Sept. 25, 1934. E. E. BALDWIN 1,974,442

DRAWING APPLIANCE STENCIL

Filed Nov. 10, 1931 2 Sheets-Sheet 1

Fig. 1.

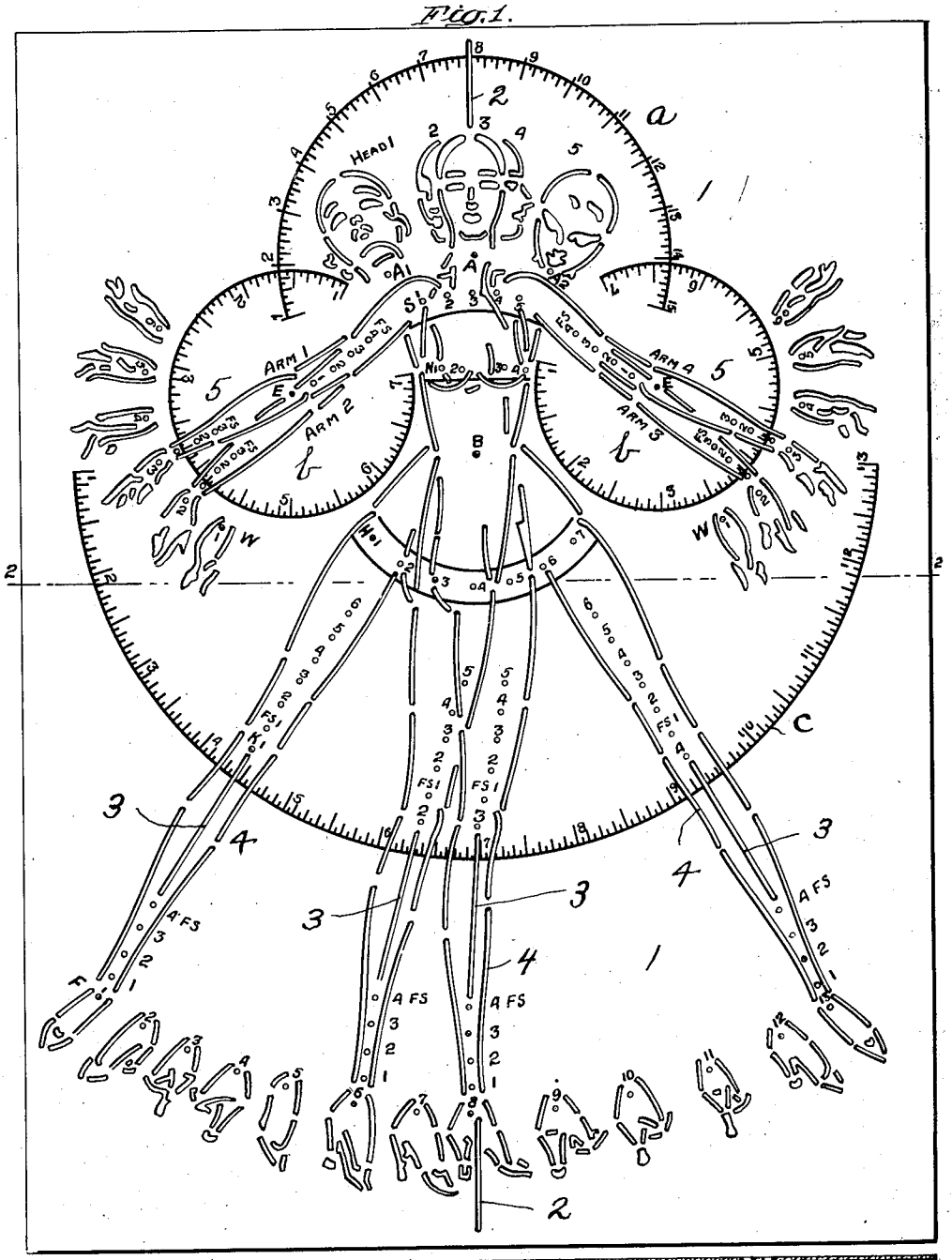


Fig. 2.

