Sept. 20, 1932. M. J. HOFERER 1,878,633

DEVICE FOR MAKING DESIGNS

Filed March 24, 1930

Fig. 1.

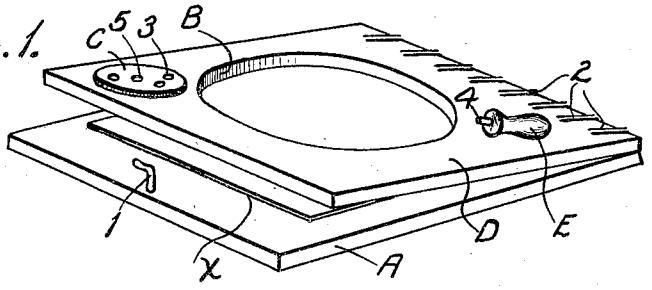


Fig. 1a.

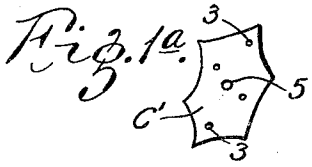


Fig. 2.

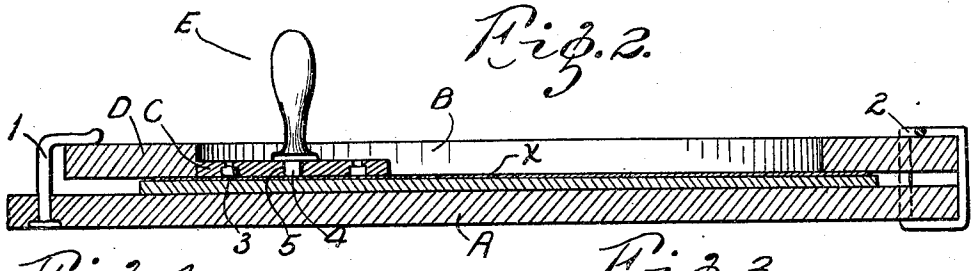


Fig. 4.

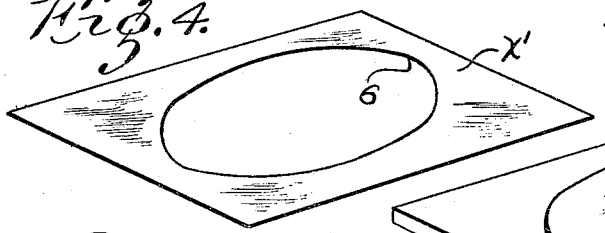


Fig. 3.

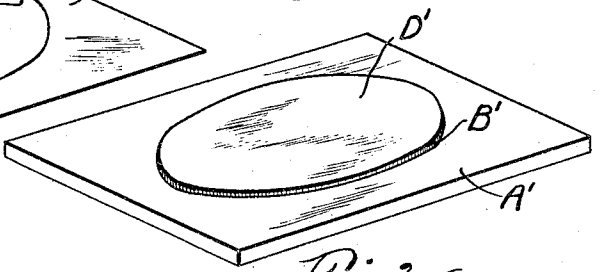


Fig. 5.

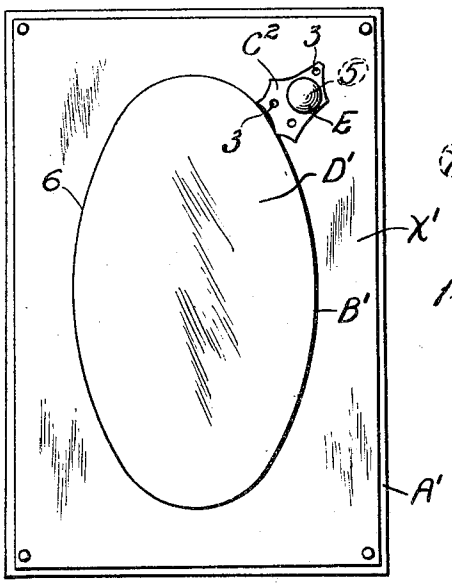
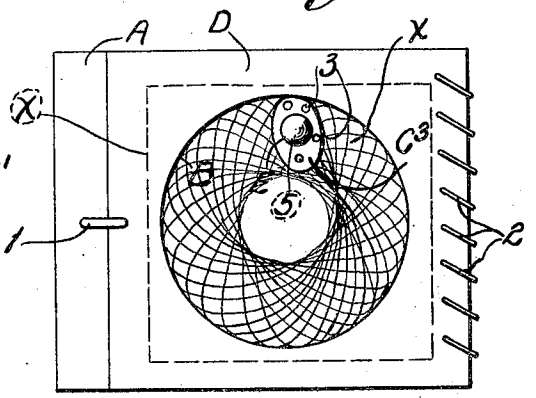


Fig. 6.



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UNITED STATES PATENT OFFICE

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DEVICE FOR MAKING DESIGNS

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This invention relates to devices of the kind that are used for making designs or for producing figures composed of curved, irregular, angularly-disposed or intersecting lines marked on cardboard, paper or any other object.

