Oct. 14, 1924. 1,511,626

P. MARINO

DRAWING TABLE

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Fig. 1.

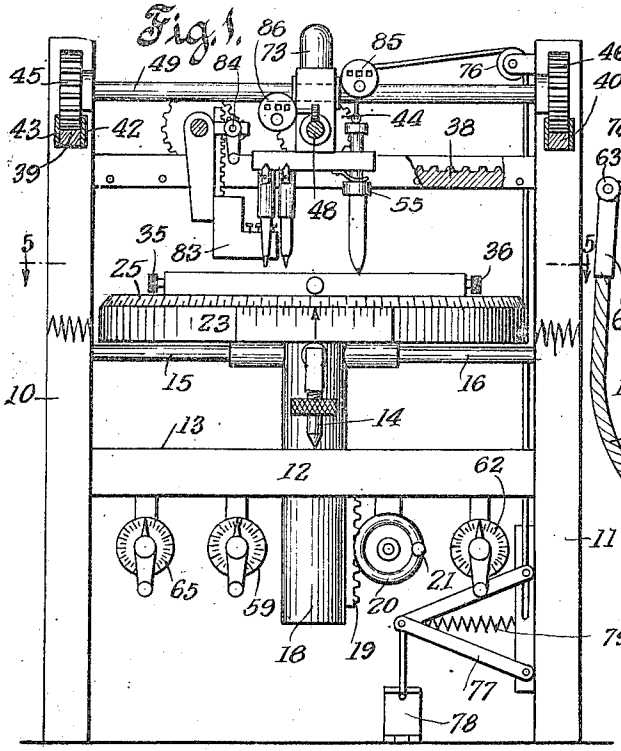


Fig. 2.

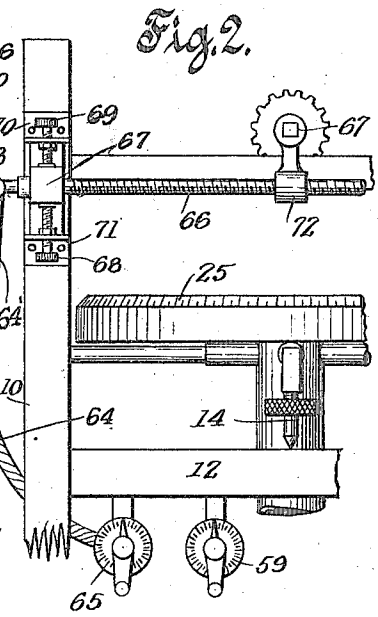
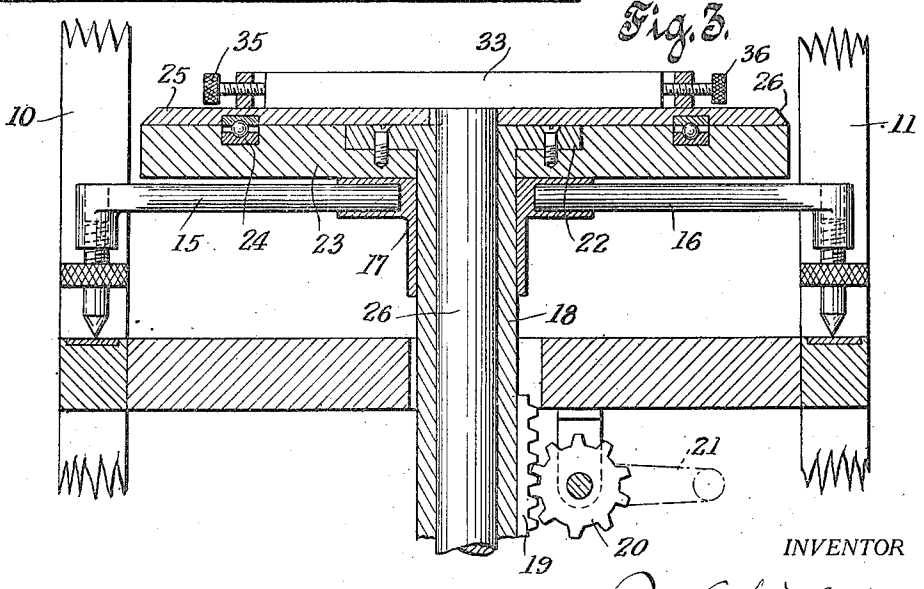


Fig. 3.



