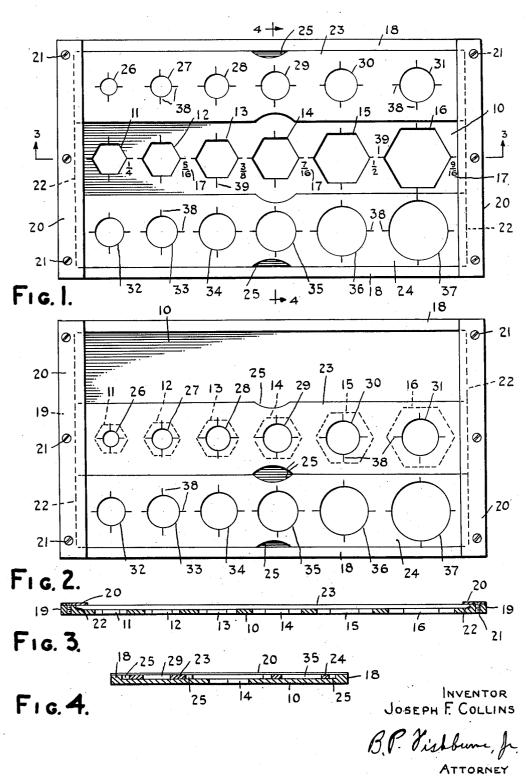
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DRAFTSMAN'S TEMPLATE

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DRAFTSMAN'S TEMPLATE

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My invention relates to a draftsman's template. A primary object of the invention is to provide a template which will greatly facilitate accurately and speedily drawing end views of stand-

ard nuts, bolts, screws and the like, which have polygonal heads and circular shanks or openings. A further object is to provide a device of the

above mentioned character which is highly simplified, compact, sturdy and inexpensive to manufacture.

A further object is to provide a template for use in drawing hexagon head nuts and bolts, wherein the circular representations of the nut bores or bolt shanks are always concentrically located with the hexagon portion, and it is un- 15 necessary to use a compass, T-square, triangles or other drafting instruments.

A further object is to provide a template of the above-mentioned character which remains in a fixed position on the drawing while the complete 20 end view of the nut or bolt is drawn by the draftsman.

A still further object of the invention is to provide a template for drawing standard hexagon which are easy to manipulate and positive and accurate in operation.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are employed to designate like parts throughout

Figure 1 is a plan view of a draftsman's tem- 35 plate embodying my invention,

Figure 2 is a similar view showing a part of the template in a different operating position,

Figure 3 is a central vertical longitudinal section taken on line 3-3 of Figure 1, and,

Figure 4 is a central vertical transverse section taken on line 4-4 of Figure 1.

In the drawings, where for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates a flat, thin, 45 rectangular plate or sheet formed of transparent plastics material such as generally used in making drafting triangles, stencils and the like. The plate 10 may be formed of opaque material such use a transparent material. The plate 10 is somewhat elongated, as shown, and provided at its transverse center with a longitudinal row of longitudinally spaced hexagonal openings 11, 12,

to the head or body sizes of standard hexagon bolts, screws and nuts. The sizes of the hexagonal openings 11 to 16 increase successively from one end of the plate 10 to the other, and while I have shown six different sizes of openings, corresponding to six standard sizes of bolts or nuts, it should be understood that any desired number of openings may be provided in the row. As one preferred embodiment, I have shown the hexagonal openings II to IS corresponding to standard hexagon bolt and nut sizes from ¼ of an inch in diameter to 16 of an inch in diameter, each successive size being 16 of an inch larger than the next preceding size. The numeral 17 designates standard nut and bolt size markings on the plate 10, adjacent to the corresponding hexagonal openings II to 16 inclusive. If desired, the size markings 17 may be omitted. Also, I do not wish to restrict the invention to the drawing of hexagon head bolts, nuts and the like, and accordingly, the openings 11 to 16 may be square or any other desired shape.

The plate 10 is provided along its longitudinal edges and upon one side only with straight parnuts and bolts and embodying adjustable slides 25 allel longitudinal ribs or shoulders 18, projecting a slight distance above the top face of the plate, and preferably integral therewith. Similar parallel straight transverse ribs or shoulders 19 are formed upon the same side of the plate 10 at its opposite ends and the ribs 19 have their upper faces flush with the upper faces of the ribs 18 and are likewise integral with the plate 10. The longitudinal and transverse ribs 18 and 19 thus form a continuous rectangular marginal wall about the rectangular plate 10 upon one side of the same.

Thin plates or strips 20 of sheet metal or the like are mounted upon the transverse ribs 19 and extend for the entire lengths of the same and are rigidly secured to the ribs 19 by small screws 21, or the like. If desired, the strips 20 may be formed of transparent material. The inner longitudinal edges of the strips 20 project laterally inwardly of the ribs 19 for forming straight transverse grooves 22 at the opposite ends of the template and the grooves 22 extend for the entire distance between the longitudinal ribs 18, as shown.

