Aug. 7, 1951 W. H. HUGHES 2,563,169

TYPE COMPOSITOR'S ANGLE GUIDE

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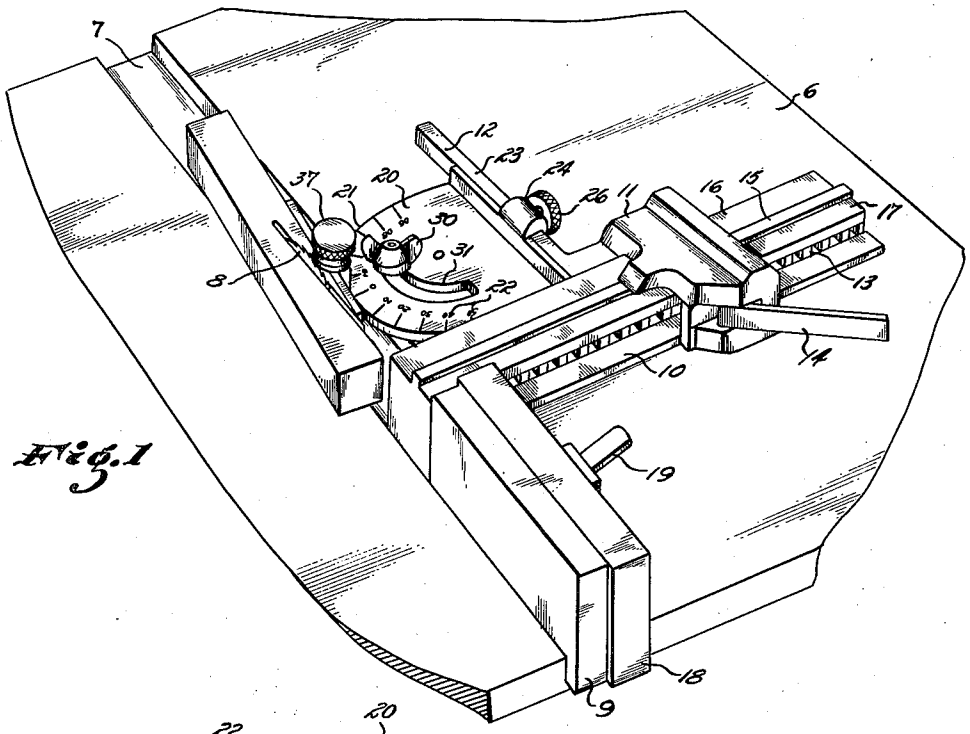


Fig. 1

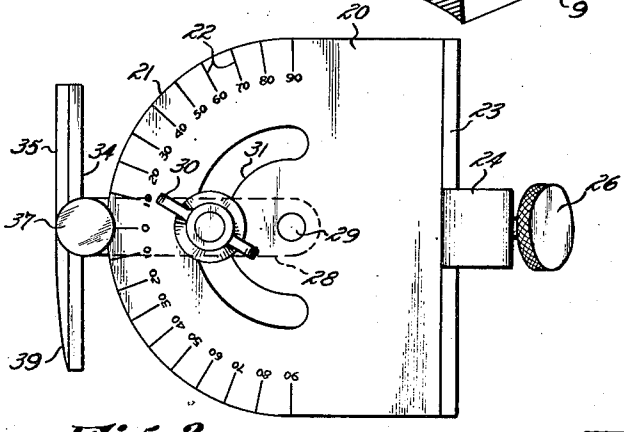


Fig. 2

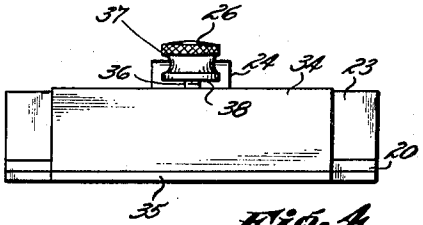


Fig. 4

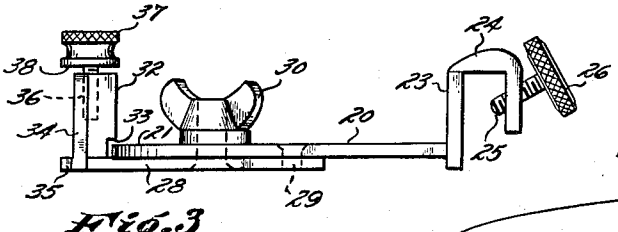


Fig. 3

INVENTOR.
WILLIAM HOWARD HUGHES
BY
Stuart III. Tull
ATTORNEY

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TYPE COMPOSITOR'S ANGLE GUIDE

William Howard Hughes, Venice, Calif.