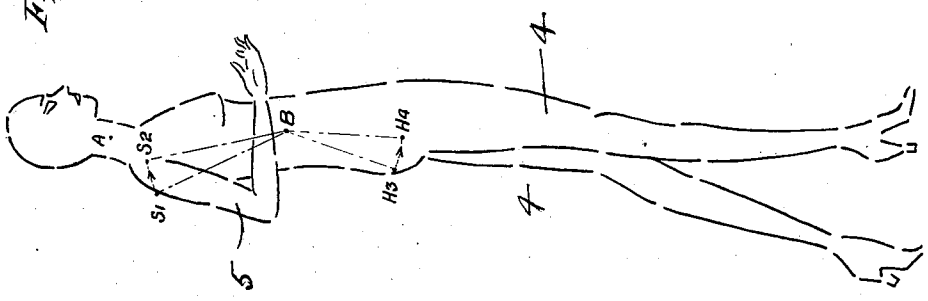
INVENTOR
Edward E. Baldwin
BY Fred L. Baker
ATTORNEY

Sept. 25, 1934. E. E. BALDWIN 1,974,442

DRAWING APPLIANCE STENCIL

Filed Nov. 10, 1931 2 Sheets-Sheet 2

Fig. 4.



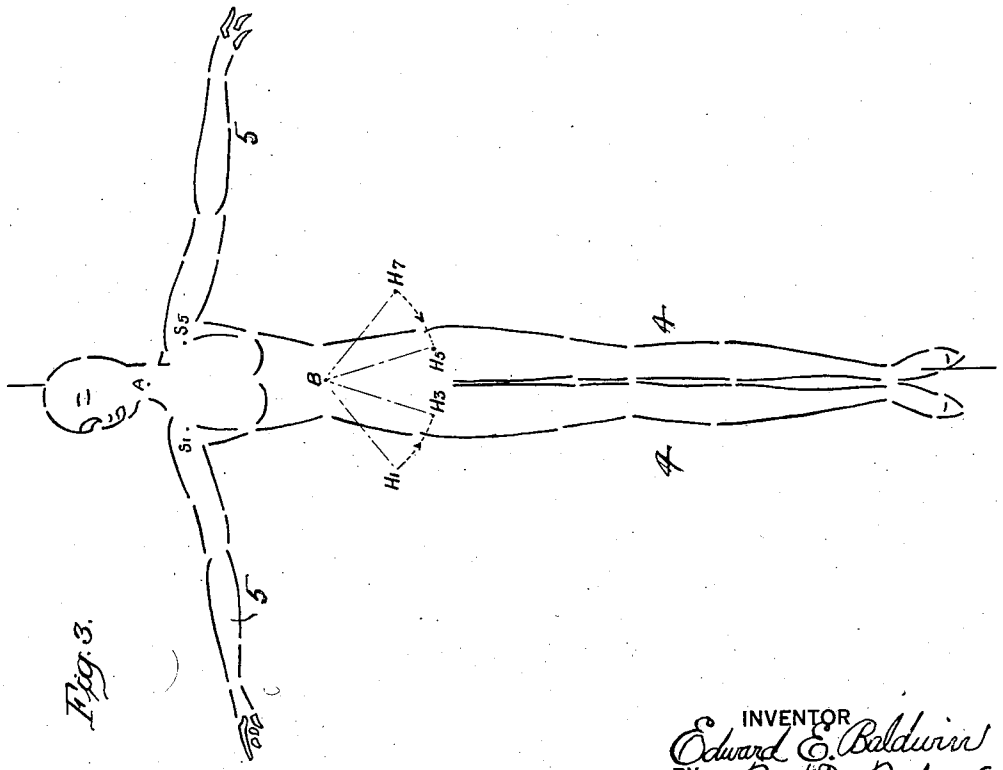


Fig. 3.

