Aug. 27, 1963 G. MORIN 3,101,548

DRAWING INSTRUMENT FOR CODING AND DECODING DRAWINGS

Filed May 8, 1961

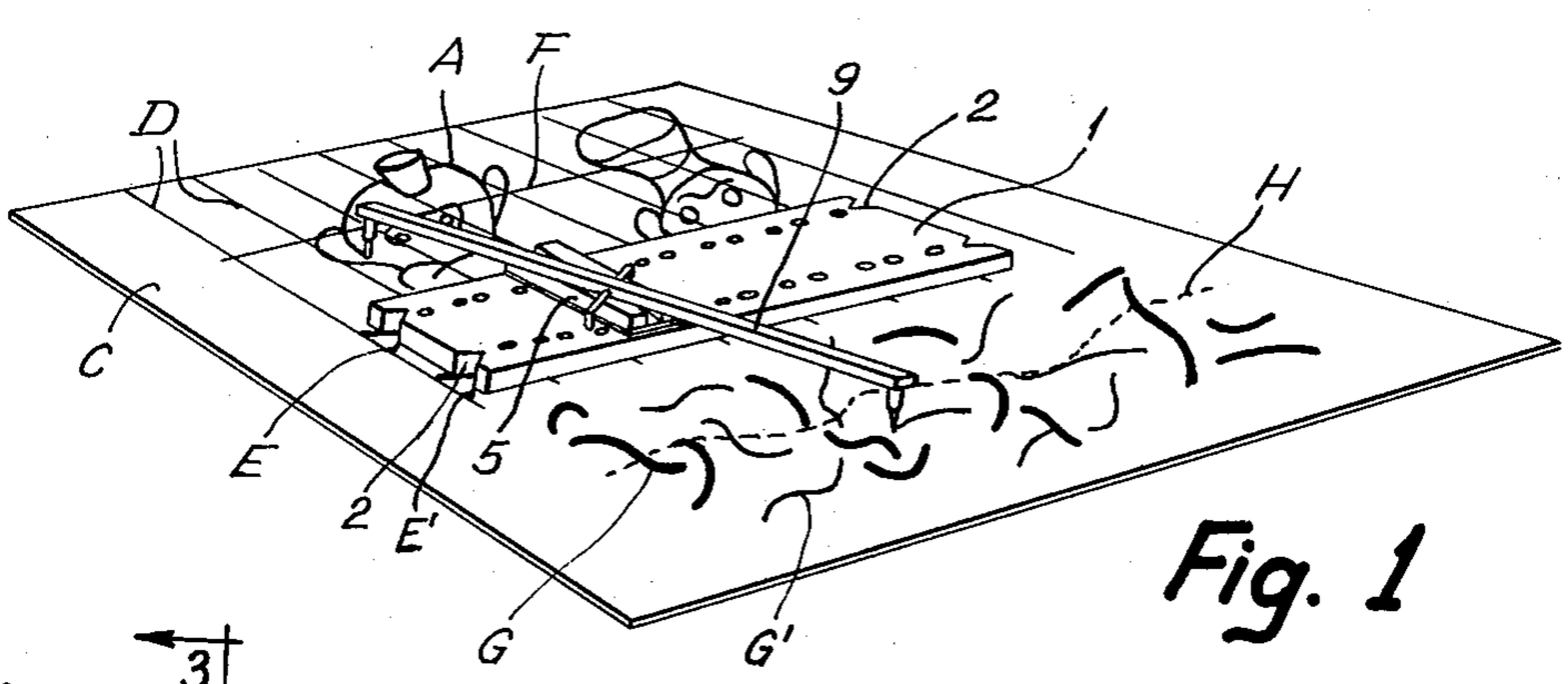

Fig. 1

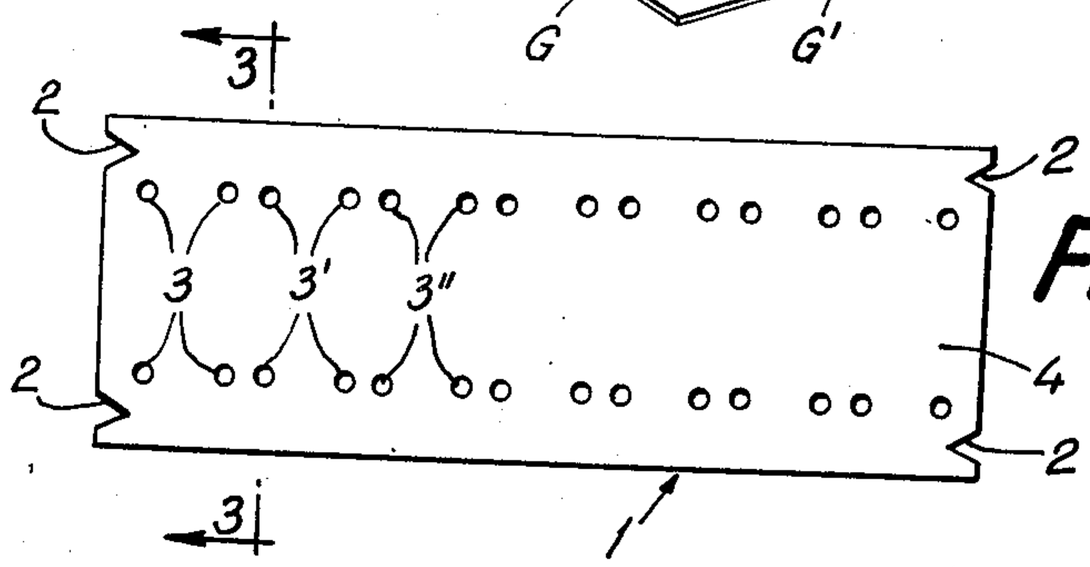

Fig. 2

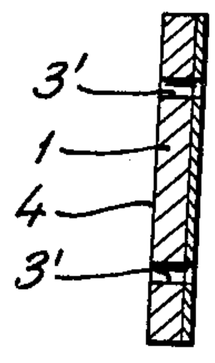

Fig. 3

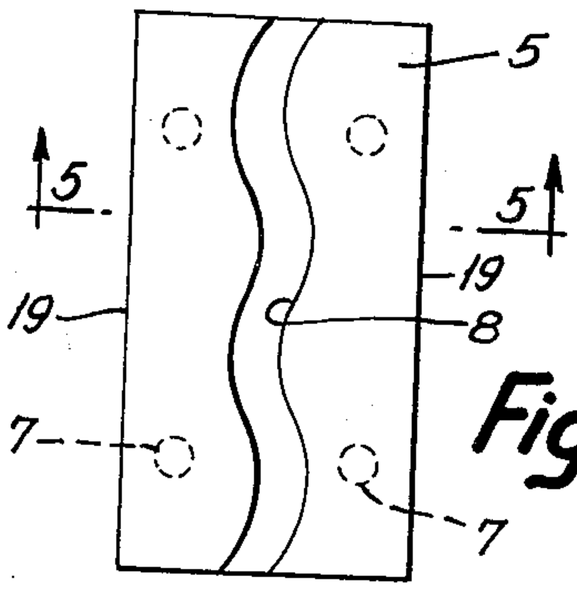

Fig. 4

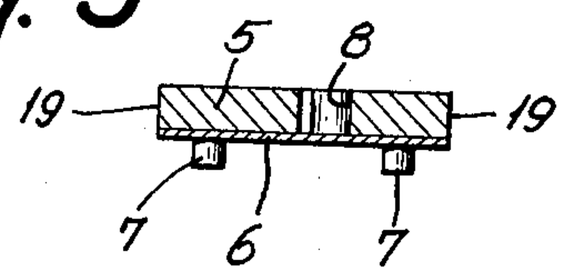

Fig. 5

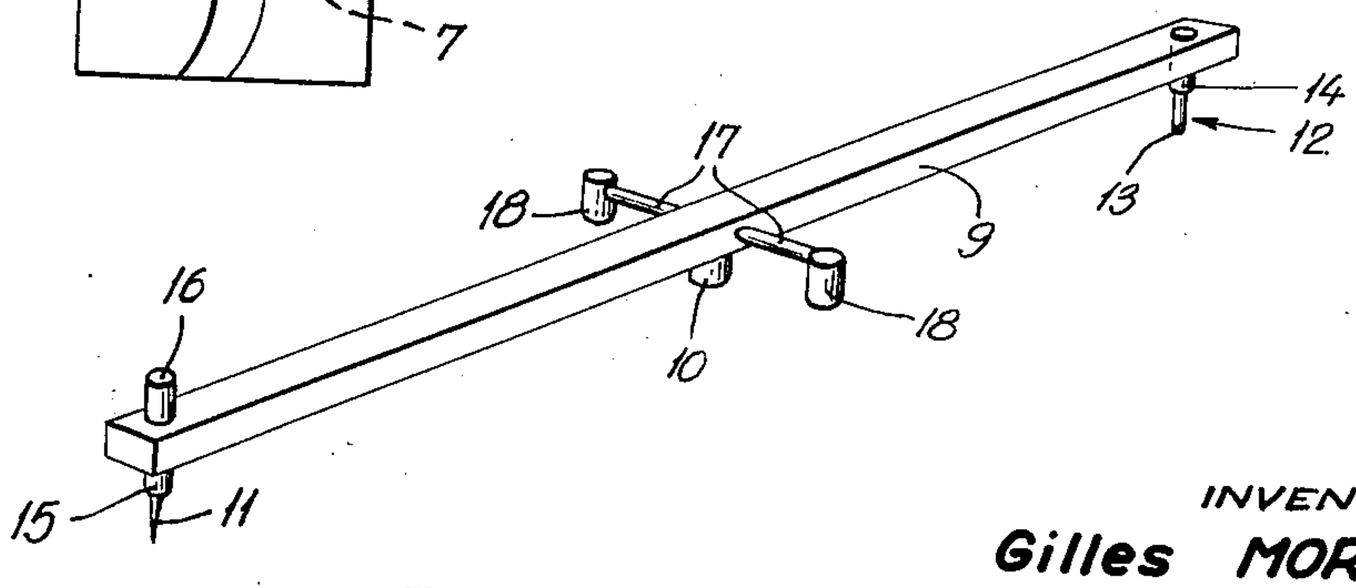

Fig. 6

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DRAWING INSTRUMENT FOR CODING AND DECODING DRAWINGS

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The present invention relates to a drawing instrument of the general class of the pantograph and has for its object an instrument of special construction adapted for coding or decoding a drawing, whereby with the use of the instrument of the present invention it is possible to "translate" a drawing