Oct. 12, 1937. F. M. AIMES 2,095,851

DEMONSTRATING MACHINE

Filed April 9, 1936

Fig. 1

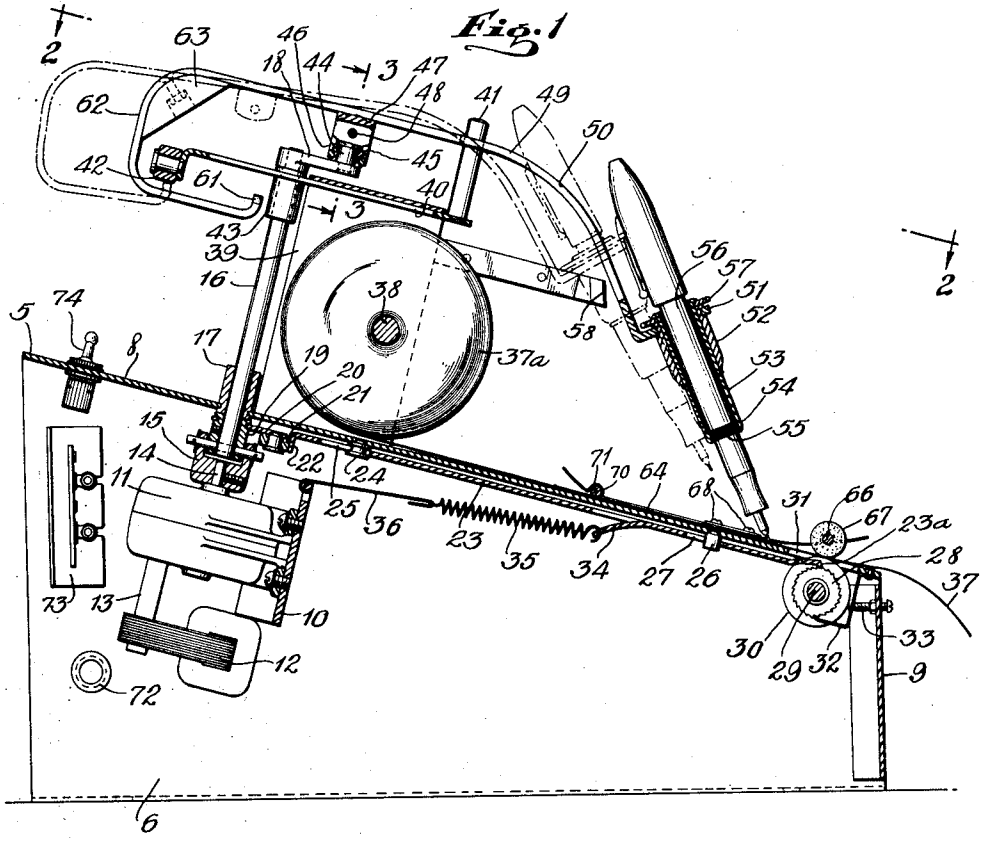


Fig. 2

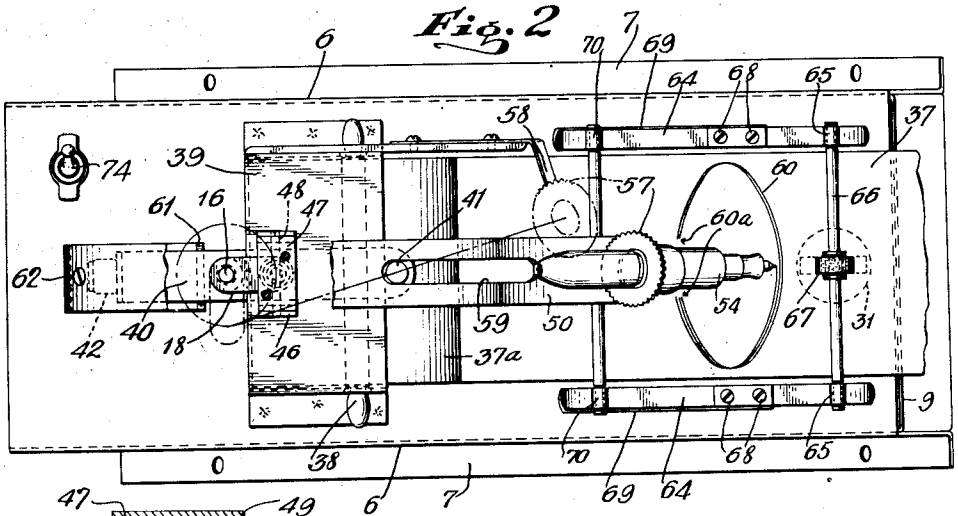
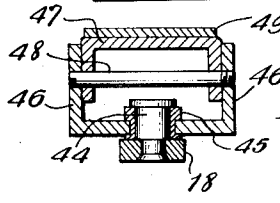


Fig. 3.



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DEMONSTRATING MACHINE

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20 Claims. (Cl. 35—49)

This invention relates to machines for use in displaying as well as demonstrating the use of certain articles of manufacture, and particularly writing implements, such as pens, pencils, fountain pens and the like; and the object of the invention is to provide a machine of the class described which is of economical construction whereby the cost of producing the same will be reduced to a minimum, thereby facilitating extensive use of machines of the class under consideration; a further object being to provide an article or implement supporting arm, with means for moving said arm forwardly and backwardly, laterally as well as vertically with respect to a writing, marking or display surface, whereby an elliptical or substantially elliptical mark may be made on a writing surface or a sheet disposed on said surface in each cycle of operation of the machine; a further object being to provide means for supporting a roll of paper or other material upon which the marking is to be arranged, with means for intermittently feeding the strip or ribbon of such material through the machine so as to space the successive markings longitudinally thereof; a further object being to provide quickly attachable and detachable means for supporting and guiding the marking strip or ribbon in its movement through the machine; a still further object being to provide means for intermittently