

Nov. 5, 1935.

A. G. HOE

2,020,185

COPYGRAPH

Filed July 9, 1935

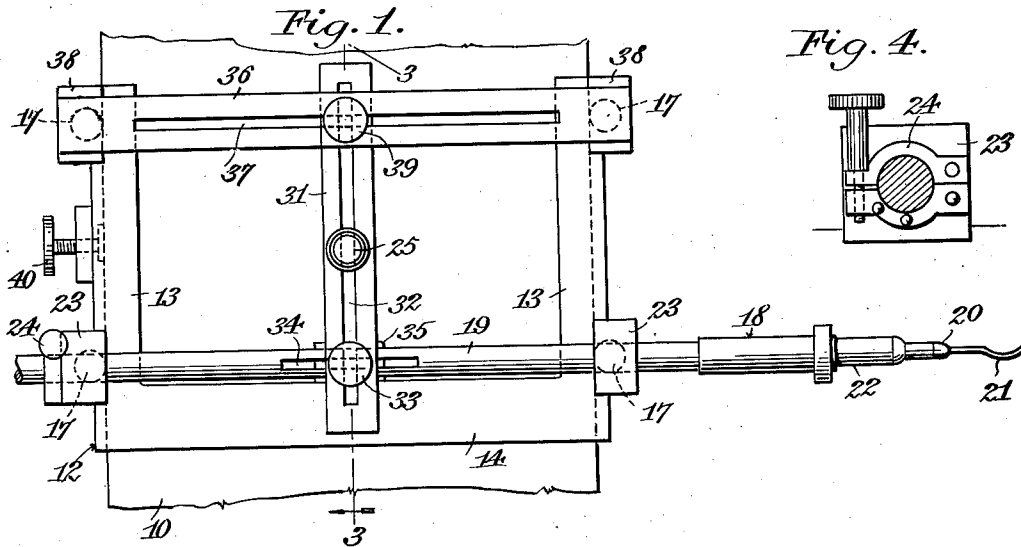
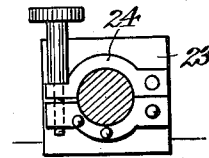
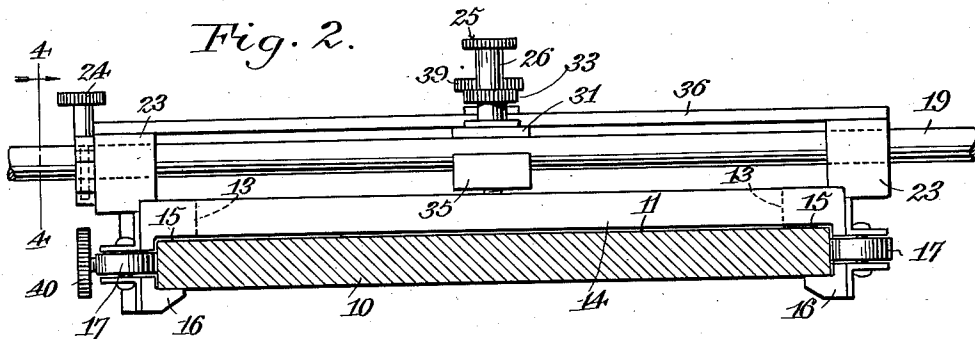
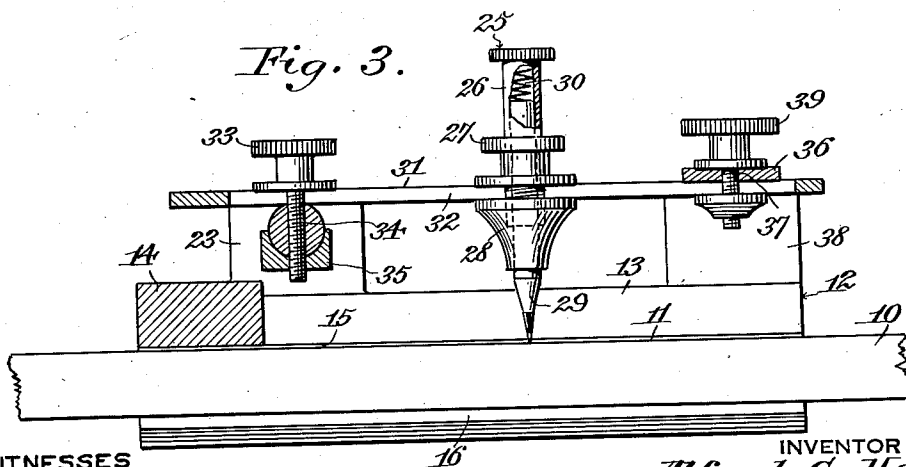


*Fig. 4.*



WITNESSES

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## UNITED STATES PATENT OFFICE

2,020,185

COPYGRAPH

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Application July 9, 1935, Serial No. 30,581

3 Claims. (Cl. 33—23)

This invention relates to a device for making a copy on paper or other suitable material of the outline or contour of moldings, various geometrical figures, and irregular surfaces.

5 The principal object of the invention is the provision of a device of the indicated character by which copies may be simply and accurately made, and a device which is of effectual and substantial design.

