United States Patent

Siegel

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[54] **DRAWING DEVICE**

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[52] **U.S. Cl.** .....**33/174 B**
[51] **Int. Cl.** **B44d 3/30**
[58] **Field of Search**.....33/27 C, 27 L, 174 B; 35/26, 35/37; 281/45

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[57] **ABSTRACT**

A child's drawing device including a base plate having a central opening. A template having a notched periphery is located and rotatable in said central opening and a gear is received in a gear seat in said base plate. The teeth of the gear are in engagement with the notched periphery of the template. Means is provided for selectively securing said gear in any one of a plurality of orientations and since the gear and template rotate with each other for securing said template in any one of a plurality of orientations. The base plate includes a number of edges and flanges depend from each of said edges in the same direction perpendicularly away from said base plate. During use a pad may be held fixed relative to said base plate and template by being nested within said flanges.

6 Claims, 7 Drawing Figures

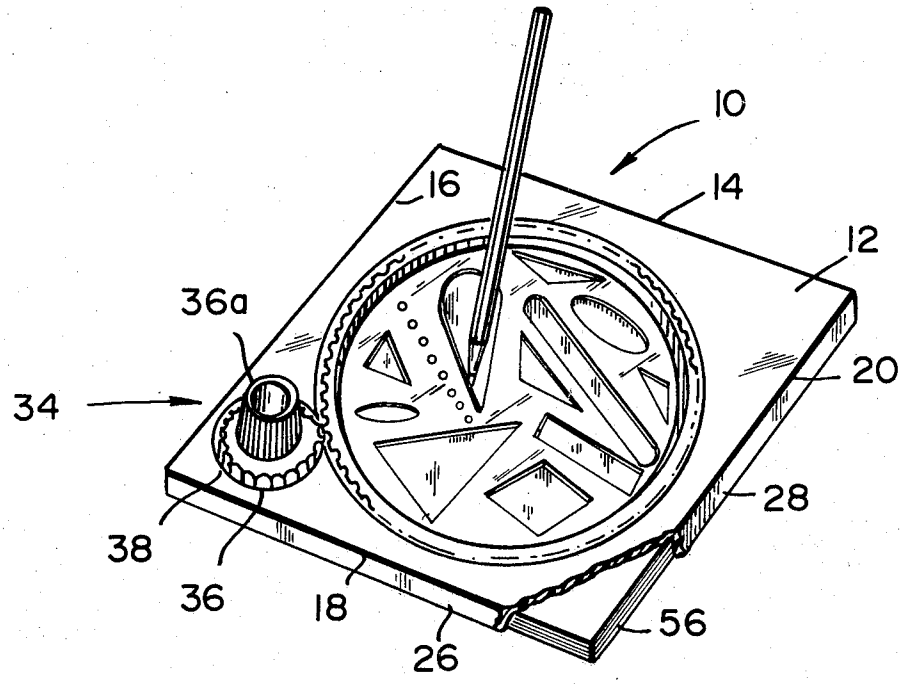
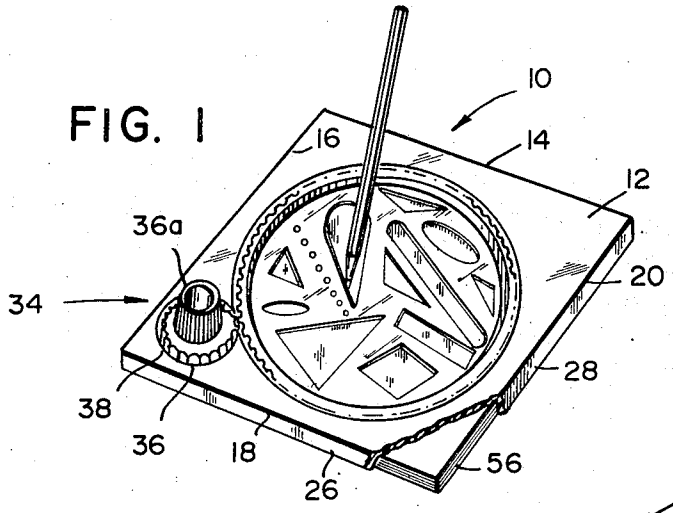


