

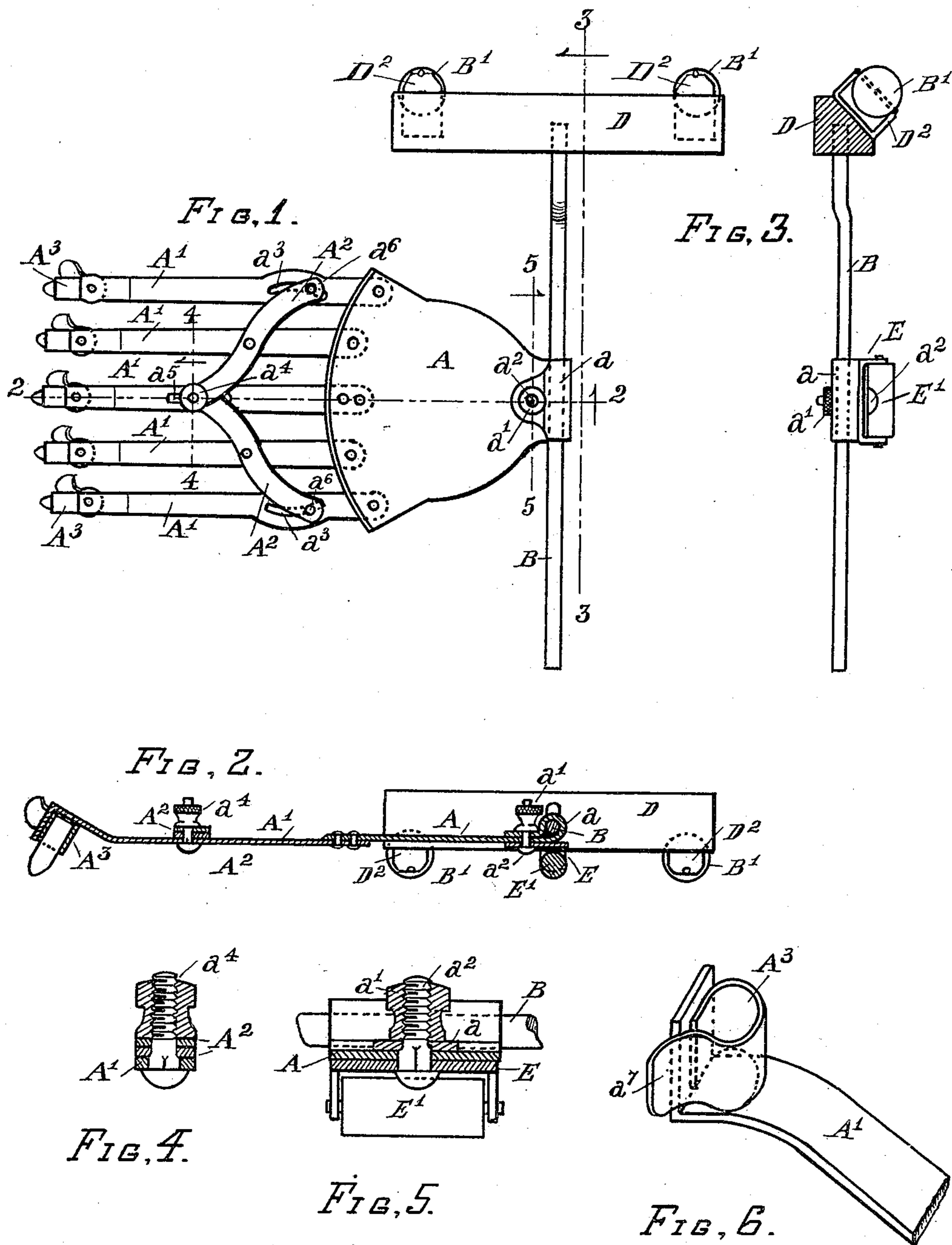
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Patented Mar. 14, 1899.

H. C. GIBBS.
RULING MACHINE.

(Application filed Feb. 3, 1898.)

(No Model.)



WITNESSES.