INVENTOR
Edward E. Baldwin
BY Fred A. Tucker
ATTORNEY

Patented Sept. 25, 1934 1,974,442

UNITED STATES PATENT OFFICE

1,974,442

DRAWING APPLIANCE STENCIL

Edward E. Baldwin, New York, N. Y., assignor to
Emil A. Hartman, New York, N. Y.

Application November 10, 1931, Serial No. 574,208

14 Claims. (Cl. 33—174)

My present invention relates to certain new and useful improvements in drawing appliances or stencils formed with cut-out images or figures, anatomical or otherwise, and preferably made of transparent or translucent material, as celluloid, said stencils having the interrupted cut-out slots and axis holes that are pierced through the transparent plate which serve as guides for a pencil or marker by which the images are traced or marked on a drawing surface over which the stencil is superposed and adjusted, said stencil having a grouping of circular or arcuate dials graduated thereon to permit degrees of turning of the stencil on the several axial points.

The object of my invention is to assist primarily in the education of commercial artists or dress designers in the production of fashion charts or designs, which are usually offered in a series of studies, and the marking of which in graphic form on sheets of material can be greatly facilitated by the use of a simple, convenient instrument or device like my transparent slotted rotatable and charted stencil. Therefore, the invention consists essentially in the construction, combination and arrangement of parts, and in numerous details and peculiarities of the same, substantially as will be hereinafter described and claimed.

In the accompanying drawings illustrating my invention:

Figure 1 is a plan view of my improved drawing appliance or stencil.

Figure 2 is a cross-section of the same, on the line 2, 2 of Figure 1.

Figure 3 is a outline view of a figure image marked through the slots of a stencil so as to be represented in one position.

Figure 4 is a view of another outline of the figure image to indicate how it may take such position in the proper use of the stencil.

As shown and according to the principles of my invention, a design or designs, such as those shown at 1, are pierced as a stencil in cardboard, metal, celluloid, or other suitable material, but preferably transparent or translucent material like celluloid. This stencil 1 is adapted to lie on a drawing surface, with which it may be squared, with a central vertical line produced on the drawing surface by the vertical slot or slots 2, so that the lines may all be properly related as the stencil is adjusted. Center points or pin holes are also formed in the stencil at convenient places, as at A, B, H, etc., usually at the joints of the anatomy of the figure image, so that pivotal means may be inserted whereby the sheet can be turned to make designs. In use the stencil 1 is placed over a sheet of paper or the like on which the drawing is to be made and held by hand or temporarily secured by placing a point through one or more of the holes the hole acting as an axis for revolving the stencil over the drawing surface while the design is being traced by pencil or otherwise outlined. By rotating or turning the stencil about one or more of these centers or axis holes the outline or design can be repeated, changed or angled, to form a composite or complicated outline picture, and to bend the parts, turn or combine them in different relations, with front or side views or suitable foreshortening of the members, to make a multitude of forms, and, if desired, a series of pictures or views, which may be multiplied, if desired, into a motion-picture series of views or positions, by the use of a suitable code as hereinafter suggested.

Thus the stencil plate is provided with numerous axis holes located at different and various points in relation to the details of the anatomical figure on the stencil. And on these various axial points the stencil may be turned, and with this turning or adjustment the other related axis holes take new positions on the drawing surface, whereby new positions or postures of the anatomical figures or images are imparted by the marker to the drawing surface, when any one desired section or portion of the figure or image is drawn in one specified position of the stencil plate. Thus an endless variety of poses or actions may be obtained by the map like image illustrated in the pierced or slotted stencil or the edges of this cut-out illustration.