The main object of the invention is to provide a device that may be used by children to produce interesting or fascinating designs on cards or other surfaces, used by a science teacher to explain the principles of compound harmonic motion, or used by a designer to produce embroidery patterns or figures for use in art needlework.

Another object is to provide a device of the kind referred to, that is compact, inexpensive and of sufficient simplicity in principle of operation to permit it to be sold as a toy for use by small children in making colored designs or in making designs which subsequently are to be colored with paints or crayons.

Briefly described, my improved designer is composed of a work support on which a card, piece of paper or other object hereinafter referred to as the "work" is adapted to be placed, a guide arranged in proximity to said work support, and a marking device carrier that is adapted to be moved bodily over the work and rotated or oscillated by the frictional contact or engagement between the carrier and guide, with the result that the marking devices on the carrier will produce a design or pattern on the work made up of numerous curved, irregular, angularly-disposed or intersecting lines.

The marking device carrier may be of various shapes or forms, and the guide that governs the path of movement of the carrier over the work and causes said carrier to rotate or oscillate, may be of various shapes or forms. Usually, the guide will consist of a continuous surface, disposed vertically or substantially so with relation to the work support and being of circular shape, oval shape or irregular shape in outline. The marking device carrier may be conveniently formed from a member having a substantially flat under surface that is adapted to be rested upon the work and moved over the same while the peripheral edge of said carrier is held in sufficiently tight engagement with the guide to cause the carrier to rotate or oscillate, due to the frictional contact of the peripheral edge of same with the guide. The peripheral edge of the carrier may be of circular shape, oval shape or of irregular shape, or made up of a number of straight or curved surfaces disposed at an angle to each other.

The marking device on the carrier may be any means that is capable of producing a line or mark on the work, such, for example, as a lead pencil, a piece of lead, or a piece of crayon. One or more marking devices may be mounted on the carrier, and said device or devices may be arranged at various points on the carrier, so long as said marking devices are so disposed that the bodily movement and rotation or oscillation of the carrier will cause said marking device or devices to produce a symmetrical design on the work. Usually, the marking device will consist of a piece of lead or piece of crayon arranged in an eccentrically-disposed hole in the marking device carrier in such a way that it can be easily removed from the carrier and replaced after it has worn down, or in the event the user desires to substitute a marking device of different color.

In the accompanying drawing I have illustrated several forms of my invention, but I wish it to be understood that the details of construction of the device may be changed in various ways without departing from the spirit of my invention.

Figure 1 of the drawing is a perspective view of a device embodying my invention, illustrating the work holder released so as to permit the insertion or removal of the work and showing the marking device carrier and the operating handle for same occupying an inoperative or inactive position on the work holder.

Figure 1[a] is a top plan view of a marking device carrier of different shape than the one shown in Figure 1.

Figure 2 is a vertical sectional view of the device, taken on approximately the line 2—2 of Figure 1.

Figure 3 is a perspective view of a device embodying my invention, in which the guide

is formed by a flat, oval-shaped member on a work support arranged so that the marking device carrier is adapted to be moved around the peripheral edge of said member.

Figure 4 is a perspective view of the work or the card that is intended to be used with a device of the kind shown in Figure 3.

Figure 5 is a top plan view, illustrating the principle of operation of the device shown in Figure 3; and

Figure 6 is a top plan view, illustrating the principle of operation of the device shown in Figure 1.

In Figure 1, which illustrates the preferred form of my invention, A designates a substantially flat work support that is adapted to serve as a supporting surface for a card, piece of paper or other object x, hereinafter referred to as the "work" on which lines are adapted to be drawn to produce a symmetrical design or figure made up of curved, irregular, angularly-disposed, or intersecting lines. The work support A may be formed from any suitable material and may be of any preferred shape or size. It can be formed conveniently and at a low cost from a piece of stiff or heavy cardboard or composition of the kind known commercially as Celotex. A guide B is combined with the work support A, so as to govern or control the path of movement over the work x of a marking device carrier C provided with one or more marking devices that will produce lines on the work when the carrier C is moved bodily over the work and oscillated or rotated by frictional engagement between the marking device carrier C and the guide B.

In the device shown in Figure 1 the guide B consists of a circular surface disposed vertically or substantially so with relation to the top surface of the work support A and formed by the edge of a circular hole in a work holder or work clamp D arranged above the work support A and adapted to engage the work x and retain it in operative position on the work support. Preferably, one edge of the work holder D is hinged or pivotally connected with the work support A, and a retaining device 1 is provided for securing the free edge of the work holder. As shown in Figures 1 and 2, the work holder D may be hinged or pivotally connected with the work support A by means of a lacing 2, and the retaining device 1 may consist simply of a hook-shaped member on the work support that can be moved into overlapping relationship with one edge of the work holder D, so as to cause said work holder to clamp the work x firmly down on the work support A', or moved into the position shown in Figure 1 so as to release the work holder D when it becomes necessary or desirable to arrange a different card or other piece of work x in the device.