into a series of completely jumbled lines and with the same instrument to reconstitute the original drawing from said jumbled lines.

The instrument of the present invention may be used as a game and may find other applications for coding and decoding drawings.

The foregoing and other objects of the invention will become more apparent during the following disclosure and by referring to the drawings, in which:

FIGURE 1 is a perspective view of the instrument in accordance with the invention showing how the same is used for coding a drawing into a set of jumbled lines or vice versa;

FIGURE 2 is a top plan view of the main or base plate of the instrument;

FIGURE 3 is a cross-section along line 3—3 of FIGURE 2;

FIGURE 4 is a top plan view of the guide plate;

FIGURE 5 is a cross-section along line 5—5 of FIGURE 4; and

FIGURE 6 is a perspective view of the scriber arm of the instrument.

In the drawings, the same reference characters indicate the same elements throughout.

Reference numeral 1 indicates a main plate or base plate of generally rectangular shape and which may be made of any suitable rigid material, such as wood, plastic, or the like, and may be of laminated construction, as shown in cross-section in FIGURE 3. Main plate 1 has a pair of index notches 2 made at the end edges thereof near the four corners of the main plate. Main plate 1 has also a series of groups of four holes 3, 3′, 3″ etc., the four holes of each group being disposed in accordance with a rectangle, the rectangles being adjacent each other and aligned longitudinally of the main plate. The holes 3, 3′, 3″, etc., open at the top face 4 of the main plate and may also open at the bottom face thereof, if desired.