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HORACE C. GIBBS, OF SPRINGFIELD, ILLINOIS.

RULING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 621,064, dated March 14, 1899.

Application filed February 3, 1898. Serial No. 668,985. (No model.)

To all whom it may concern:

Be it known that I, HORACE C. GIBBS, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Ruling-Machines, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use my said invention.

My invention relates to devices of that kind which are employed to simultaneously draw or rule a number of parallel lines.

The purposes of my invention are to provide simple and effective means whereby the marking instruments—such as crayons, pencils, pens, &c.—may be simultaneously adjusted relative to each other, so as to vary at pleasure the distances between the ruled lines; to provide simple and effective means for yieldingly holding crayons, pencils, pens, or other marking instruments; to provide simple and effective means for guiding the movement of the machine in the longitudinal direction of the ruled lines; to provide means for the adjustment of the plate on which the marking instruments are supported in a direction transverse to the longitudinal direction of the ruled lines, and to provide a carriage of novel and improved form adapted to support said plate and connected parts in proper position relative to the surface to be ruled, said carriage being adapted to roll on said surface.

With these ends in view my invention consists of certain novel features of construction and combinations of parts shown in the annexed drawings, to which reference is hereby made and hereinafter particularly described, and pointed out in the claims.

In the drawings I have illustrated a form of my ruling-machine having five adjustable arms and especially adapted to rule the five parallel lines of the musical staff, as hereinafter more fully set forth; but it is obvious that a greater or less number of adjustable arms may be used and that the device may without departure in principle or material change in construction be adapted to a variety of uses, such as ruling parallel horizontal lines, ruling vertical columns, ruling perpendicular intersecting lines, so as to form squares, and ruling diagonally-intersecting lines, &c.

Referring to the drawings, Figure 1 is a top plan view of the complete machine. Fig. 2 is a vertical longitudinal section on the line 2 of Fig. 1. Fig. 3 is a vertical transverse section on the line 3 of Fig. 1. Fig. 4 is an enlarged vertical section through the clamping-screw a^4 and the arms A' and the levers A^2 on the line 4 of Fig. 1. Fig. 5 is an enlarged vertical section on the line 5 of Fig. 1. Fig. 6 is an enlarged detached perspective view of part of one of the spring-arms as seen from the under side and shows the socket in place on the arm.

Similar letters of reference designate like parts in all of the views.

The plate A is of thin metal, preferably steel, of the form shown, said form being neat in appearance and convenient to handle; but a plate of any other suitable or convenient form may be used without departing from my invention. One end of the plate A is turned over and bent back on itself, so as to form a loop a , through which a rod B passes.

Arms A' are connected with the plate A , the central arm being firmly secured to said plate and the lateral arms being pivotally connected with said plate. These arms, which are preferably of light spring-steel, are springy in order that they may readily adapt themselves to slight inequality or unevenness of the surface to be ruled, so as to insure uniform contact of the marking instruments with said surface.

Curved complementary levers A^2 are pivotally connected with the intermediate arms A' , and their adjacent ends are pivotally connected together by a bolt a^4 , which slides in a longitudinal slot a^5 in the fixed central arm A' . The outer ends of the levers are connected with the outer arms A' by rivets a^6 , which slide in segmental slots a^3 in said arms. The outer extremities of the arms A' incline upward, as shown, and are provided with spring-sockets A^3 , adapted to receive and hold a pencil or crayon or other instrument for marking. The sockets A^3 (see Fig. 6) consist of light springs bent, as shown, so that each spring forms an approximately cylindrical socket, one end of each spring being brazed on or otherwise suitably secured to the upturned end of the arm A' , the free end of the spring being shaped to form a thumb-piece a^7 , by means of which the socket may spring open to facilitate the insertion of a crayon or pencil or other in-

strument for marking. The sockets A^3 are set at an angle relative to the arms A' , substantially as shown, in order to facilitate the movement of the crayons or other marking instruments on the surface to be ruled, and in order to obviate jumping or chattering movement of the marking instruments on said surface, the rod B is firmly secured to the head D and is perpendicular thereto.