FIG. 1



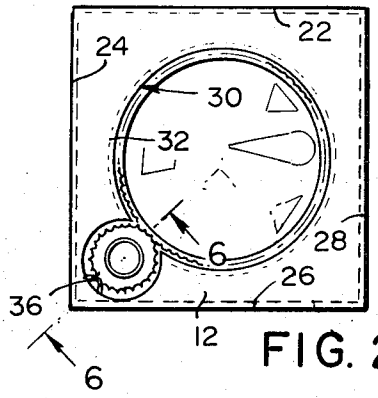


FIG. 2

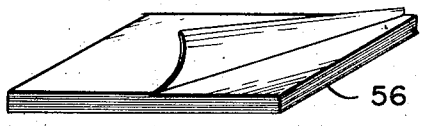
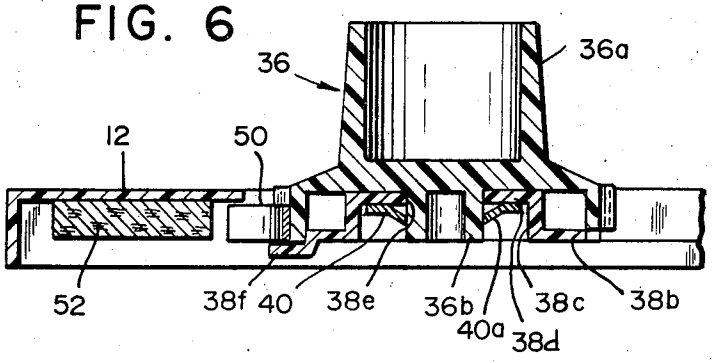


FIG. 4

FIG. 6



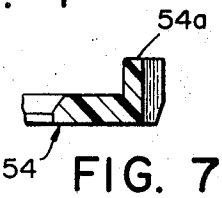


FIG. 7

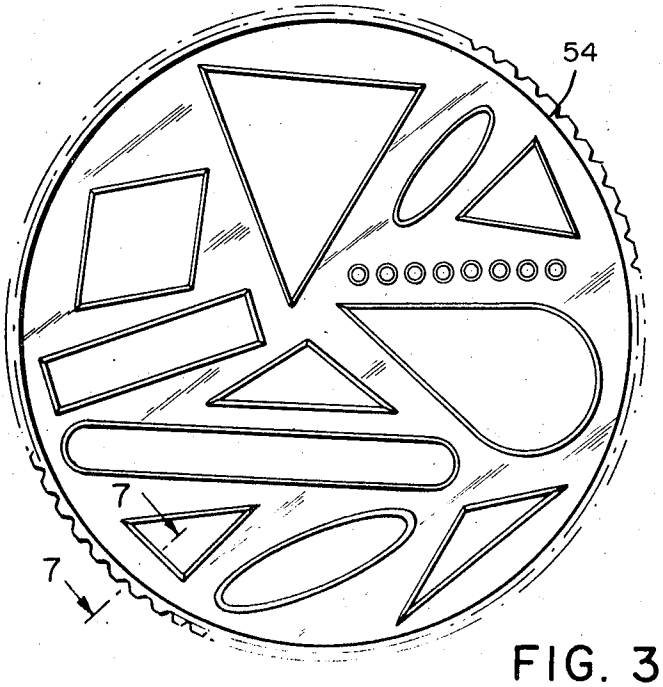
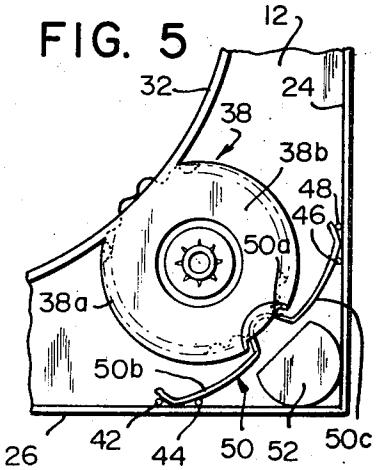


FIG. 3

FIG. 5



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DRAWING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

Child's drawing device

2. Description of the Prior Art

There have been a number of devices in the prior art for enabling children to trace out different designs on paper. Usually these devices included a template which was received in a base plate and a piece of paper was positioned beneath the template. A plurality of holes of different configurations extended through the template and the template could be rotated to a number of different orientations within the base plate. The child traced out one or more holes at one orientation of the template on the paper and then rotated the template to another orientation where the tracing operation with the same and/or different holes was repeated. The child continued this until he obtained a design of pleasing appearance.

There were a number of drawbacks associated with the prior art drawing devices of the kind which have been described above. One drawback was that with many of these devices it was difficult for a child to position the template in its different orientations. This was because utilization of the means to position the template in its different orientations required a high degree of dexterity, something that many children of tender ages do not have.

Another drawback with many prior art drawing devices of the type hereinabove described was that no provision was made for securing the paper which was being traced upon in alignment with the template. Accordingly, many times the paper moved relative to the template hampering the child from carefully tracing out the holes in the template on the paper.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide an improved drawing device of the kind hereinabove described.

More specifically, it is an object of the present invention to provide a drawing device wherein a simple to use means is provided for allowing a template to be rotated about its rotational axis to any one of a plurality of orientations and to lock said template in any of said orientations.