The drawing instrument of the present invention further comprises a guide plate 5 of generally rectangular shape and made of the same material as main plate 1, being preferably of laminated construction with a rigid backing 6. The underface of guide plate 5 is provided with four downwardly projecting studs 7 disposed at the four corners of a rectangle of the same size as the rectangles defined by holes 3, 3′, 3″, etc., of main plate 1, so as to fit in any one group of holes 3, 3′, 3″ etc., whereby the guide plate 5 may be adjustably secured to the main plate over the same in any one of several laterally adjusted positions, for instance seven positions when using the main plate illustrated in FIGURE 2. The guide plate 5 is provided with a guiding groove 8 opening at the top face of the plate 5, and having its bottom defined by the backing 6. The guiding groove 8 is non-rectilinear being longitudinally curved to form a wavy or sinuous path, as clearly shown in FIGURE 4. The groove 8 extends longitudinally of the center of guide plate 5 and may or may not open at both ends thereof. In the embodiment shown in the drawings, groove 8 opens at both ends of guide plate 5.

The instrument of the invention further comprises a

pantograph or scriber arm 9 consisting of a rigid straight bar to the underside of which is secured a downwardly extending fulcrum pin 10 adapted to engage and move within the guiding groove 8 of guide plate 5 with the arm 9 free to rotate about fulcrum pin 10 over the guide plate 5. Fulcrum pin 10 is secured approximately at the middle of the bar 9 and the outer ends of bar 9 are provided with downwardly extending tracing stylus 11 and marking stylus 12 respectively. The marking stylus 12 may consist of a lead 13 or of a pen secured in position by a holder 14 itself fitted within a hole made in the end of the bar 9. The tracing stylus 11 is also of conventional construction and may consist of a pointed steel pin secured within a holder 15 itself fitted within a hole made in the bar 9. Preferably, the holder 15 projects upwardly from bar 9 to form a support rotatably receiving a sleeve-like grip 16.

The scriber bar 9 is further provided at the middle thereof with means which in conjunction with guide plate 5 serve to limit the pivotal movement of the scriber bar 9 with respect to the guide plate 5. These means consist of oppositely directed laterally projecting arms 17 secured to the center of bar 9 in the plane of fulcrum pin 10 and each provided at its outer end with a downwardly extending abutment block 18 adapted to abut against the side faces 19 of the guide plate 5, to thereby limit the angle of rotation of bar 9 with respect to guide plate 5 equally on each side of the long axis of guide plate 5.

The instrument is used as follows: For coding a drawing into a set of jumbled or scrambled lines, referring to FIGURE 1, let us suppose that it is desired to code the drawing A marked on the sheet of paper C. First, longitudinal parallel lines D are traced on the sheet C with a spacing equal to the distance separating each group of holes 3, 3′, 3″, etc., made in the main plate 1. The sheet C is also marked with index marks E just below the drawing A which are so positioned laterally of sheet C that when main plate 1 is positioned on sheet C with one set of index notches 2 in register with marks E, the center lines of the groups of holes 3, 3′, 3″, etc., will coincide with the center lines of the zones defined by the lines D. The drawing A is furthermore crossed by a transverse line F at approximately the middle of said drawing. The main plate 1 is positioned on the sheet C with the top notches 2 in register with the index marks E, as shown in FIGURE 1. When the main plate 1 is in position, it is so located that the center lines of the rectangles bounded by the groups of holes 3, 3′, etc., correspond with the center lines of the zones limited by the longitudinal lines D on the sheet of drawing. The guide plate 5 is then positioned on the main plate 1 with its studs 7 engaging the first group of holes 3, then the scriber bar 9 is positioned on the guide plate with its fulcrum pin 10 engaging the wavy guiding groove 8 and with the tracing stylus 11 on the side of the drawing. One follows with this tracing stylus the bottom part of the drawing A below cross line F and within the first zone delimited by longitudinal lines D whereby a set of scrambled lines G are inscribed on the lower part of the sheet C by the marking stylus 12. It will be noted that these lines do not correspond at all to the shape of the lines of the drawings followed by the tracing stylus, because the fulcrum pin 10 of the scriber bar 9, not only moves up and down within groove 8, but also sideways due to the curved wavy shape of the groove 8. The above procedure is repeated after having displaced the guide plate 5 laterally to engage the next group 3′ of holes within the main plate 1, and the lines of the drawing delimited by the next area in register with the displaced guiding plate are followed with the tracing stylus and jumbled lines G′ are automatically inscribed on the sheet of paper below the main plate. The procedure is again repeated in the same manner until the guiding plate 5 has been positioned to correspond with all the zones

delimited by lines D. It is preferred to alternate for each zone the type of lines marked with marking stylus 12. For instance, scrambled lines G will be marked with a thick lead while the next scrambled lines G' will be marked with a thin lead, and so on, as clearly shown in FIGURE 1.