rotating the article or implement supporting means in the arm of the machine so as to eliminate the uneven wear upon the marking pen or tip of the implement; and with these and other objects in view, the invention consists in a machine of the class specified, which is simple and economical in construction, efficient in use, and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a longitudinal sectional view through the machine, with parts of the construction shown in a different position in dot and dash lines.

Fig. 2 is a plan view looking in the direction of the arrows 2—2 of Fig. 1, with parts of the construction broken away; and,

Fig. 3 is a partial section on the line 3—3 of Fig. 1.

In practice, I provide a box-shaped casing or housing 5 which is open at the bottom, and one end consists of side walls 6 having outwardly extending bottom flanges 7 which are preferably apertured to facilitate mounting upon a suitable support. The upper edges of the side walls 6 are joined by a transverse top wall 8 which is integral therewith, in other words, the entire housing is stamped from a single sheet of material. The top wall 8 is downwardly inclined as clearly seen in Fig. 1 of the drawing, and mounted in the front or narrow end portion of the housing is a closure panel or shell 9 which provides a finish for the front end of the machine.

Mounted within the housing 5 and welded or otherwise secured to the side walls 6 thereof is a transverse supporting plate 10 upon which a conventional motor reduction gear or transmission housing 11 is supported. An electric motor diagrammatically illustrated at 12 has its shaft 13 coupled with the mechanisms of the housing 11 so as to actuate a drive shaft 14 projecting upwardly from the housing 11.