Elongated rectangular plates or slides 23 and as sheet metal, if desired, but it is preferred to 50 24 are slidably mounted upon the plate 10 and have their opposite ends engaging in the grooves 22 formed by the strips 20. The slides 23 and 24 are preferably formed of the same transparent plastics material as the plate 10, and the slides 13, 14, 15 and 16, of different sizes, corresponding 55 have parallel straight longitudinal edges adapted to contact the parallel longitudinal ribs 18 which serve as stops. The slides 23 and 24 are freely shiftable laterally over the plate 10, and may be provided at their longitudinal centers and in their opposite longitudinal edges with finger receiving notches 25 to aid in shifting the slides laterally.

The slide 23 is provided at its transverse center with a longitudinal row of longitudinally spaced circular openings 26, 27, 28, 29, 30 and 31, corre- $_{
m 10}$ sponding to the bore or shank diameters of standard hexagon nuts and bolts between 1/4 and $\frac{9}{16}$ of an inch. The openings 26 to 31 are arranged in lateral alignment with the hexagonal openings 11 to 16. The slide 24 is likewise pro- 15 vided at its transverse center with a longitudinal row of longitudinally spaced circular openings 32, 33, 34, 35, 36 and 37, likewise arranged in lateral alignment with the hexagonal openings 11 to 16. The openings 32 to 37 vary in diameter corre- 20 sponding to the various sizes of hexagon bolts and nuts represented, and the openings 32 to 37 represent the distances across flats on the various hexagon nuts and bolts provided for by the template. The circles drawn with the openings 2532 to 37 are inscribed within the hexagonal openings 11 to 16 when an end view of a nut or bolt is drawn, and these circles are tangent to the sides or flat faces of the hexagonal heads or body portions. The slides 23 and 24 may be further 30 provided with index lines 38 radiating from each circular opening, and adapted to align with similar index lines 39, provided on the plate 10 and radiating from the hexagonal openings II to 16, as shown.

The slides 23 and 24 have equal widths, and each slide is one-third as wide as the distance between the shoulders 18. When either slide 23 or 24 is shifted into contact with the adjacent shoulder 18 and the other slide shifted into contact with the first slide, Figure 2, the circular openings of the last-mentioned slide are positioned over and exactly concentric with the hexagonal openings 11 to 15. The slide which is spaced laterally of the row of hexagonal openings and engaging one shoulder 18 thus forms a positive stop for the other slide positioned over the hexagonal openings. The slides 23 and 24 are held against longitudinal movement by the transverse ribs 19, but are freely shiftable laterally.

Accordingly, in the use of the template, the device is positioned at the desired point on the drawing, and the outline of the hexagonal nut or bolt is drawn by using a selected one of the 55 hexagonal openings 11 to 16. During this operation, the slides 23 and 24 are shifted away from the center portion of the plate 20 and may engage the shoulders 18, Figure 1. This exposes the central portion of the plate 10 so that the 60 draftsman may move his pencil or pen point about the selected hexagonal opening. When this operation is completed, either one of the slides 23 or 24 is shifted to the central position, Figure 2, and its longitudinal edge nearest the 65 other slide contacts the other slide which is also in contact with the adjacent shoulder 18. This positively positions the circular openings of the selected slide over the hexagonal openings II to 16, so that the circles may be drawn exactly 70 concentric with the hexagonal openings. When this has been done, the first used slide is shifted into contact with the adjacent shoulder 18, and the other slide is shifted to the central position wherein it engages the innermost longitudinal 75

edge of the first used slide. The circular openings of this second slide are now directly over and concentric with the hexagonal openings 11 to 16, so that the end view of the nut or bolt may be completed.

It is thus seen that the complete end view of the nut or bolt may be drawn without changing the position of the plate 10, and the alignment of the circular openings in the slides 23 and 24 with the hexagonal openings is accurate and The slides may be shifted rapidly with positive. a mere flick of the finger, and the draftsman is assured of having the shank of the bolt or bore of the nut being drawn exactly concentric with the hexagonal head or body portion. The device is highly simplified, inexpensive to manufacture and convenient to use. It should save a great deal of time for draftsman in the usually laborious task of accurately drawing hexagonal nuts and bolts. Ordinarily, the only way that this may be done accurately is by the use of a compass, T-square and triangles, but with my template, the entire operation is rendered very simple and the results are accurate.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A draftsman's template comprising a plate having an opening to guide a drawing implement, a pair of slides mounted above the plate for movement and having openings to guide a drawing implement and adapted to register with the first-named opening when the slides are in selected positions, and stop means connected with the plate and engaging each slide to limit its movement in one direction, each slide forming a stop for the other slide when the other slide is in the selected position with its opening in registration with the first-named opening.