Balls B' are supported and turn on suitable brackets D^2 , which are secured to the head D. A bracket E, carrying a roller E' , is secured to the under side of the plate A by a bolt a^2 passing through the bracket E, the plate A, and the extension of the loop a , and a milled nut a' on the bolt serves to clamp all of these parts firmly together, and also serves to retain the plate A in any position in which it may be set on the rod B.

By reason of the construction which I have shown and described it will be seen that by loosening the nut a' all of the lateral arms A' may be moved simultaneously inward or outward, so as to diminish or increase the distances between the marking instruments carried on said arms, thereby diminishing or increasing within the scope of the levers A^2 the spaces between the lines ruled by said instruments. It will also be seen that the plate A may be slid longitudinally on the rod B, so that several sets or series of lines may be ruled without resetting the ruler or straight-edge by which the ruling is guided, as hereinafter set forth.

The head D and the rod B together form a carriage on which the plate A and the parts connected therewith are carried. This carriage is supported at two points on the balls B' and at a third point on the roller E' , so that uniformity of movement is assured without rocking or vibration.

The operation of my ruling-machine is as follows: A ruler or straight-edge (not shown) is placed upon the surface to be ruled with its length lying in the direction in which the lines are to run. Crayons, pencils, or other marking instruments having previously been placed in the sockets A^3 and the plate A having been clamped in the desired position on the rod B, the head D is placed parallel to the edge of the ruler or straight-edge and with the balls B' in contact therewith. The straight-edge is held with one hand, while with the other the carriage is pulled along, the balls rolling in contact with the straight-edge, guiding the movement of the carriage so that as the carriage traverses the length of the ruler the marking instruments at the ends of the arms A' trace a series of parallel lines on the surface operated upon.

The direction of the ruled lines may be varied at pleasure by changing correspondingly the position of the guiding straight-edge or ruler.

When a set or series of lines have been ruled as above described and it is desired to rule intermediate lines without resetting the

straight-edge, the thumb-nut a' may be loosened, and the plate A may be moved up or down to set the marking instruments in proper position. The plate may then be clamped on the rod and the operation proceeded with as before.

By reason of employing five arms provided with crayons, as hereinbefore set forth, my ruling-machine is especially adapted for simultaneously ruling on a blackboard all of the five lines of the musical staff for the purpose of instruction in music. I have also found in practice that when provided with crayons, as above, it is very convenient and effective for ruling on a blackboard intersecting lines forming squares, such as are commonly used in elementary instruction in drawing. I do not, however, limit myself to these uses of the device, since it obviously may be applied to many different uses.

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

1. In a ruling-machine a supporting-plate, a central arm secured to said plate, lateral arms pivotally connected with said plate, means for attaching marking instruments to said arms, and means for simultaneously moving said arms; in combination with a carriage with which said plate is connected, substantially as set forth.

2. In a ruling-machine a carriage consisting of a head, a rod secured to said head, balls turning in hangers on said head and a roller connected with said rod; in combination with a plate adjustable on said rod, and arms connected with said plate and adapted to carry marking instruments, as set forth.

3. In a ruling-machine, the combination of a carriage, a plate adjustable on said carriage, an arm fixed on said plate, lateral arms pivotally connected with said plate, levers connecting said arms, and sockets on said arms, adapted to receive marking instruments, substantially as set forth.

4. In a ruling-machine a plate provided with upwardly-curved arms, said arms having sockets set at an angle thereto, in combination with a carriage with which said plate is connected, substantially as set forth.

5. In a ruling-machine, the combination of a plate, a slotted central arm fixed on said plate, slotted outer arms and intermediate arms pivotally connected with said plate, levers pivotally connected with said intermediate arms and provided with connecting means movable in the slots in said outer arms, and a clamping-screw connecting the contiguous ends of said levers, and movable in the slot in said fixed arm, as set forth.

In witness whereof I have hereunto subscribed my name, at Springfield, Illinois, this 18th day of January, A. D. 1898.

HORACE C. GIBBS.

Witnesses:

E. J. DUNN,

GEO. W. KENNEY.