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5 Claims. (Cl. 29—69)

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This invention relates to printers' tools, and more particularly relates to an accessory tool for a printer's saw to aid a type compositor in arranging various units in a printer's chase to conform to desired angular relationships.

In the printing art, particularly in connection with display advertising, it is common to have lay-outs of cuts and inserts which are set at angles with respect to each other and with respect to the borders of the page on which they are printed in order to be more attractive or arresting to the eye. In following such lay-outs, a type compositor or printer arranges in a chase the cuts, blocks of type, borders, and like material which are to be printed, and fills in around and between them with members compositely forming a base and known according to size and shape as slugs, leads, rules, and base blocks. When the chase is filled, it may be clamped in a printer's form with the units forming the composition tightly wedged together. However, as the sizes and relative angles of the printing units can not be foreseen, it is the usual procedure to take measurements of angles and sizes from the lay-out copy and then to cut the required rules and base blocks from type metal, wood, or other suitable material on a printer's saw. Drawing the outlines of the blocks and rules on a piece of type metal or the like and then arranging and holding the material so as to cut accurately to the lines consumes a great deal of time and is not conducive to the required degree of accuracy. Often a printer will judge the required sizes and angles by eye and trim his base material by trial and error until it is in satisfactory form.

It is an object of this invention to provide an angle guide which will reduce the time and labor consumed in measuring and cutting angulated base blocks and rules.

A further object of the invention is to provide an angle guide which may be applied directly to lay-out copy and set in conformity with a desired angle thereon without the necessity of scaling such angles, and which may then be applied to a printer's saw to guide a margin of a piece of material to be cut at said angle to the saw.

Another object of the invention is to combine in an accessory tool for a printer's saw an angle measuring device and a clamp for holding work at a measured angle with relation to the saw.

Still another object of the invention is to provide a clamp for holding work at a desired angle to a saw which will permit the cutting of very thin rules and base blocks at very acute angles to the saw.

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The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of my invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that I do not limit myself to the showing made by the said drawings and description, as I may adopt variations of the preferred form within the scope of my invention as set forth in the claims.

Referring to the drawings:

Figure 1 is a perspective view showing a printer's angle guide embodying the principles of this invention applied to a conventional printer's saw.

Figure 2 is a top plan view on an enlarged scale of the angle guide shown in Figure 1.

Figure 3 is a side elevational view.

Figure 4 is a frontal elevation view, as seen from the left in Figures 2 and 3.

Before entering on a description of the embodiment of my invention which has been chosen for illustration and description herein, a generalized description of a printer's saw and its method of operation will be given to afford a better understanding of the manner in which my angle guide is applied thereto. A printer's saw, as shown in Figure 1, comprises a saw bed or table 6 having a guideway or groove 7. A circular saw 8 is mounted in a slot, not shown, in an offset margin of the guideway 7, and parallel to the guideway, with the upper margin of the saw extending above the bed 6. The saw 8 may be driven and may be vertically adjusted by any suitable means, usually located below the bed 6. A bar or key 9 slides in the guideway 7 and has a right-angled arm 10, generally termed a gauge, which slides upon the surface of the bed 6. A work guide 11, with an arm 12 parallel to the guideway 7, is slidably mounted on the gauge 10, so as to be movable towards and away from the guideway 7. The arm 12 may be secured at a selected spacing from the saw 8 by mechanism clamping the work guide 11 to the gauge 10, such as a rack 13 and a pawl and lever 14, and is also movable parallel to the saw by movement of the gauge and the key 9 along the guideway 7. The gauge 10 has a central ridge 15 which divides its upper surface into benches 16 and 17. A clamping arm 18 is mounted beside the key 9 in the guideway 7 so as to be movable towards and away from the guage 10, and may be clamped to the key 9 by locking mechanism operated by a lever 19.