INVENTOR

Pasquale Marino

BY

Whiting Polk & Marr

ATTORNEY

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Fig. 4.

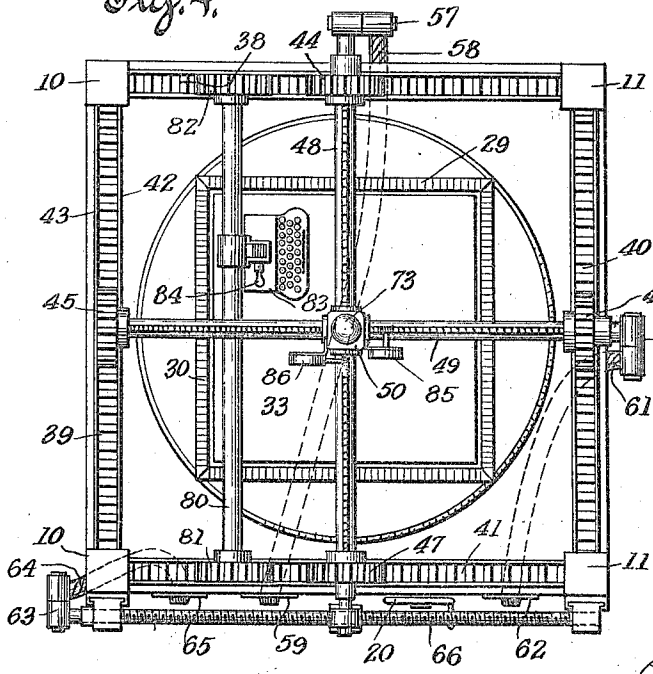


Fig. 7.

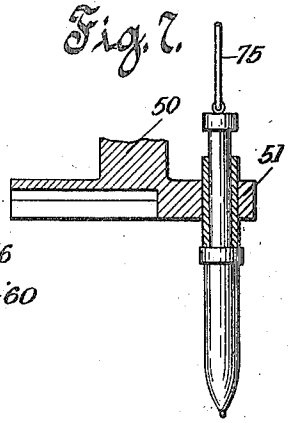


Fig. 6.

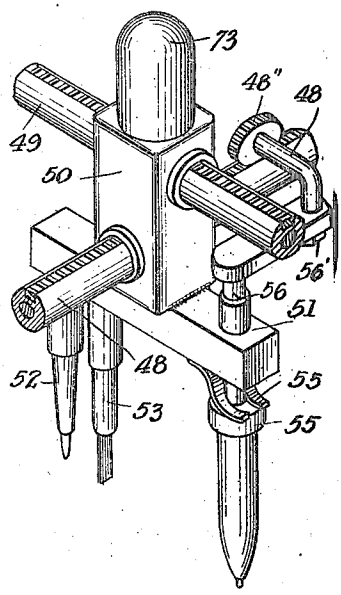
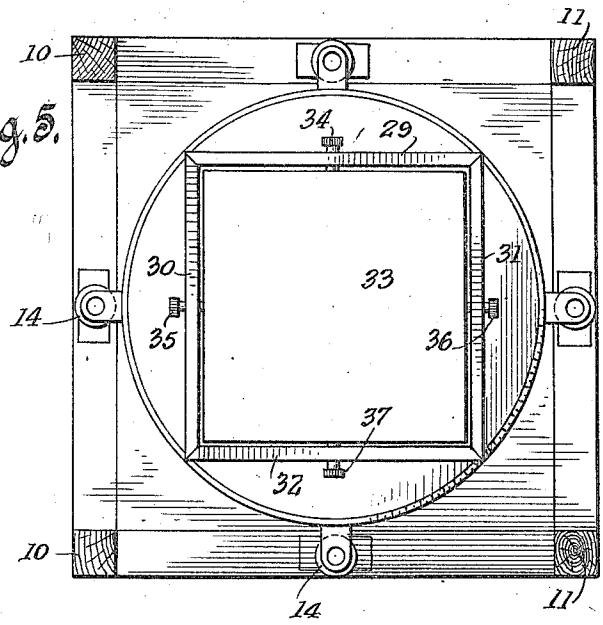


Fig. 5.