Coupled with the shaft 14 through a yoke-shaped coupling 15 is a crank shaft 16 which extends upwardly through bearings 17 in the top wall 8 of the housing and is provided at its upper end with a crank arm 18. Secured to the shaft 16 is a sleeve 19 to which is secured a radially extending arm 20 having an anti-friction roller 21 which is adapted, in each cycle of revolution of the shaft 16, to strike the flanged end 22 of a long pawl strip 23. The strip 23 is supported and guided upon the under surface of the top wall 8 by a grooved ring 24 operated in an elongated slot 25 in the pawl 23, and is further guided against lateral displacement by a pin 26 secured to the top wall 8 and operating in another elongated aperture 27 in the pawl 23. The forward end of the pawl strip 23 is offset to form the pawl proper 23a which is mounted directly over and adapted to engage a ratchet 28 secured to a transverse shaft 29 mounted in the front corner portion of the housing.

Secured to the shaft 29 is a drive wheel or roller 30 which extends upwardly through an opening 31 formed in the top wall 8 of the housing as clearly seen in Fig. 1 of the drawing. A spring finger 32 is employed to engage the ratchet 28 to retain the same against backward movement. An adjustable screw 33 is employed to regulate the tension of the spring finger 32 upon the ratchet. Stamped from the pawl strip 23 is a spring supporting member 34 with which one end of a coil spring 35 is attached, the other end of said spring being coupled with the transverse

support 10 through a link rod 36. The spring 35 serves to support the pawl strip 23 in a rearwardly extended position and to also aid gravity in supporting the pawl proper 23a in engagement with the ratchet 28.

The roller 22 advances the strip 23 forwardly against the action of the spring 35, this movement being slight and sufficient to feed the paper or other strip or ribbon 37 forwardly through the machine. The supply of the sheet 37 which forms the rotating or marking surface comes from a roll 37a mounted upon a removable pin 33 which is supported in an upwardly extending yoke-shaped frame 39 welded or otherwise secured to the top plate 8 of the housing. Secured to the under side of the top or crosshead of the frame 39 is a longitudinally extending plate 40, to the forward end of which is secured an upwardly extending guide pin 41. An anti-frictional roller 42 is mounted in connection with the rear or angularly extending end of said plate.

The plate 40 also includes a bearing 43 for the upper end portion of a crank shaft 16. At the free end portion of the crank arm 18 is an upwardly extending pin or rivet 44 on which is mounted a roller 45 which operates in a yoke-shaped support 46 pivoted to a companion and inverted yoke-shaped support 47 as seen at 48. The support 47 is secured to an implement or tool supporting arm 49. The pivot 48 permits vertical swinging movement of the arm from the position shown in full lines in Fig. 1 to that indicated in dotted lines in said figure in the operation of the machine. The arm 49 is in the form of an elongated strip, the forward end portion 50 of which is curved downwardly, and its free end is bent at right angles to form a support 51 for a bushing 52 in which is rotatably mounted a sleeve 53 which forms a tool or implement supporting member, which in the construction shown, is internally threaded at its lower end as indicated at 54 to receive the threaded portion 55 on a fountain pen 56.

The fountain pen 56 in the construction shown is of the Styleograph type and requires intermittent rotation to avoid the possibility of wearing the fine rod-like point flat at one side. For this purpose, a ratchet wheel 57 is secured to the sleeve 53. This wheel is adapted to engage a projecting finger 58 secured to the frame 39 in the swinging movement of the arm 49 to rotate the sleeve 53 and pin 56 a partial revolution in each cycle of movement imparted to the arm. The arm 49 including the curved portion 50 thereof has an elongated aperture 59 in which the pin 41 operates.

The pin 41 forms a pivot around which the arm swings in the movement imparted thereto by the crank 18. The point of the pen will travel through a substantially elliptical path and will scribe or mark upon the writing sheet or surface 37, a series of open elliptical marks as partially indicated at 60 in Fig. 2 of the drawing. The ends of the markings 60 terminate at the points 60a by reason of the fact that the pen is raised from the surface 37, which result is accomplished by the engagement of an upwardly ending flange 61 on the free end of the downwardly and forwardly extending rear portion 62 of the arm 49, with the roller 42, as is indicated in dotted lines in Fig. 1 of the drawing. The transverse dimensions of the flanged end 61 will be such as to control the spacing between the points 60a.