Slugs and leads may easily be cut on such a

saw by placing them on the bench 17 and clamping them between the clamping arm 18 and the ridge 15. They may then be cut squarely by moving the gauge 10 parallel to the saw 8, with the key 9 sliding in the guideway 7 to guide the movement. But if it is desired to cut a base or rule at an angle other than ninety degrees, it is necessary to mark the block from which it is to be cut and then to hold the block on the arm 12 and the platform 16, bracing it against the ridge 15 so that the saw will pass along the mark.

My angle guide, as shown in detail in Figures 2 to 4, inclusive, comprises a protractor plate 20 having a semicircular margin 21 marked with a scale 22 graduated in angular units. The zero or reference line is preferably at the mid-point of the semicircular margin 21, which affords a range of ninety degrees on each side of the reference line. The plate 20 has a rectilinear margin provided with a bar or flange 23 which forms a straight edge perpendicular to the axis of the plate bisecting the margin 21. A clamp hook 24 is secured, as by welding, to the upper margin of the flange 23 and has the form of a hooked finger bent outwardly and downwardly so as to fit the arm 12 of the work guide 11. A set screw 25 is threaded in the distal end of the clamp hook 24, and preferably at an angle to the horizontal, to allow space for and easy access to a knurled head 26 by which the set screw may be operated to clamp the hook 24 to the arm 12.

An index arm 28 is pivotally secured to the plate 20 by a pivot pin 29 set at the center of radius of the scale 22, and may be clamped in any desired radial position by a wing nut 30, the shaft of which extends through a curved slot 31 in the plate. Preferably the index arm 28 is secured to the lower side of the plate 20 and extends beyond the curved margin 21. The outer end of the index arm 28 is provided with an upstanding column 32. The column 32 preferably has a shoulder portion 33 overlapping the margin 21 to provide an index in close association with the scale 22. Secured to the outer surface of the column 32 and at a right angle to the axis of the index arm 28, is a plate 34 which has a flange 35 along its lower edge. A stud 36 is adjustably threaded in the upper end of the column 32 and has a knurled knob 37 rigidly secured to its upper end. The knob 37 is provided with a wide lower face 38 which extends beyond the column 32 into peripheral alignment with the outer margin of the flange 35 so that the face 38 and flange 35 serve as opposed jaws between which a piece of work material, such as a block of wood or metal, may be clamped.

The flange 35 serves as a ledge to support the work material and is tapered towards one end, to be substantially flush with the plate 34, as shown at 39. The tapered end 39 extends towards the gauge 10 when the angle guide is secured by the clamp hook 24 to the arm 12.

With the above-described angle guide, the cutting of bases at angles other than right angles is greatly facilitated. It is not necessary to mark the block which is to form the base, or even to measure the required angle in degrees. The angle guide may be removed from the arm 12 and may be placed directly on the lay-out copy. Any line on the protractor plate 20 normal to the reference line thereof, such as the flange 23 or a line connecting graduations of equal magnitude on the scale 22, may be placed parallel to one border line of the required base or to any line

parallel thereto, and the index arm 28 may then be swung to bring the plate 34 parallel to another border line of the required base, the arm 28 then being clamped in position by the wing nut 30. The angle guide may then be clamped on the arm 12 by the set screw 25. A block or work piece of base material is placed with one side against the plate 34 and is clamped between the knob 37 and the flange 35. The saw 8 will then be at the proper angle to the side of the block which is against the plate 34, and the required base may be cut.

Alternatively, when the required angle of the base is known or may otherwise be measured, it may be set off on the scale 22. As the zero line of the scale is perpendicular to the saw 8, the plate 34 and the side of the work block clamped thereto will be at the required angle to the saw.

Because the knob 37 and flange 35 extend only a short distance beyond the plate 34 and grip the work block only by small portions of its upper and lower surfaces, very thin pieces may be cut from the block, and at very acute angles with the side of the block. It will be understood that the width of the piece cut from the block may be regulated by moving the work guide 11 one way or the other on the gauge 10 in the conventional manner.

