No. 885,411. PATENTED APR. 21, 1908.

E. WERNER.

T-SQUARE.

APPLICATION FILED AUG. 13, 1907.

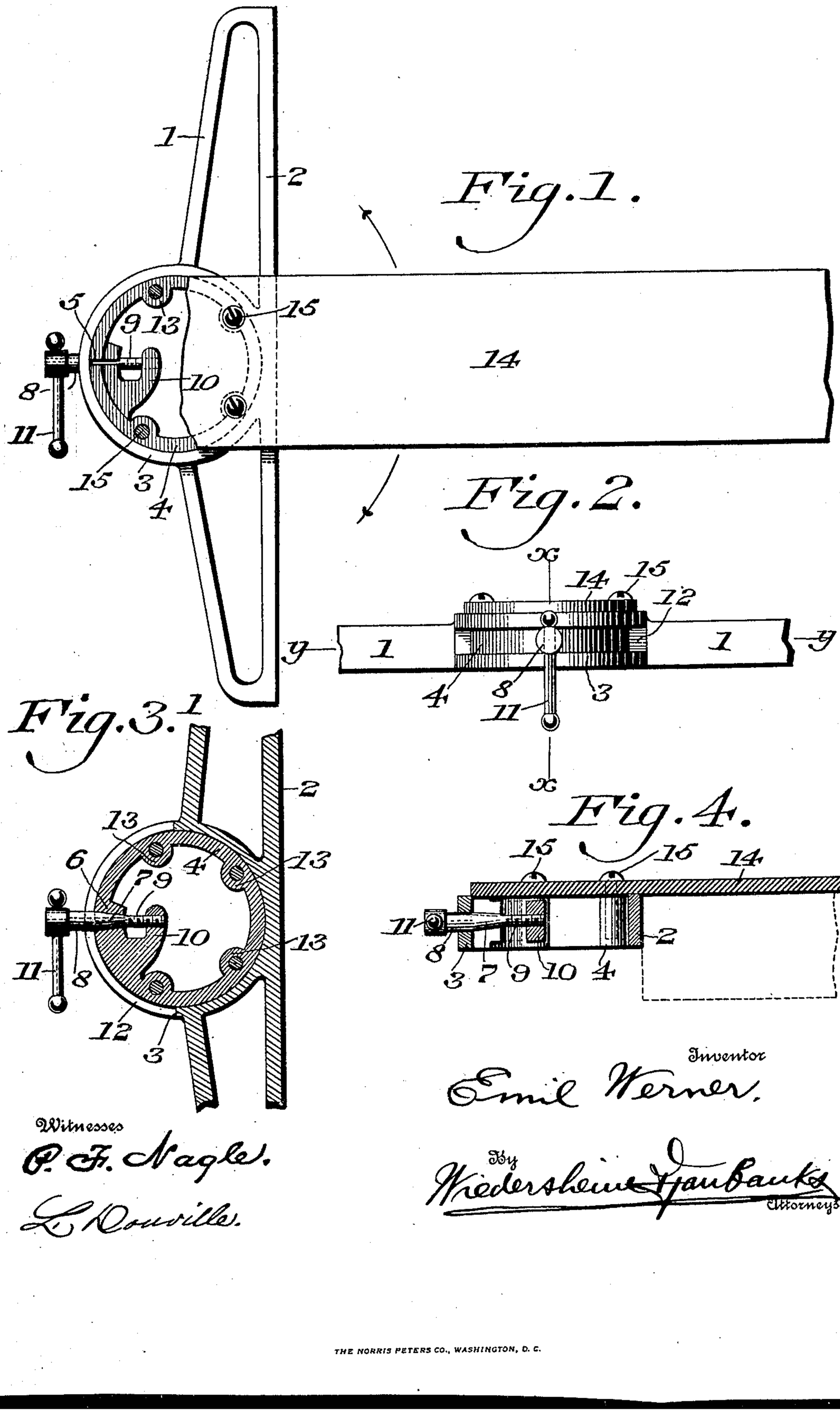

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Witnesses

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T-SQUARE.

No. 885,411. Specification of Letters Patent. Patented April 21, 1908.

Application filed August 13, 1907. Serial No. 388,348.

To all whom it may concern:

Be it known that I, EMIL WERNER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful T-Square, of which the following is a specification.

My present invention consists of a novel and simplified construction of a T and angle square whereby the device may be accurately adjusted to any desired angle and when so adjusted maintain the square at the angle desired.

It further consists of a novel construction of a T-square in which the angle of the limb or head with the blade may be maintained as desired by the employment of an expansible ring to which the blade is secured, and novel means for actuating said ring.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

In order to illustrate my invention I have shown in the accompanying drawings one form thereof, since this embodiment best illustrates the principle thereof and gives in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities, as herein shown.

Figure 1 represents a plan view of a T and angle square embodying my invention, certain parts thereof being cut away for the sake of clearness of illustration. Fig. 2 represents an end elevation of a portion of Fig. 1. Fig. 3 represents a sectional view of a portion of Fig. 1. Fig. 4 represents a section on line *x*—*x* Fig. 2.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings. 1 designates the limb or T-square head which is provided with a straight edge 2, said limb having secured thereto or integral therewith the preferably annular head or ring 3 within which is adapted to be seated an expansible ring 4, the outer periphery of which engages the inner periphery of the annular head. Said ring 4 comprises a ring which is split or slotted as indicated at 5, this slot or aperture being provided with a conical shaped opening 6 in which is adapted to be seated the conical shaped portion 7 of an expansion member 8, the inner end of which is threaded, as indicated at 9, and adapted to engage the inwardly deflected lug 10, whereby when the handle 11 is actuated said expansion member 8 will cause the ring 4 to be extended or contracted according to requirements.