In addition to the trunk axis holes A and B, the arms have holes at E. The wrists have holes W at 1, 2, 3, 4, 5, and 6. The hips have perforations H at 1, 2, 3, 4, 5, 6, and 7. The legs 4 are shown in several positions, and many more are possible, but these few positions are outlined with cut-out interrupted slots; and they have central elongated axial cut-out slots at 3 to relate with a graduated dial c, and make it possible to code the different positions for a series of pictures. And the legs and arms have series of holes, as 1, 2, 3, 4, etc., for example, for foreshortening marked F S. Many positions for the hands and feet are shown to correspond with many of the various possible positions of the legs and arms. But all these various slots, holes, and members and parts are given only by way of example, as illustrating a specimen only, for positions of the parts, and to show how codes may be prepared, specifying changes to be made

in developing and marking all desired designs, figures, fashions, etc.

I find it possible to accomplish all needful adjustments of the outline of a human or vertebrate figure by as few as four dials, of which dial *a* is used for the head, neck and shoulders; dials *b*, *b* for the arms; and dial *c* for the legs and feet and a part of the trunk positions. In Figure 1 there is a vertical axis with slots 2, 2 which enable a central upright line to be marked, with reference to which the figure outline can be made, and on this axial line is the neck perforation A, and the abdominal perforation B. The head is outlined with cut-out slots to show head positions 1, 2, 3, 4, and 5, for example; and the neck perforations are at A, A' and A^2, for example. The arms are outlined in interrupted slots at 5, 5 and the four positions 1, 2, 3, and 4 are given for the arms. At the breast positions are axis holes N^1, N^2, N^3, and N^4.

The axes or centers employ holes in the stencil to receive pivot pins on which the stencil sheet is revolvable or turnable over the surface of the drawing sheet, in order to outline different poses and positions on said sheet, and they are placed approximately at the joints of the skeleton frame of the figure or image whose anatomy is configured in the outlining in the slots. This is so that where one portion of the anatomy of the image is transferred to the drawing surface at one time the related portion of the anatomy may be turned to a new position in relation to the part previously transferred by marking it on the drawing surface, and then this part also may be drawn or transferred similarly and added to the parts of the figure image already lined on the drawing surface. Thus a large number of figure members, in an endless variety of actions, may by these turnings of the stencil be transferred to the drawing surface, and a series of pictures produced, for any purpose whatever, such as fashion models or the like.

When the stencil is used to reproduce multiple poses of the human or animal anatomy I find it an important auxiliary in defining the different figure image outlines to employ marked on the stencil face a number of graduated dials of greater or less size, which may, and usually do, have the centers on which the stencil turns over the drawing surface. These dials are of different sizes, and one dial serves with several centers, being eccentric to some of them, and I have found that for the human figure by a special grouping of axial centers at the joints I can secure the requisite number of movements by using four dials; but, while this is a compact and convenient plan, I am at liberty to use as many or as few as may be preferred. These dials are printed on the face of the transparent stencil and are properly centralized with reference to the axis points.

The dials act as means to control the amount of turn. Each dial is supplied with marking means pierced through the stencil to serve as indicators of the degree to which the stencil is turned. Thus dial *c* has slots 3; dial *a* has slot 2; and dials *b* have slots at the outlines of the arms and wrists that may be used for marking means. The pivotal points are all distinguished from each other by letters or numerals. The pivotal points may or may not be the center of the dial circumference. When not, the dial circumference, when turned, forms an eccentric curve around the pivotal point. The pivotal points also serve as means to substitute heads, hands, arms, legs and feet as the various substitutes are on the radius of the circle with the pivotal point as an axis. The pivotal point connecting the member to limb or trunk serves as a mark to which the substitute member is added. Obviously, this system may be applied to images of any vertebrate animals, as well as to fashion outlines shown.