- 2. A draftsman's template comprising a plate having an opening to guide a drawing implement, a pair of opposed slides mounted above the plate for movement toward and away from each other and having openings to guide a drawing implement and adapted to register with the first-named opening when the slides are in selected positions, and stop means connected with the plate and engaging each slide to limit its movement away from the other slide, each slide contacting said stop means and the other slide and forming a stop for the other slide when the other slide is in the selected position with its opening in registration with the first-named opening.
- 3. A draftsman's template comprising a plate having a polygonal opening to guide a drawing implement, a pair of opposed slides mounted upon the plate for movement toward and away from each other and having circular openings to guide a drawing implement and adapted to register concentrically with the polygonal opening when the slides are in selected positions, the circular openings of the slides being of different diameters, and stop means connected with the plate and engaging each slide to limit its movement away from the other slide, each slide contacting said stop means and the other slide and forming a stop for the other slide to position the other slide in said selected position.
 - 4. A draftsman's template comprising a plate

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having a row of spaced openings, each opening being adapted to guide a drawing implement, a pair of opposed slides mounted upon the plate for movement toward and from each other, each slide having a row of spaced openings arranged in lateral alignment with the openings of the plate and adapted to register concentrically with the openings of the plate when the slides are shifted to selected positions, and stop means connected with the plate and engaging the slides to limit their movement away from each other, each slide contacting the stop means and forming a stop for the other slide to position the other slide in said selected position.

having a row of spaced polygonal openings of different sizes, a pair of opposed slides mounted upon the plate for movement toward and from the row of polygonal openings, each slide having a row of spaced circular openings of different 20 sizes corresponding to the sizes of the polygonal openings and arranged in lateral alignment with the polygonal openings and adapted to register concentrically with the polygonal openings when the slides are shifted to selected positions over 25 the row of polygonal openings, the circular openings of one slide being of different sizes than the circular openings of the other slide, and stop means carried by the plate for engagement with the slides to limit their movement away from the 30 row of polygonal openings, one slide engaging the stop means and forming a stop for the other slide when the other slide is in the selected position with its circular openings in concentric registration with the polygonal openings.

6. A draftsman's template comprising a relatively wide rectangular plate provided near its transverse center with a row of spaced polygonal openings of different sizes, a pair of opposed relatively narrow slides of equal width mounted upon 40 ings. the plate for lateral movement toward and from each other, means carried by the plate and engaging the slides to guide them during their lateral movement and holding them against longitudinal movement with respect to the plate, each slide having a row of spaced circular openings of different sizes corresponding to the sizes of the polygonal openings of the plate and arranged in lateral alignment with the polygonal openings, each slide being shiftable to a position 50over the row of polygonal openings wherein its circular openings register concentrically with the polygonal openings while the other slide is spaced laterally from the row of polygonal openings, and stop means carried by the plate and engaging 55 one slide when it is spaced laterally from the row of polygonal openings and the other slide is positioned over the row of polygonal openings with its circular openings in concentric registration therewith, said one slide then forming a stop 60 contacting said other slide to positively position the same over the row of polygonal openings.

7. A draftsman's template comprising a relatively wide rectangular plate provided near its transverse center with a row of spaced polygonal openings of different sizes, the plate being provided near its longitudinal edges with raised portions forming stops and near its ends with raised portions forming guides, and a pair of relatively narrow opposed slides mounted upon the plate for lateral movement toward and from each other and having their ends engaging the guides so that

the slides may be shifted laterally with respect to the plate while being held against longitudinal movement, each slide having a row of spaced openings of different sizes corresponding to the sizes of the polygonal openings and arranged in lateral alignment with the polygonal openings, each slide being shiftable over the row of polygonal openings so that its openings register with the polygonal openings, the other slide then engaging said stop and being spaced laterally from the row of polygonal openings and forming a stop engaging the slide which is positioned over the row of polygonal openings.

ide in said selected position.

5. A draftsman's template comprising a plate aving a row of spaced polygonal openings of a ferent sizes, a pair of opposed slides mounted pon the plate for movement toward and from the row of polygonal openings, each slide having row of spaced circular openings of different sizes arranged for concentric registration to spaced circular openings of different sizes arranged for concentric registration with the polygonal openings when the slide is shifted to a selected position, and means carried by the plate and engaging the slide to limit the extent of its movement.

9. A draftsman's template comprising a plate having a plurality of spaced polygonal openings of different sizes, a slide arranged adjacent to one side of the plate for movement over the plate and having a plurality of spaced circular openings of different sizes and adapted to register concentrically with the polygonal openings when the slide is shifted to a selected position, guide means connected with the plate and slide and serving to prevent the slide from moving in one direction relative to the plate, and stop means connected with the plate and engaging the slide to limit its movement in a direction at right angles to the guide means, the stop means serving to position the slide in the selected position with its circular openings in registration with the polygonal open-

10. A draftsman's template comprising a plate having a plurality of spaced polygonal openings of different sizes, a pair of opposed slides mounted adjacent to one side of the plate for movement toward and from each other, each slide having a plurality of spaced circular openings of different sizes corresponding to the sizes of the polygonal openings and arranged to register concentrically with the polygonal openings when the slides are shifted to selected positions, the openings of one slide being of different sizes from the openings of the other slide, and stop means connected with the plate and engaging the slide to limit their movement away from each other, one slide engaging the stop means and forming a stop for the other slide when the other slide is in the selected position and its circular openings are in registration with the polygonal openings of the plate.

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