described, the combination of two members having a pivoted joint, the two members when in the parallel position being adapted to engage each other beyond the joint, one member having a lug located just beyond the jointed parts, and the other member a recess to receive the lug when the parts are closed, a screw passing through the lug of the one member and having its center in line with the line of division of the two members when parallel, and a thumb-nut applied to the screw, the parts being connected to interlock when the nut is tightened, the device also having folding auxiliary members recessed to receive the thumb-nut, substantially as described.

9. A carpenter's rule composed of two main jointed members and auxiliary folding members, a locking-screw centrally located between the members, and a thumb-nut applied to the screw, the folding members being recessed to receive the thumb-nut.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY S. HUMES.

Witnesses:
A. J. O'BRIEN,
JAMES E. YOUNG.