To facilitate the production of the desired image on the drawing by means of this stencil, the figure illustrated has been divided into upper and lower trunk sections controlled by the axis holes A and B, the upper section having axis point A, and the lower axis point B. When the upper section of the trunk on the stencil is turned on a pivot in the axis hole A, the shoulder axis holes are shifted into new positions in relation to the upper trunk, as is also the axis hole located in the waist B. The upper trunk outline is then drawn or outlined on the drawing surface, and axis holes at neck and shoulders are all marked with a dot on the drawing surface. The head and arms are then added to the upper trunk in any desired position or relation by turning the stencil over the drawing surface, using the respective axis holes as a center, as marked on the illustrated figure, A the center for the head and neck and S the center for the shoulders, the angle of movement being seen on the dial by looking through the transparent material of the stencil. The same method applies to the elbows with centers E, wrists having centers W, hips with centers H, knees with centers K, and angles F. As the dials are marked with numbered graduations, they can be turned the exact distance required, and the code simplifies this. In the use of the dials, first, a vertical line is drawn on the paper through the vertical slot at 2 that cuts the top dial *a*. This vertical line is a guide line, or as it is called, a marking line. Now, with the slot held in the same position right over the vertical marking line, the point of the pencil may be inserted through axis hole A in the stencil and held there securely. Then the top of the stencil is rotated to the right until the vertical line drawn on the paper passes through or marks the dial at the proper graduation, and with the stencil held in this position, the profile head is drawn through the slots in the stencil at for example, the head 4. For a further example, if the figure is divided into head, chest, and hip sections of the trunk, upper leg, lower leg and foot, upper arm, lower arm and hand, as I have illustrated, the head may first be posed as the start of the drawing by turning the stencil on axis hole A as stated, and drawing the head in through the slots of the stencil. Then the axis hole A, which is the connecting joint between head and chest is used again, and the stencil turned until the chest is in the desired pose in relation to the head, whereupon, the chest section of the trunk is drawn in, then I use the shoulder axis holes which are marked to indicate the position at which the arms are to join the chest. Then the pin hole B is used, which is the connecting joint between chest and hip sections, the stencil turned and the hips posed and drawn in like manner, and the pin holes at H marked for the hip joints. Then this same procedure is applied to upper leg, lower leg and foot in turn. In like manner the arms are added to the drawing by relocating the stencil in the chest position of the drawing and following the described procedure by first posing the upper arm, pin holes S to E, the lower arm, pin holes E to W, and the hand, drawing each in succession. The pose of the drawing may be seen to grow through the transparent stencil as

each section is drawn in turn. Also the marking lines are very important because they indicate by means of the dials to what degree the stencil is to be turned to produce a given pose of the figure.

The stencil provides a unique and improved means to prevent the amateur artist from drawing the figure illustrated in ungainly or erratic positions, and a means to control the degree to which any one part or member may be moved. The axis holes and pivot means are combined with a dial arc or circumferential line of greater or less curvature marked with degrees or otherwise calibrated, a hole or slot being pierced through this circumference of the dial and used as a marking slot. When this is marked through to and on the drawing surface, and a line drawn through this slot, and the stencil turned over or on the drawing surface, the latter mark registers the degree to which the stencil has been turned. Therefore, following upon the means for making all these changes and combining and recombining the parts or members in different relations with substitutions of parts for different positions, it is possible to formulate a code of positions from which any desired figure may be derived, said code indicating the axis hole to be used and the degree to which the stencil has been or may be turned in making any desired outline image. Thus the amateur artist is enabled to draw a professionally correct pose in a graceful position when furnished with the correct code for that figure, or the code may serve as a means for duplicating a certain desired pose.

The stencil used may be divided into two chief kinds, out of very many kinds that may be employed. First, the sheet of stencil material is pierced through with slots representing the design as a guide to pencil, pen or marker. Second, the sheet of material is silhouetted or has the cut-out edges of the design serving as a guide to the marker. The design is based on the skeleton frame of human or animal represented by same. The pivotal points turn approximately at the joints of the skeleton. The pivotal holes of the stencil located in the trunk of the figure (A and B) serve as means for pivotal holes, at which the various limbs are attached to the trunk in desired positions in relation to the trunk movement, but always in relation to the skeleton or frame of the figure or animal represented. The same applies to the various limbs, the movement being derived from the preceding pivotal point or points.