A counterbalance weight 63 is secured in the upper rear corner portion of the arm 49 for counterbalancing the weight of the fountain pen or other tool arranged in the machine. This weight may be varied to compensate for tools of different sizes and weights. The purpose of this construction is to eliminate excessive friction of the pen point in its movement over the writing surface 37. Arranged at each side of the machine and upon the top plate 8 are two spring strips 64, the forward end portions of which are fashioned to form loops 65 for receiving the reduced ends of a transverse rod 66 and to form bearings therefor.

The spring strips 64 serve to support a backing roller 67 upon the feed roller 30 or the marking sheet or strip 37 disposed therebetween. The strips 64 are secured in place by screws 68, and these screws also pass through supplemental flat metal strips 69 which extend rearwardly from their point of attachment as at 68 to act as spacers compensating for the thickness of the strip 37. Supported in the semi-circular bearings 70 at the rear ends of the spring strips 64 is a transverse guide rod 71 which simply serves to support the paper or other strip 37 upon the top surface or wall 8 of the machine so as to provide between the rod 66 and the rod 71 a substantially flat and smooth writing surface. This is especially true when the size of the roll 37a diminishes.

In one side wall 6 of the machine, I provide an aperture with an insulated bushing 72 to permit the insertion of electric wires into the machine which are preferably coupled with a terminal block 73 and also with a control switch 74, the latter serving to control the supply of electric energy to the motor 12. The wire has been eliminated for simplification in the illustration.

In the operation of the machine and from the position of the pen indicated in Fig. 2 of the drawing, the pen will continue to travel upwardly until it reaches the upper point 60a terminating the partial ellipse marked on the sheet 37, at which moment, the flange 61 passes beneath the roller 42 and the pen is raised. As the arm continues to swing, the ratchet 57 strikes the finger 58 to slightly rotate the pen in its support, after which the arm will again be lowered to start the next elliptical marking at the end 60a located at the lower part of Fig. 2.

From this point, the pen will travel in the elliptical path back to the position shown in Fig. 2, thus completing one cycle of operation. In this cycle of operation, the sheet 37 is advanced forwardly a slight extent to provide the spacing between the successive elliptical markings, and this operation is preferably performed while the pen is raised from the sheet 37. From this standpoint, it should be borne in mind that the particular location of the arm 19 shown in Fig. 1 of the drawing is purely for simplifying the illustration. However, the movement of the sheet may take place at any time and may be moved any number of times during a cycle of operation of the pen to provide various types of contours of the marking arranged on the writing surface.

Other changes may be made in the construction of the several parts of the machine while at the same time carrying out the desired purpose, and when ordinary fountain pens or other marking devices are employed, the rachet 57 as well as the finger 58 may be eliminated, as there will be no necessity for rotating said implements.

Having fully described my invention, what I

claim as new and desire to secure by Letters Patent, is:

1. A machine of the class described comprising an elongated arm, means at one end portion of the arm for supporting a marking element in connection therewith, means intermediate the ends of said arm for moving and guiding said arm to move the first named end portion thereof transversely and longitudinally with respect to the longitudinal plane of said arm, means for moving the first named end portion of the arm vertically, said first named means being rotatable in said arm, means for intermittently rotating said first named means, means for supporting a sheet upon which markings are to be formed in position to be engaged by a marking element supported in said first named means, said last named means involving a feed roller, and means for intermittently actuating said roller.

2. A display machine of the class described comprising a casing, an elongated inclined marking surface at the top of said casing, means for supporting a strip of material longitudinally of said inclined surface, an elongated member arranged above said inclined surface for supporting a marking element thereover and in position to engage the exposed surface of said strip, means for operating and guiding said member to move a marking element supported therein in predetermined paths with respect to the surface of said strip, and means for intermittently feeding said strip longitudinally of said inclined surface.