Another object of the present invention is to provide a drawing device of the kind herein described wherein means is provided for holding the paper which is being drawn upon fixed relative to the template.

Briefly, in accordance with the present invention, the foregoing and other objects are achieved by a drawing device including a base plate having four edges and a central aperture. Flanges depend perpendicularly away from said base plate edges in the same direction. A template having a plurality of holes extending therethrough of different configurations and a notched periphery is received within said aperture and rotatable therein. A detent mechanism including a rotatable gear is positioned so that the teeth on the gear are in engagement with the notched periphery of the template for any orientation of the template. Means is provided for rotating the gear and the gear is positioned in a gear seat which extends into said base plate. A portion of the periphery of said gear seat is cut away and the U-shaped central portion of a leaf spring extends therethrough and is biased against the teeth on the gear.

In normal operation a pad of paper is positioned between the flanges depending from the base plate edges with the flanges preventing said pad from moving relative to the base plate. A child may then trace out the different holes in the template on a sheet of paper on the pad. When the child is finished doing this he rotates the gear and the central portion of the leaf spring moves outwardly and away from the gear teeth. The child stops rotating the gear when the template is at the orientation he desires at which time the central portion of the spring snaps between adjacent gear teeth to prevent the gear and template from rotating. The child may then trace out the same and/or different holes in the template. This cycle can be repeated until an attractive drawing is obtained.

These and various other objects and advantages of this invention will become apparent to the reader in the following description.

This invention accordingly consists in the features of construction, combination of elements and arrangements of parts which will be exemplified in the device hereinafter described and of which the scope of application will be indicated in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. **1** is a partially broken perspective view of an embodiment of the present invention;

FIG. **2** is a top plan view of the embodiment of the invention shown in FIG. **1**;

FIG. **3** is an enlarged top plan view of the template of the present invention;

FIG. **4** is a perspective view of a pad that is used with the present invention;

FIG. **5** is an enlarged bottom plan view of the portion of the present invention containing the detent mechanism;

FIG. **6** is an enlarged sectional view taken substantially along the line **6—6** of FIG. **2**; and

FIG. **7** is a sectional view taken substantially along the line **7—7** of FIG. **3**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIG. **1** of the drawings an embodiment **10** of the present invention is shown and includes a base plate **12** which is generally square in cross section. Base plate **12** includes equal length edges **14**, **16**, **18**, and **20** with flanges **22**, **24**, **26** and **28** depending respectively from each of said edges. The flanges all depend perpendicularly away from base plate **12** and are all identical to each other in configuration.

Located symmetrically in the center of the base plate **12** is a circular opening **30** which extends therethrough. A flange **32** extends downwardly from the periphery of opening **30** and is perpendicular to base plate **12**.

A detent mechanism **34** is secured to base plate **12** and includes a gear **36** which is received in a gear seat **38**. Gear **36** has a knob **36***a* which projects upwardly therefrom for rotating the gear and a peripheral wall **38***a* surrounds a substantial portion of the gear. Gear seat **38** includes an opening in its peripheral wall **38***a*

adjacent opening **30** and the teeth of the gear at this opening project therethrough for a purpose that will soon be readily apparent.

A gear seat bottom wall **38***b* extends inwardly from wall **38***a*, is annular and perpendicular to wall **38***a*. A vertical annular wall **38***c* extends upwardly from the bottom wall **38***b* to a horizontal circular top wall **38***d*. An opening **38***e* extends through the central portion of wall **38***d*. A post **36***b* depends from gear **36** through opening **38***e* and past wall **38***d*.

A locking ring **40** includes a depressed central portion **40***a* and a horizontal portion with the horizontal portion of the locking ring in contact with the bottom of top wall **38***d*. The outer circular edge of the horizontal portion of locking ring **40** is in contact with annular wall **38***c* and the inner circular edge of the depressed portion of locking ring **40** tightly grasps post **36***b*. As a result of the above construction an upward force applied to gear knob **36***a* does not result in gear **36** being removed from seat **38**.

Pins **42** and **44** are integral with the inside surface of flange **26**, are spaced apart from each other and extend for a substantial portion of the height of the flange. In a similar fashion pins **46** and **48** are integral with the inside surface of flange **24** and extend for a substantial portion of the height thereof. The distances between the intersection of flanges **24** and **26** and pins **46** and **48** equals the distances between the intersection of said flanges and pins **44** and **42**, respectively.

A leaf spring **50** has a raised U-shaped central positioning dog. Dog **50***a* extends through an opening in wall **38***a* and is in contact with gear **36** as will hereinafter be described. Raised central dog **50***a* includes two opposed sides with legs **50***b* and **50***c* each being integral with a different side. Leg **50***b* includes a bow at its free end which is nested between pins **42** and **44**. In a similar fashion leg **50***c* has a bow at its free end which nests between pins **46** and **48**. A piece of cork **52** is secured to the bottom of base plate **12** close enough to the spring to prevent a child from pulling dog **50***a* out of the opening in wall **38***a* yet far enough away to allow the dog to move radially of gear **36** for the purpose hereinafter described. A segment of dog **50***a* rests on a depressed circular ledge **38***f* in wall **38***b*.