Before or after the lower part of the drawing has been so inscribed, a dotted line H is marked across the zone of scrambled lines by following line F with tracing stylus 11 for all zones delimited by lines D; then the main plate 1 is moved upwardly, so that its lower set of index notches 2 will then correspond with the index marks E. Thus, the upper part of the drawing A can be traced and converted into scrambled lines which will then be marked above the dotted line H. The same procedure is followed for these lines as described hereinabove.

Printed sheets of paper with the scrambled lines G, G' etc., the dotted line H and additional index marks E' together with the index marks E can be sold and a person equipped with the drawing instrument of the invention can reproduced the drawing A from these scrambled lines G, G', by simply reversing the procedure outlined above, that is by following the scrambled lines G, G' with the tracing stylus thereby automatically making the drawing with the marking stylus 12. The variation of thickness of the scrambled lines G, G' aids in selecting said lines for marking in the corresponding zone delimited by longitudinal lines D. Also the transverse lines H aid in delimiting the area of the sheet of paper to be drawn in accordance with the scrambled lines G, G'.

In this respect, the limiting means consisting of the lateral arms 17 and blocks 18 secured to the scriber bar 9 help also in working in the area corresponding to the transverse position of the guide plate 5 on main plate 1.

Thus, the drawing instrument of the present invention can convert or translate a drawing into completely scrambled or jumbled lines having no meaning by themselves and said lines can be retranslated into the original drawing, the main characteristic of the instrument being the fact that its fulcrum pin 10 moves longitudinally within a groove of sinuous or wavy shape.

While a preferred embodiment in accordance with the present invention has been illustrated and described, it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

What I claim is:

1. A drawing instrument for coding and decoding drawings, comprising a guide plate having a sinous groove made therein, a scriber bar having a downwardly projecting fulcrum pin in engagement with said groove, and movable therein to laterally displace said bar while allowing pivotal movement of said bar with respect to said guide plate, a marking stylus at one end and a tracing stylus at the other end of said scriber bar, and lateral arms secured to said scriber bar in the plane of said fulcrum pin, and downwardly projecting blocks at the outer end of said lateral arms adapted to abut against the side faces of said guide plate to limit the relative pivotal movement of said scriber bar with respect to said guide plate.

2. A drawing instrument as claimed in claim 1, wherein said fulcrum pin is located at approximately the center of said scriber bar.

3. A drawing instrument for coding and decoding drawings, comprising a guide plate having a sinuous groove made therein, a scriber bar having a downwardly projecting fulcrum pin in engagement with said groove, and movable therein to laterally displace said bar while allowing pivotal movement of said bar with respect to said guide plate, a marking stylus at one end and a tracing stylus at the other end of said scriber bar, a main plate, and inter-engageable means between said main plate and said guide plate to adjustably secure said guide plate in a plurality of selected positions on said main plate.

4. A drawing instrument as claimed in claim 3, wherein said inter-engageable means include pins projecting from one of said plates and holes made in the other of said plates for receiving said pins.

5. A drawing instrument as claimed in claim 3, wherein said scriber bar further includes lateral arms and downwardly projecting blocks at the outer ends of said arms engageable with the side faces of said guide plate to limit the pivotal movement of said scriber bar with respect to said guide plate.

6. A drawing instrument as claimed in claim 3, wherein said main plate has index notches made in the end edges thereof.

7. A drawing instrument as claimed in claim 4, wherein said holes are made in said main plate and the pins project from said guide plate, said main plate having a length several times the width of said guide plate, said holes being arranged in several groups longitudinally arranged on said main plate, each group adapted to receive the pins of said guide plate.

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