As most clearly indicated in Fig. 2, the member 3 is provided with a slot or recess 12 in order that the member 8 and its adjuncts may be rotated to the desired degree. The ring 4 is provided with inturned enlargements or eyes 13 which are provided with threaded openings therein, whereby the blade 14 may be secured to said ring 4 by means of screws or equivalent fastening devices 15.

The operation of the device will now be apparent. When it is desired to adjust the angle of the blade with its head the handle 11 is actuated thus causing the conical face 7 to be gradually released from its engagement with the conical seat 6 in the ring 4, whereby said ring 4 will be permitted to contract so that the blade 14 together with the ring 4, may be rotated as desired, the rotation of the expansible member 8 being permitted, as will be apparent, owing to the employment of the slot 12. When the T-square has been adjusted to the required angle the handle 11 is actuated so that the threaded end 9 thereof engages the lug 10 carried by one side of the ring 4 and the conical portion 7 is gradually forced into the conical seat 6 in said ring 4, so that said ring is expanded and its periphery is caused to tightly engage the inner periphery of the ring or head 3.

It is to be especially noted that the apertures in the ring 4 nearest to the slot 5 may be placed very near to the periphery thereof, if desired, so that there is practically no movement of any of the fastening devices 13 relative to the blade 14. It is to be further noted that the conical shaped aperture is located in the ring 4 and that the lug 10 with which the threaded end 9 of the expansible member 8 engages is carried on one side of the slot 5, whereby a construction is produced in which there is very little strain on the working parts and the outer periphery of the ring 4 will be forced against the inner periphery of the outer ring 3 in such a manner that no relative movement of the blade and the T-square head may take place when the parts are properly adjusted.

It will now be apparent to those skilled in this art that I have devised a novel and useful construction of a T-square which embodies the features of advantage enumerated as desirable in the statement of invention and the above description and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that it is susceptible of modification in various particulars without departing from the spirit and scope of the invention or sacrificing any of its advantages.

I wish to call especial attention to the fact that in my preferred construction I employ the eyes 13 through which the fastening devices for the blade pass, whereby I am enabled to employ a ring of a thinner construction than would otherwise be possible, so that said ring will have the desired amount of flexibility and can be expanded as desired in order to cause its periphery to tightly or loosely engage the inner periphery of the ring or head carried by the T-shaped head or ring and the inner ring will have a greater resiliency. It is also to be noted that the means employed for fastening the expansion ring in place are located at one side of the device so that there are no upwardly projecting parts or portions which extend above the plane of the blade and when the parts are adjusted the upper ball at the end of the handle is located below the plane of the blade, as will be readily apparent from Fig. 2 of the drawings.

Features herein shown and described, but not claimed, are claimed in my prior application Serial No. 375,630, filed May 25th, 1907.

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

1. In a device of the character stated, the combination with a limb having a head, of an expansion ring rotatably carried by said head, a blade secured to said ring, and means disposed at an angle to and extending toward the axis of the ring and having a bearing in proximity to said axis for effecting the expansion and contraction of said ring.

2. In a device of the character stated, the combination with a limb having an annular head, of an expansion ring rotatably carried by said head, a blade flixedly secured at one end to said ring and means for effecting the expansion and contraction of said ring, said means being disposed at an angle to and toward the axis of said ring and in engagement with said ring only and entering between the separated ends thereof.

3. In a device of the character stated, the combination with a limb having a head, of an expansion ring provided with a conical aperture and rotatably mounted within said head, a blade secured at one end to said ring, and means engaging said aperture for effecting the expansion and contraction of said ring, said means being disposed at an angle to and extending toward the axis of said ring and having a plurality of bearings in said ring only.

4. In a device of the character stated, a limb having a recess therein, a split ring rotatably mounted in said recess and provided with an aperture formed in adjacent edges of its ends, an expansion member adapted to engage said aperture and having its inner end threaded, said ring having an inward extension with which the threaded end of said expansion member engages, and a blade secured to said ring.

5. In a device of the character stated, the combination of a limb having an annular recess therein, of a slotted ring rotatably mounted therein, said slot having a tapered aperture in the adjacent edges thereof, said ring having a lug, an expansion member provided with inclined walls adapted to engage the walls of said aperture and having a threaded extension engaging said lug, an actuating handle for said expansion member, and a blade secured to said ring.

6. In a device of the character stated, a limb having a recess therein, a split ring rotatably mounted in said recess and having inwardly extending eyes thereon, a blade secured at one end to said eyes, and an expansible member engaging the walls of the opening in said ring and disposed at an angle to and extending toward the axis of said ring to effect the expansion and contraction of said ring.

7. In a device of the character stated, the combination of a limb having a head provided with an annular recess, said head having a slot in its periphery, a split ring rotatably mounted in said recess and having a lug, an expansion member having threaded engagement with said lug and adapted to permit the expansion or contraction of said ring, said member being adapted to move in said slot, and a blade secured to said ring.

8. In a device of the character stated, the combination of a limb having a head provided with an annular recess, said head having a slot in its periphery, a split ring rotatably mounted in said recess and having a lug, an expansion member having threaded engagement with said lug and adapted to permit the expansion or contraction of said ring, said member being adapted to move in said slot, a blade secured to said ring, and an actuating handle for said expansion member, said handle being located below the horizontal plane of said blade when the parts are adjusted.

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