INVENTOR

Pasquale Marino

BY

Clapp & Phelps Marr

ATTORNEY

Patented Oct. 14, 1924. 1,511,626

UNITED STATES PATENT OFFICE.

PASQUALE MARINO, OF HARRISON, NEW JERSEY.

DRAWING TABLE.

Application filed January 30, 1923. Serial No. 615,783.

To all whom it may concern:

Be it known that I, PASQUALE MARINO, a subject of the King of Italy, and resident of town of Harrison, county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Drawing Tables, of which the following is the specification.

The device, the subject of this invention and which I term a drawing table, is, in reality a drafting machine, wherein the pens or pencils used are mechanically retained and mechanically manipulated over the surface of the table. The table upon which the paper is secured may also be manipulated.

The objects of the invention then, are to produce a drafting table upon which accurate work may be expeditiously executed and wherein difficult work may be accomplished, without the requirement of exceptional skill, necessary in the use of hand pens and pencils and individual squares, angles and so forth.

Another object of the invention is to produce a drafting table, so constructed that fine adjustments may be quickly and readily accomplished and may be accurately duplicated and a still further object of the invention is to provide means for reducing the time required for the execution of a drawing, by retaining the tools and devices required in the execution, always in operable position and in condition to be readily operated.

With these objects in mind, the following is what I consider the best means for carrying out my invention and the accompanying drawings should be referred to for a complete understanding of the specification which follows.

In the drawings:—

Fig. 1, is a front elevation, partly in section of my machine.

Fig. 2, a fractional front elevation of the part removed from Fig. 1.

Fig. 3, a sectional view of the table and support therefor.

Fig. 4, a top plan view.

Fig. 5, a sectional, plan view, the section being taken on the line 5—5 in Fig. 1.

Fig. 6, is a perspective view on an enlarged scale of the pen and pencil holding device, and

Fig. 7, is an enlarged view of the pen supporting means.

Similar reference numerals indicate like parts in all the figures where they appear.

At 10 and 11 in Fig. 1, I show supports for my device. There are four such supports, these supports being posts of wood or metal connected by means of suitable braces, such as are shown at 12. The braces 12 may support the main or tool table 13. I call this member a tool table, for upon it will probably be placed additional devices, when not in use.

Upon each brace I arrange an adjustable leg as shown at 14, each leg being adapted to operate a co-acting bar, as shown at 15 and 16 and the bars converging inward to a common center are secured in the T-shaped member 17.

Passing through this T-shaped member 17 is a tubular member 18, fitted with a rack 19 and the rack 19 and member 16 may be adjusted vertically by means of a spur gear 20, operated by a handle 21.

The upper end of the tubular member 18 is flanged as shown at 22 and secured thereto is a supporting member 23, provided with an annular ball race 24 and upon the member 23 is a rotatable member 25, this rotatable member being secured to a rod 26, which passes into the tube 18 and is rotatable with the member 25.

On the inclined edge 26′ of the member 25, I arrange a scale, which may be a protractor scale and upon the non-rotatable main supporting member 23, a pointer 27 may be secured, which will project over the protractor scale, to assist in the setting of the rotatable member 25 to any degree, in relation to parts not yet described.

Adjustably secured upon the disk of member 25 is a drawing board support, which may be a frame formed of four bars as shown at 29, 30, 31 and 32 in Fig. 5, the drawing board 33 being received in the frame or between the bars 29 to 32 inclusive. Means are provided for moving the drawing board, the means consisting of spur gears operating over suitable tracks, the gears being operated by the knobs 34, 35, 36 and 37, the object of this adjustment being to provide means for causing any part of the drawing board to be centered under the pen or pencil in use.