3. A display machine of the class described comprising a casing, an elongated inclined marking surface at the top of said casing, means for supporting a strip of material longitudinally of said inclined surface, an elongated member arranged above said inclined surface for supporting a marking element thereover and in position to engage the exposed surface of said strip, means for operating and guiding said member to move a marking element supported therein in predetermined paths with respect to the surface of said strip, means for intermittently feeding said strip longitudinally of said inclined surface, and means for intermittently moving the marking element supporting member vertically with respect to said strip.

4. A display machine of the class described comprising a casing, an elongated inclined marking surface at the top of said casing, means for supporting a strip of material longitudinally of said inclined surface, an elongated member arranged above said inclined surface for supporting a marking element thereover and in position to engage the exposed surface of said strip, means for operating and guiding said member to move a marking element supported therein in predetermined paths with respect to the surface of said strip, means for intermittently feeding said strip longitudinally of said inclined surface, means for intermittently moving the marking element supporting member vertically with respect to said strip, and means for intermittently rotating the support for said marking element.

5. A machine of the class described comprising an elongated casing, means for intermittently feeding a strip of writing material longitudinally through the machine with a portion of said strip exposed upon one surface of said casing, an elongated arm arranged in spaced relation to said surface of the casing, means at one end portion of the arm for supporting a fountain pen in connection therewith, means for counterbalancing the pen in said arm to control the pressure of the pen upon the exposed surface of said strip, and means for operating and guiding said arm to move the point of the pen in a substantially elliptical path upon the surface of said strip, thereby forming a substantially elliptical mark on said strip.

6. A machine of the class described comprising an elongated casing, means for intermittently feeding a strip of writing material longitudinally through the machine with a portion of said strip exposed upon one surface of said casing, an elongated arm arranged in spaced relation to said surface of the casing, means at one end portion of the arm for supporting a fountain pen in connection therewith, means for counterbalancing the pen in said arm to control the pressure of the pen upon the exposed surface of said strip, means for operating and guiding said arm to move the point of the pen in a substantially elliptical path upon the surface of said strip, thereby forming a substantially elliptical mark on said strip, and means for intermittently raising the point of the pen from the strip to provide unmarked sections or areas thereon.

7. In a machine of the class described, an elongated arm, means for pivotally supporting said arm to provide vertical swinging movement thereof, means for operating and guiding said arm to move one end portion thereof longitudinally and laterally, and means at said end portion of the arm for detachably supporting a marking element at an inclination to the longitudinal plane of said arm.

8. In a machine of the class described, a casing having an elongated marking surface, means for supporting and operating a marking element to move the same laterally and longitudinally with respect to said surface, means for supporting a strip of writing material flatly upon said surface and between longitudinally spaced points on said surface, and means for intermittently feeding said strip of writing material longitudinally of said surface.

9. In a machine of the class described, an elongated arm formed from a strip of material, one end portion of which is curved downwardly and includes an outwardly extending apertured flange, the other end portion of the arm extending downwardly and inwardly, means intermediate the ends of the arm for coupling an operating crank therewith to impart forward, backward and swinging movement to said arm, means engaging the arm adjacent the first named end portion thereof for guiding the arm in the movement thereof, means arranged in the apertured flange of said arm for detachably and adjustably supporting a marking element therein, said last named means including a toothed wheel, and means for engaging said wheel in each cycle of movement of said arm to rotate the same a part of a revolution and correspondingly rotate the marking element supported in said means.

10. In a machine of the class described, an elongated arm formed from a strip of material, one end portion of which is curved downwardly and includes an outwardly extending apertured flange, the other end portion of the arm extending downwardly and inwardly, means intermediate the ends of the arm for coupling an operating crank therewith to impart forward, backward and swinging movement to said arm, means engaging the arm adjacent the first named end portion thereof for guiding the arm in the movement thereof, means arranged in the apertured flanges of said arm for detachably and adjustably supporting a marking element therein, said

last named means including a toothed wheel, means for engaging said wheel in each cycle of movement of said arm to rotate the same a part of a revolution and correspondingly rotate the marking element supported in said means, and means co-operating with the second named end portion of the arm to intermittently raise and lower the first named end portion of the arm during each cycle of movement imparted to said arm.