The tapered end 39 of the flange 35 permits thin, acutely angled pieces to be cut with a minimum of splitting or chipping at the apex of the cut pieces as it allows the saw 8 to be brought practically to the face of the plate 34 which backs the work piece.

I claim:

1. In a gage adapted to co-operate with a movable work guide, a protractor plate having an arcuate edge defining one side of said plate and a straight edge defining the opposite side thereof, a hook-shaped clamping finger rigid with said plate and extending outwardly from said straight edge thereof and downwardly to embrace said movable work guide, releasable means carried by said clamping finger and engageable with said guide to secure said protractor plate to said guide with said straight edge rigidly thereagainst, an arm pivoted to said plate for angular movement with respect thereto, a scale on said plate extending along said arcuate edge in co-operative association with said arm and arranged with its zero position on a line perpendicular to said straight edge and passing through the axis of said arm's pivotal connection to said plate, releasable means for locking said arm to said plate in selected position of angular adjustment with respect to said scale, and a work clamp carried by said arm.

2. In a gage adapted to co-operate with a movble work guide, a protractor plate having an arcuate edge defining one side of said plate and a straight edge defining the opposite side thereof, a hook-shaped clamping finger rigid with said plate and extending outwardly from said straight edge thereof and downwardly to embrace said movable work guide, releasable means carried by said clamping finger and engageable with said guide to secure said protractor plate to said guide with said straight edge rigidly thereagainst, an arm pivoted to said plate for angular movement with respect thereto, a scale on said plate extending along said arcuate edge in co-operative association with said arm, releasable means for locking said arm to said plate in selected position of angular adjustment with respect to said scale, and a work clamp carried by said arm.

3. A printer's gage and work holding clamp

comprising a protractor plate having an arcuate edge defining one side thereof and a straight edge defining another side thereof, a member rigid with said plate and extending outwardly from said straight edge thereof and downwardly to define a hook-shaped clamp, a set screw threaded through the downwardly extending portion of said clamp and extending therefrom toward said straight edge of said protractor plate, an arm pivoted to said plate for angular movement with respect thereto, a scale on said plate extending along said arcuate edge and arranged in co-operative association with said arm, releasable means for locking said arm to said plate in selected position of angular adjustment with respect to said scale, and a work clamp carried by said arm.

4. A printer's gage and work holding clamp comprising a protractor plate having an arcuate edge defining one side thereof and a straight edge defining another side thereof, a member rigid with said plate and extending outwardly from said straight edge thereof and downwardly to define a hook-shaped clamp, a set screw threaded through the downwardly extending portion of said clamp and extending therefrom toward said straight edge of said protractor plate, an arm pivoted to said plate for angular movement with respect thereto, a scale on said plate extending along said arcuate edge and arranged in co-operative association with said arm with its zero position on a line bisecting said arcuate edge and passing through the axis of said arm's pivotal connection to said plate, releasable means for locking said arm to said plate in selected position of angular adjustment with respect to said scale, and a work clamp carried by said arm.

5. In a gage adapted to cooperate with a movable work guide, a protractor plate having an arcuate edge defining one side of said plate and a straight edge defining the opposite side thereof, releasable means for rigidly mounting said protractor plate on said work guide with said straight edge clamped thereagainst, an arm pivoted to said plate for angular movement with respect thereto, a scale on said plate extending along said arcuate edge in co-operative association with said arm and arranged with its zero position on a line perpendicular to said straight edge and passing through the axis of said arm's pivotal connection to said plate, releasable means for locking said arm to said plate in selected position of angular adjustment with respect to said scale, and a work clamp comprising a plate at the outer end of said arm in a plane to which said arm is perpendicular, a flange extending outwardly from the lower edge of said plate and releasable means carried by said plate and extending outwardly past the upper edge thereof for clamping work against said flange.

WILLIAM HOWARD HUGHES.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,375,323	Royle	Apr. 19, 1921
1,446,726	Sloan	Feb. 27, 1923
1,452,809	Logue	Apr. 24, 1923
1,789,125	Wilderson	Jan. 13, 1931
1,894,010	Tautz	Jan. 10, 1933
2,329,235	Woodward	Sept. 14, 1943