A circular template **54** having a regularly notched periphery and a plurality of differently shaped apertures extending therethrough is located within opening **30**. The notched periphery of template **54** is in engagement with the teeth of gear **36** which extend into opening **30**. While apertures in template **54** having certain configurations have been illustrated it is of course to be appreciated that other configurations could be used without departing from the scope or spirit of the present invention. As can be seen in FIG. **7** a flange **54***a* extends downwardly from the template periphery and is nested within flange **32** to assist in locating the template relative to the base plate.

In normal use base plate **12** is placed over a pad **56** such as shown in FIG. **4**, nesting on a horizontal flat surface. The pad is nested between flanges **22**, **24**, **26** and **28**, being shaped to nicely fit in the space defined thereby. The flanges prevent the pad from moving relative to the template thus overcoming one of the problems heretofore present in the prior art. In unstressed condition the legs of spring **50** are colinear. However with dog **50***a* in gear seat **38** and the bowed tips of the spring located between the pairs of pins **42**, **44**, **46** and **48** the center of the spring is flexed away from the center of gear **36** imparting a restoring bias that urges dog **50***a* against gear **36**, the dog seeking an idle position between teeth of gear **36** to prevent rotation of the gear and thereby act as a detent.

With template **54** in the position shown in FIG. **1** and the flange thereof received within flange **32** depending from opening **30** a child can trace out one or more apertures of template **54** selected by him on the top piece of paper in pad **56**. The child can then turn knob **36***a* rotating gear **38** and template **54**. When this happens the outer portions of the teeth of gear **36** which pass by the opening in wall **38***a* through which dog **50***a* extends cam the dog radially outwardly. Dog **50***a* snaps back with a click to engage the next inter tooth space on gear **38**. A child can ensure equal degrees of rotation of template **54**, a proper step if an asthetically desirable design is to be formed, by counting equal numbers of clicks. After template **54** has been rotated a desired amount the child stops rotating knob **36***a* and the resiliency of the leaf spring urges dog **50***a* into the space between adjacent teeth on gear **36**. This prevents the gear and hence the template from freely rotating.

On a few occasions it is possible that the raised central portion of the spring will be in contact with the outer most portion of a gear tooth when the gear is stationary. Consequently, the gear and template will be able to rotate a small amount. To insure that this does not happen the child can apply a slight twisting force to the template. If the dog is resting against the tip of a gear tooth there will be a slight amount of rotation of the template and a small amount of rotation of the gear and the raised central portion of the spring will snap into place between adjacent teeth on the gear periphery. To minimize the aforesaid possibility the teeth of gear **36** have very narrow, essentially pointed tips.

The cycle can be repeated and if desired a different template having apertures of other configurations can be used.

A further feature of the present invention is that the drawing device can be conveniently used in travelling since the drawing pad can be nested within the flanges depending from the base plate. The device can be made of plastic, except for the spring, and hence is relatively inexpensive.

It thus will be seen that there is provided a device which achieves the various objects of the invention and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein described or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described the invention there is claimed as new and desired to be secured by Letters Patent:

1. A drawing device comprising a base plate having an opening extending therethrough, a template received in said opening, rotatable therein and having a plurality of apertures, means for rotating said template within said opening to any one of a plurality of different

orientations, said base plate having a plurality of edges and a flange depending from each of said edges in the same direction away from said base plate, each of said flanges being perpendicular to said base plate and each extending the same distance away from said base plate, said flanges defining a space matching the plan configuration and dimensions of the pad.

2. A drawing device according to claim 1 wherein said rotating means includes a gear rotatably received in a portion of said base plate, said template having a notched periphery with said gear in engagement with the notches on said template periphery and means for detaining said gear in any one of a plurality of different angular orientations whereby said template can be detained in any one of a plurality of different angular orientations.

3. A drawing device according to claim 2 further including a gear seat in said base plate with said gear rotatably received therein, said detaining means including a locating means in resilient contact with the periphery of said gear.

4. A drawing device according to claim 3 wherein said locating means includes a spring having a raised dog biased against the periphery of said gear.

5. A drawing device according to claim 3 wherein said locating means includes a resilient member including a raised portion of a U-shaped configuration and a pair of opposed sides, one a leg integral with each side of the raised portion and each leg having a free end, said free ends engaging said base plate.

6. A drawing device according to claim 5 further including means for preventing said gear from being removed from said base plate.

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