Between the uprights 10—10 and 11—11, I secure racks as shown at 38, 39, 40 and 41 and upwardly projecting side plates are pro-

vided for all of the racks, one being secured to each side of each rack as shown at 42 and 43.

Operable upon each rack is a spur gear, the spur gears being shown at 44, 45, 46 and 47, these spur gears being secured in pairs upon suitable shafts and the shafts extending through the tubular members as shown at 48 and 49.

It will be noted from Fig. 6, that the tubular members pass, one above the other, both members and their shafts continuing through the block 50, which supports a channel 51, wherein pens and pencils 52, 53 and 54 are secured. The pens and pencils are movable in the channel 51, so that any one of said devices may be brought directly under the center of the block 50.

The main tool holding means is a rod 56, passing through a tube, secured in the channel 51 and to which a tool 55 may be secured. For a reason that shall be later set forth, the rod 56 should be longitudinally movable through the channel 51.

I call attention to the fact that a flexible shaft is connected to each movable part of my device and that each flexible shaft terminates in a hand operated dial plate at the front of the machine and toggle joints as shown at 57 are interposed in the flexible shaft, so that the movement of the parts may not be restricted. As shown in Fig. 4, a flexible shaft 58 and dial 59 controls the movement of the shaft within the tube 48; the toggle 60, the flexible shaft 61 and the dial 62 controls the movement of the spur gears 45 and 46; the toggle 63, flexible shaft 64 and dial 65 controls the movement of the screw-threaded shaft 66, and which may be supported in adjustable blocks 67, upon the front frame member. These blocks are adjustable by means of screws 68 and 69 passing through brackets 70 and 71.

A traveller 72, upon the shaft 66 may be temporarily placed upon the squared end 67 of the shaft which controls the gears 44 and 47 and by means of this screw-threaded shaft 66 and its co-operating parts, an exceedingly delicate movement of the gears 44 and 47 may be accomplished, a movement which is particularly advantageous in cross-hatching and in drawing parallel lines, which are required to be very close together. It will of course be understood that a similar fine adjusting means, such as the shaft 66 and parts co-operating therewith may also be adapted so as to operate the gears 45 and 46.

Upon the rod 56 of the tool 55, I place a lever 56′ which is provided with a pin 48′. Upon this pin I arrange a helical gear 48″ and it will be understood that as the gear 48 is caused to travel on the rack arranged on the shaft 48 that the tool 55 will be lifted and depressed, the spring 55′ acting as the depressing means. This operation is intended to cause the tool 55 to make a dotted line.

In Figs. 1 and 7, I show the tool 55 supported upon a flexible member 75, which passes over suitable pulleys as shown at 76 and is raised and lowered by a toggle 77, controlled by a foot pedal 78 and spring 79. This device is intended for raising the pen or pencil away from the surface of the paper when it is desired to change the position of the paper and this control may be operated with the tool supporting means shown in Fig. 6.

In Figs. 1 and 4, I show an additional bar 80 operable by gears 81 and 82 upon the racks 38 and 41. Upon this bar I support a typewriter 83 and I provide means such as a rack and pinion shown at 84 in Fig. 1 for lifting the typewriter away from the drawing board. The bar 80 for supporting the typewriter may be arranged so as to operate upon the tracks 39 and 40, if desired.

In Figs. 1 and 4, I show meters 85 and 86 which will indicate the amount of travel of the tool supporting member 50.

The operation of my device can probably be fully understood from the foregoing description. I will, however, briefly describe the general principle of the operation, referring to the parts by the reference characters applied thereto.