10 The invention consists in the improved features as hereinafter described and claimed, and as illustrated in the accompanying drawing, in which—

15 Fig. 1 is a plan of a device embodying the features of the invention;

Fig. 2 is an end view of the device;

Fig. 3 is an enlarged section taken on the line 3—3 of Fig. 1, the board being shown in elevation;

20 Fig. 4 is an enlarged section on the line 4—4 of Fig. 2.

Referring now more particularly to the several views of the drawing, it will be apparent that the device includes a board 10 of any suitable length and width, and whose opposite sides are straight and parallel to each other. The board 10 presents a flat surface 11 to which may be applied in any suitable manner a sheet of paper or other material on which a copy is to be marked. The device also includes a frame 12 which may be made of wood or light metal. The frame 12 consists of sides 13 and a cross bar 14. The sides 13 are grooved as at 15 and have flanges 16 corresponding to the grooves 15. The grooves 15 receive the opposite side edge portions of the board 10, and the flanges 16 engage the said edge portions in such manner that the frame 12 may be slid with respect to the board 10 in opposite directions. The frame has a certain amount of side play in order that it may be moved freely along the board 10. If desired the frame may be provided with anti-friction rollers 17 which are applied to the sides 13 of the frame in the present instance to roll in contact with the opposite sides of the board 10.

45 The device includes a tracing element 18 which consists of a rod or staff 19 of suitable length. The rod 19 has a clutch 20 on one end to grip a tracer or needle or pointer 21 of any suitable type adapted to follow the outline or contour of the surface to be copied. The rod 19 may also include a swivel 22 near the tracer 21 to allow it to be turned if desired, but which may be made rigid. The frame 12 at one end has bearings 23 which slidably support the rod 19 of the tracing element 18 in order that said element will move

with the frame 12 and also to have axial movement at a right angle with respect to the sides of the board 10. If desired one of the bearings 23 may be provided with a clamp 24 to engage the rod 19 to hold the tracing element against axial movement with respect to the frame 12.

The device also includes a scribing element 25 which consists of a tube 26 having clamping members 27 and 28 in threading engagement therewith, and a graphic instrument such as a pen or pencil 29 extends into the tube 26 and is under the influence of an expansion coil spring 30 within the tube 26. The scribing element is adjustably carried by a strip 31 having a longitudinal slot 32 therein. The tube 26 of the element 25 is received in the slot 32 while the members 27 and 28 are clamped in engagement with the strip 31 to thus retain the element 25 in operative position on the strip 31. The scribing element 25 is connected with the tracing element 18 by the use of a set screw 33 which extends in the slot 32 in the strip 31 and a longitudinal slot 34 in the rod 19, and which is in threading engagement with a grooved clamping member 35. The screw 33 serves to tightly bind the rod 19 to the strip 31. The scribing element 25 is therefore caused to move in response to the movement imparted manually to the tracing element 18 when using the element 18 to trace the outline or contour of the surface to be copied.

In order to establish connection between the scribing element 25 and the frame 12 there is provided a strip 36 having a longitudinal slot 37 therein. The strip 36 has the opposite ends thereof secured to blocks 38 respectively on the sides 13 of the frame 12 at the end opposite that having the bearings 23 which support the tracing element 18. A clamping element 39 is used to connect the strip 36 with the strip 31. The scribing element 25 will be moved in response to the movement of the frame 12, as well as in response to the movement of the tracing element 18. The tracing element 18 gives movements to the scribing element 25 in all directions with respect to the sheet applied to the board 10. A set screw 40 carried by one of the sides 13 serves to hold the frame rigid to the board 10 when desired.

From the foregoing it will be obvious that the device may be used for copying the outline or contour of moldings, geometrical figures of various shapes, and irregular surfaces; that the tracing element 18 may be held against axial movement when desired; that the elements 18 and 25 may be adjusted in order to start the copy to be

made at any particular point on the copy sheet; and that the object of the invention may be attained by the features described.

I claim:

5 1. A copygraph comprising a board to hold a sheet on which a copy is to be marked, a frame engaged with said board for guided movement in opposite directions with respect thereto, a tracing element, means mounting the tracing element  
10 on the frame for movement therewith and axial movement at a right angle with respect to the path of movement of the frame, a scriber, a slotted member adjustably connected with said tracing element, said scriber being adjustable in the slot  
15 in said member, and means to retain the scriber in the adjusted positions.

2. A copygraph comprising a board to hold a sheet on which a copy is to be marked, a frame engaged with said board for guided movement  
20 in opposite directions with respect thereto, a

slotted member on the frame at one end and extending at a right angle to sides of the board, a tracing element, means mounting the tracing element on the frame at its other end for movement therewith and axial movement at a right angle to the sides of the frame, a slotted member connected with the first slotted member and tracing element, and a scribing element adjustably engaged with said second mentioned slotted member.

3. In a device of the character described, a tracing element, means mounting the tracing element for movement with respect to the subject to be traced, said element having a slotted portion, a rigid member, means engageable with said slotted portion and said member to retain said member in different adjusted positions on said portion, and a scribing element adjustably connected with said rigid member.

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