As previously stated, the marking device carrier may be of various shapes or forms. As shown in Figure 1, the marking device carrier may consist of a disk-shaped member C formed from a piece of stiff sheet material that is adapted to be arranged flatwise on the work x and then moved bodily over the work while the edge of said disk-shaped member C is held in sufficiently tight engagement with the edge of the circular hole in the work holder that constitutes the guide B to cause said disk-shaped member C to revolve, and thus cause the marking device or devices on said carrier C to produce a design or pattern on the work x. The marking device or devices on the carrier C preferably consist of pieces of lead or crayon 3 positioned in holes in the carrier C in such a way that they will act on the work during the movement of the carrier over the work. As shown in Figure 2, the holes in the carrier C that receive the marking devices 3 are preferably proportioned so that the lower ends of said hole are of greater diameter than their upper ends, thereby preventing the marking devices from working upwardly through the carrier C, but permitting the marking devices to be easily dislodged from the carrier when replacement of the marking device becomes necessary, simply by forcing an instrument downwardly through the hole in the carrier in which the marking device is positioned. If desired, an operating handle E may be employed to facilitate the movement of the marking device carrier C over the work. As shown in Figures 1 and 2, the operating handle E is provided at its lower end with a spindle 4 that is adapted to be inserted in a hole 5 in the carrier C in the operation of moving the carrier over the work. It is not absolutely essential that an operating handle E be used to actuate or move the marking device carrier, although such an operating handle permits the user to exert sufficient downward pressure on the carrier C to insure the marking device or devices thereon producing clear lines on the work, and permits the user to exert sufficient lateral pressure on the marking device carrier C to hold the peripheral edge of said carrier tightly against the guide B, whereby the carrier will be caused to revolve as it moves over the work, as indicated in Figure 6. In Figure 1[a] I have shown a marking device carrier C' which consists of a substantially flat member whose peripheral edge is made up of a number of curved or angularly-disposed surfaces. Such a marking device carrier is used in exactly the same way as the disk-shaped marking device carrier C shown in Figure 1, or oval-shaped carrier C[3] shown in Figure 6, i. e., it is arranged flatwise upon the work with the peripheral edge of the carrier in contact with the guide B, and thereafter the carrier is moved bodily over the work, with the result that the peripheral edge of the carrier will co-act with the

guide B to cause the carrier to revolve or turn, whereby the marking device or devices on the carrier will produce a design or pattern on the work.

In Figures 3, 4 and 5 I have illustrated a device embodying my invention, wherein the guide B′ is formed by the peripheral edge of an oval-shaped member D′ that is mounted on the work support A′. With such a device the card or other object x' that constitutes the work is provided with a center hole 6 shaped and proportioned so that when the work is placed upon the work support A′, the oval-shaped guide B′ will be disposed vertically with relation to the work, and accordingly, may be used to govern or control the path of movement of a marking device carrier C^2, of any preferred shape or form, that is moved bodily over the work while the peripheral edge of said carrier is maintained in sufficiently snug engagement with the peripheral edge of the oval-shaped member D′ on the work support to cause the carrier C^2 to revolve or turn, and thus produce a symmetrical design or pattern on the work x'.

A device of the construction above described is of sufficiently simple construction and principle of operation to permit it to be sold as a toy for use by small children in making unusual and interesting designs or patterns in colors or in making designs, which subsequently are intended to be colored with paints or crayons. It may also be used by science teachers in explaining the principles of compound harmonic motion, and it may be used by designers engaged in the work of producing embroidery patterns or designs for fancy work.

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

1. A device for making designs, comprising a support on which the work is adapted to be positioned, a guide arranged above said work support and provided with a continuous or endless guide surface, a carrier adapted to be superimposed on the work and moved bodily over the same while the peripheral edge of the carrier is maintained in frictional engagement with said continuous or endless guide surface, said carrier having a continuous peripheral edge of such shape that the frictional engagement between same and said guide surface will cause the carrier to turn on an axis while it is moving relatively to the guide, and a marking device on the carrier that is adapted to engage the work.

2. A device for making designs, comprising a work support on which the work is adapted to be positioned, a member arranged above the work support and provided with an opening having a continuous or endless edge which acts as a guide surface, a carrier adapted to be superimposed upon the work inside of said opening and moved bodily over the work while the peripheral edge of the carrier is held in frictional engagement with said endless guide surface, said carrier having a continuous peripheral edge of such shape that the frictional engagement between same and the guide surface will cause the carrier to turn on an axis when it is moving relatively to said guide surface, and a marking device on the carrier that is adapted to engage the work.

3. A device for making designs of the kind described in claim 1, in which the carrier consists of a substantially flat member provided with a center hole, and an operating handle provided with a spindle that is adapted to be inserted in said hole, said spindle serving as an axis about which the carrier turns or rocks while it is traveling around the guide surface.

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