A sheet of paper being placed upon the table 33, this table is adjusted until at the proper height. The pen or pencil to be used is centered in its supporting channel 51 and the point adjusted. For drawing straight lines, the point from which the line is to start is placed under the pencil, by moving the table, by manipulating the knobs 34 and 37 inclusive. If the line to be drawn is in the direction of either of the arrows A, the dial 62 is turned, which will cause the gears 45 and 46 to move the block 50 in the desired direction. If the line to be drawn is in the direction of the arrow B, the dial 59 is operated.

To draw circles, a point on the circumference of the circle is placed under the point of the pen or pencil and the table is rotated.

For extremely quick work, such as pencilling where over-run lines are not always objectionable, the flexible shafts 58 and 61 may be disconnected and the block 50 moved by hand, the hand resting on the projection 73, shown extending upwardly from the block 50. It will be noted that the block 50 may be moved readily upon the tubes 48 and 49 extending therethrough. The plates or guides arranged adjacent the tracks 38 to 41 inclusive assure that the block 50 will always move in a straight line.

The scales shown on the frame members 29 to 32 inclusive, are useful in positioning the tool employed.

The flexible shaft 64 or in fact any of the shafts may be provided with a telescopic part formed therein as shown at 64′ in Figure 2, such a part is advantageous in the shaft 64 allowing this shaft to be extended when adjustment is made by means of the screw 68 and 69.

Parts may be used without the whole and modification may be made within the scope of the appended claims without departing from the principle or sacrificing the advantages of this invention.

Having carefully and fully described my invention, what I claim and desire to obtain is:—

1. A drafting table and means for supporting it, said supporting means extending above said table, racks in pairs secured to said supporting means and means operable upon each set of racks for moving a marking device.

2. A drafting table and means for supporting a marking device above said table, said means comprising a plurality of mechanically operated tubular members arranged at right angles to each other, said marking device supporting means being adapted to move freely upon one said tubular member when impelled by the other said tubular member.

3. A drafting table and means for supporting a marking device above said table, said means comprising a plurality of mechanically operated tubular members arranged at right angles to each other, said supporting means being adapted to slide freely upon one said tubular member by the rotation of the other said tubular member and means associated with each said tubular member for impelling said supporting member, said means comprising flexible shafts and hand operated dials for rotating said shafts.

4. A drafting table and means for supporting a marking device above said table, said means comprising a plurality of mechanically operated tubular members arranged at right angles to each other, said supporting means being adapted to move freely upon one said tubular member when the other said tubular member is rotated and means associated with each said tubular member for impelling said supporting member, said means comprising flexible shafts and hand operated dials for rotating said shafts and a common support for all said dials.

5. A drafting table comprising a base member having adjustable means for levelling it, a table rotatably mounted upon said base member, a drawing board and means for adjusting it in relation to said table and an instrument support above said table and adapted to be moved over said table.

6. A drafting table having a tool support comprising a channel member and a plurality of tools adjustably arranged in said channel member and means for moving said channel member over the surface of the board, said means comprising a plurality of transversely arranged supports for said tool holder and means for moving said tool holder upon said transverse supports.

7. A drafting table having a tool support comprising a channel member and a plurality of tools adjustably arranged in said channel member and means for moving said channel member over the surface of the board, said means comprising a plurality of transversely arranged supports for said tool holder and means for moving said tool holder upon said transverse support, said last mentioned means comprising racks, gears thereon, shafts connecting said gears and means for rotating said shafts.

8. A drafting instrument having a board and means for supporting a tool over said board, said tool supporting means comprising a movable member, a thimble arranged therein, a tool movable in said thimble and a foot operated means for moving said tool in one direction.

9. A drafting instrument having a board and means for supporting a tool over said board, said tool supporting means comprising a movable member, a thimble arranged therein, a tool movable in said thimble and a foot operated means for moving said tool in one direction and resilient means for moving said tool in the opposite direction.

10. A drawing table and means for supporting a tool over said drawing table, said means comprising an adjustable tool holder, a tool supported therein and means for reciprocating said tool to cause said tool to intermittently contact with the surface of said table.

Signed at the city, county and State of New York, this 23rd day of January, 1923.

PASQUALE MARINO.