The foreshortening of portions of the anatomy, as limbs, arms, or feet, is accomplished by a series of holes in line with the length of the leg, arm or member. Marks or dots made on the drawing surface through the holes in the stencil serve as a guide to the direction and degree to which the stencil is moved in line up or down with the course of the length of the line. The foreshortening holes, each series of them, also serve as pivotal points on which the adjacent member may be turned to any desired position and added to the drawing. Several series of numbers marked on the legs and in line with the length of the legs of the figure, as 1, 2, 3, 4, with the letters F S indicate the method of foreshortening the limbs, and the stencil sheet can be moved up or down by marking through the holes opposite to the numbers and keeping the holes in line with the dots marked on the drawing surface.

The figures for heads, hands and feet may be substituted at their joints with trunk or limbs by first marking the drawing surface at the axis of the original member and turning the stencil on the axis point indicated, thereby moving the substitute member into position, which is indicated by the marking dot appearing through the axis hole of the substitute member. An example is: To substitute head A′ to position A′, mark axis hole A on the drawing surface; turn the stencil on axis B until hole A′ is in the position of hole A dot. Head A′ is then turned to the desired position and drawn through the slots to and on the under drawing surface.

It is understood that this system of making a series of figures in different positions may be utilized with a variety of marking arrangements, other dials and parts, and the same or similar results obtained. Dials marked with degrees are merely used as a convenient means of indicating the turning of the stencil over the drawing surface; and others may be made without departing from the invention.

When the weight of the body is transferred from one foot to the other a hip action is created; the hip on the side supporting the weight rising and the opposite hip lowering itself, and the feet are dependent on this action for their position. From this it is readily seen that the position of either hip is relative to the position of the other, and if this action is desired it is necessary to use the proper dials in the drawing of the figure. This is obtained by first using the axis of the hip opposite to that one which is to be drawn, and by swinging the stencil of this axis it will raise or lower the axis of the opposite hip to the desired position, as illustrated. From this position the rest of the leg is drawn in the usual manner. After completing this leg, return to the first code position, and reverse the procedure, locating the axis point of the hip to be drawn from the axis of the opposite hip. The same applies to shoulder actions.

What I claim is:

1. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations of said design forming a plurality of designs of certain members of said figure, said stencil also having small perforations at the joints of the figure outlined, within which latter perforations pivotal means may be inserted to serve as axis points of rotation for the stencil, so that after drawing in a part of the figure, with the stencil in one position, another part may be added by revolving the stencil on its axis points, thereby causing the whole drawing to assume the desired poses of the figure to be depicted.

2. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations of said design forming a plurality of designs of certain members of said figure, said stencil also having small perforations at the joints of the figure outlined, within which latter perforations pivotal means may be inserted to serve as axis points of rotation for the stencil, so that after drawing in a part of the figure with the stencil in one position, another part may be added by revolving the stencil on its axis points, thereby causing the whole drawing to assume the desired poses to be depicted, and the stencil being also provided with means there-

on marked with graduations for gauging the amount to which a portion of the body of the figure is to be turned to expose any specific posture of the whole figure, said perforations and gauge markings all being adapted to be related to form code formulæ for the multiplication of selected poses of the figure.

3. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations of said design forming a plurality of designs of certain members of said figure, in different selected poses, said stencil also having small circular perforations approximately at the bending joints of the figure outlined and of its different members, as at the shoulders, hips, knees, ankles, elbows, wrists, and the like, within which latter perforations at the joints pivotal means may be inserted to serve as axis points of rotation for the stencil, so that after drawing in a part of the figure with the stencil in one position, another part may be added by revolving the stencil on its axis points, thereby causing the whole drawing to assume the desired poses to be depicted, and thus allow the changing of the position of the stencil to connect the various differently posed members or portions of the figure outlined with those portions of the figure already drawn in through the stencil before revolving it, so that as each portion of the figure in the stencil is added to the drawing the pivotal axis points may be used to turn another portion of the figure in the stencil on its joint relatively to the part already drawn to obtain resultant drawings having different poses of the whole figure to be depicted.

4. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations of said design forming a plurality of designs of certain members of said figure, which designs depict various views and positions of different portions of the anatomy of said figure, as heads, arms, hands, feet, legs, ankles, and the like, said stencil also having small circular perforations approximately at the bending joints of the figure, within which circular perforations pivotal means may be inserted to serve as axis points of rotation for the stencil to revolve around one or more of these joint perforations of the figure, in order to permit the attachment of the proper substitute member at its correct joint and pose to develop the desired pose of the whole figure to be depicted.

5. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations of said design forming a plurality of designs of certain members of said figure, which designs depict various views and positions of different portions of the anatomy of said figure, as heads, arms, hands, feet, legs, ankles, and the like, said stencil also having small circular perforations approximately at the bending joins of the figure, within which circular perforations pivotal means may be inserted to serve as axis points of rotation for the stencil to revolve around one or more of these joint perforations of the figure, in order to permit the attachment of the proper substitute member at its correct joint and pose to develop the desired pose of the whole figure to be depicted, and said stencil being also provided with curved graduated lines that are centered with relation to particular joint perforations, so that the stencil may be turned on said particular joint axis points to adjust any special one of the said extra members to its relation to the rest of the body according to any required degree of graduation.

6. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations of said design forming a plurality of designs of certain members of said figure, which designs depict various views and positions of different portions of the anatomy of said figure, as heads, arms, hands, feet, legs, ankles, and the like, said stencil also having small circular perforations approximately at the bending joints of the figure, within which circular perforations pivotal means may be inserted to serve as axis points of rotation for the stencil; and the stencil being also provided with graduated dials consisting of circles or parts of circles that are centered with relation to the joint perforations, the head having a semicircular dial, the arms circular dials, and the trunk an arcual dial, all arranged so that the stencil sheet may be variously revolved on the center perforations of these graduated means to adjust the special members relatively to each other in grouping the same for any particular specified pose of the figure to be depicted.

7. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations of said design forming a plurality of designs of certain members of said figure, which designs depict various views and positions of different portions of the anatomy of said figure, as heads, arms, hands, feet, legs, ankles, and the like, said stencil also having small circular perforations approximately at the bending joints of the figure, within which circular perforations, pivotal means may be inserted to serve as axis points of rotation for the stencil to revolve around one or more of these joint perforations of the figure in order to permit the attachment of the proper substitute member at its correct joint and pose to develop the desired pose of the whole figure to be depicted, and said stencil being also provided with curved graduated lines that are centered with relation to particular joint perforations, so that the stencil may be turned on said particular joint axis points to adjust any special one of the said extra members to its relation to the rest of the body according to any required degree of graduation, each axis point and each graduated scale line having suitable indicia thereon so as to enable them to be compiled to form code formulæ for the easy multiplication of selected poses for the figure and the drawing of the same.

8. A drawing appliance, comprising a sheet of material having suitable perforations, and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations forming a plurality of certain members of said figure, as heads, arms, legs, feet, and the like, and said stencil having curved graduated lines thereon, and having also small circular perforations at the joints of the figure outlined, the curved graduated lines being placed adjacent to the circular perforations at the joints which serve as centers or axis points on which the stencil may be revolved by the use

of pivotal means in the circular perforations, so that after drawing in a part of the figure, with the stencil in one position, another part may be added by revolving the stencil on its axis points, thereby causing the whole drawing to assume the desired poses of the figure to be depicted.

9. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations representing a plurality of duplicated members of said figure, said stencil also having small perforations at the joints of the figure outlined, and the stencil having marked thereon graduated dials concentric with some of the perforations at the joints of the figure, all arranged so that after drawing in a part of the figure with the stencil in one position, another part may be drawn in and added by revolving the stencil on its axis points, thereby causing the whole drawing to assume the desired poses of the figure to be depicted.

10. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations representing a plurality of duplicated members of said figure, in different selected poses, as shoulders, hips, knees, ankles, elbows, wrists and the like, said stencil also having small circular perforations at the joints of the figure outlined, within which holes pivotal means may be inserted to serve as axis points of rotation for the stencil, said stencil having also marked thereon graduated dials centered with relation to the joint perforations, all arranged so that after drawing in a part of the figure, with the stencil in one position, another part may be drawn in and added by revolving the stencil on its axis points, thereby causing the whole drawing to assume the desired poses of the figure to be depicted, each axis point and each duplicated member of the figure and each dial line having suitable indicia thereon, so as to enable them to be compiled to form code formulæ to be used in instructing for the easy duplication of selected poses for pattern or artistic work.

11. A drawing appliance, comprising a sheet of transparent material, having suitable perforations and forming a stencil, some of said perforations forming a design representing a human figure, the remaining perforations representing a plurality of duplicated members of said figure in different poses, as heads, arms, legs, hands, feet, ankles, fingers, necks, and the like, said stencil also having small circular perforations at the joints of the figure outlined, and at the joints of the duplicate members, within all of which joint holes pivotal means may be inserted to serve as axis points of rotation to revolve the stencil, in order to draw in some new part and add it to the figure already drawn in, in order to attach the proper substitute member to develop the desired pose for all the parts of the whole figure; and the stencil being also provided with graduated dials consisting of circles or parts of circles that are centered with relation to the joint perforations, the head having a semicircular dial, the arms circular dials, and the trunk an arcual dial, and each joint center, each duplicated member of the figure, and each dial arc having a suitable number of indicia marked on the stencil, so as to enable code formulæ to be compiled from them to be used in instructing regarding the rotation of the stencil for duplication of selected poses in pattern or artistic work.

12. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a vertebrate figure, the remaining perforations forming a plurality of designs of certain members of said figure, said stencil also having perforations at the joints of the figure outlined, within which latter perforations pivotal means may be inserted to serve as axis points of rotation for the stencil, and certain members of the design having a series of perforations for use in foreshortening, all arranged so that after drawing in a part of the figure, the stencil may be revolved on its axis points and other parts drawn in.

13. A drawing appliance, comprising a sheet of material having suitable perforations and forming a stencil, some of said perforations forming a design representing a human figure, of which the head is outlined in three positions, front, side, and three-quarters, the remaining perforations of said design forming a plurality of designs of certain members of said figure, which designs depict various views and positions of different portions of the anatomy of said figure, as arms, hands, feet, legs, ankles, and the like, said stencil also having perforations approximately at the bending joints of the figure, within which latter perforations pivotal means may be inserted to serve as axis points of rotation for the stencil, and certain members of the design having a series of perforations for use in foreshortening, the various parts of the stencil design being supplied with suitable indicia for the compilation of a code of instruction all arranged so that after drawing in a part of the figure the stencil may be revolved on its axis points and other parts drawn in.

14. A drawing appliance, comprising a sheet of material, having suitable perforations, and forming a stencil, some of said perforations forming a design representing a human figure, of which the head is outlined in three positions, front, side, and three-quarters, the remaining perforations representing a plurality of duplicated members of said figure, as arms, legs, hands, feet, ankles, and the like, said stencil also having small perforations at the joints of the figure outlined, and the stencil having marked thereon graduated dials centered with some of the perforations at the joints of the figure, and certain members of the design having a series of perforations for dotting through for use in foreshortening, all arranged so that after drawing in a part of the figure with the stencil in one position, another part may be drawn in and added by revolving the stencil on its axis points, thereby causing the whole drawing to assume the desired poses of the figure to be depicted, and the various parts of the stencil design being supplied with suitable indicia for the compilation of a code of instruction.

EDWARD E. BALDWIN.