11. In a machine of the class described employing a casing having a work sheet supporting surface, means for supporting and guiding a work sheet to move longitudinally of said surface, means involving feed rollers for intermittently feeding the work sheet on said surface, said last named means comprising a ratchet on the shaft of one of said feed rollers, an elongated pawl in operative engagement with said ratchet, and means in operative engagement with the drive mechanism of the machine for actuating said pawl in one direction and tensional means for moving the pawl in the opposite direction.

12. In a machine of the class described employing a casing having a work sheet supporting surface, means for supporting and guiding a work sheet to move longitudinally of said surface, means involving feed rollers for intermittently feeding the work sheet on said surface, said last named means comprising a ratchet on the shaft of one of said feed rollers, an elongated pawl in operative engagement with said ratchet, means in operative engagement with the drive mechanism of the machine for actuating said pawl in one direction and tensional means for moving the pawl in the opposite direction, means for supporting and guiding the marking element over a predetermined area of the marking sheet supported on said surface, means for raising and lowering said last named means with respect to said sheet, and means for rotating said element supporting means when in raised position with respect to said sheet.

13. A machine of the class described comprising a casing having an elongated marking surface, means arranged longitudinally of said surface for movably supporting a long sheet of material to move in a direction longitudinally with respect to said sheet, an elongated member arranged and movable longitudinally of said surface for movably supporting a marking element over said surface, and means for guiding one end portion of said member through a substantially elliptical path with respect to the marking surface.

14. A machine of the class described comprising a casing having an elongated marking surface, means arranged longitudinally of said surface for movably supporting a long sheet of material to move in a direction longitudinally with respect to said sheet, an elongated member arranged and movable longitudinally of said surface for movably supporting a marking element over said surface, means for guiding one end portion of said member through a substantially elliptical path with respect to the marking surface, and means for periodically raising said member with respect to the marking surface.

15. A machine of the class described comprising a casing having an elongated marking surface, means arranged longitudinally of said surface for movably supporting a long sheet of material to move in a direction longitudinally with respect to said sheet, an elongated member arranged and movable longitudinally of said surface for movably supporting a marking element over said surface, means for guiding one end portion of said member through a substantially elliptical path with respect to the marking surface, means for periodically raising said member with respect to the marking surface, and means for rotating a marking element in said member.

16. A machine of the class described comprising an elongated casing having a marking surface at one end portion thereof, an elongated arm arranged longitudinally of the machine and disposed above and in spaced relation to said surface, means at one end portion of the arm for supporting a marking element in connection therewith, motor driven means for actuating said arm, and said means in conjunction with guiding means cooperating with the arm for moving the first named end portion of said arm transversely and longitudinally with respect to the longitudinal plane of said arm.

17. A machine of the class described comprising an elongated casing having a marking surface at one end portion thereof, an elongated arm arranged longitudinally of the machine and disposed above and in spaced relation to said surface, means at one end portion of the arm for supporting a marking element in connection therewith, motor driven means for actuating said arm, said means in conjunction with guiding means cooperating with the arm for moving the first named end portion of said arm transversely and longitudinally with respect to the longitudinal plane of said arm, and means for intermittently moving the first named end portion of the arm vertically.

18. A machine of the class described comprising an elongated casing having a marking surface at one end portion thereof, an elongated arm arranged longitudinally of the machine and disposed above and in spaced relation to said surface, means at one end portion of the arm for supporting a marking element in connection therewith, motor driven means for actuating said arm, said means in conjunction with guiding means cooperating with the arm for moving the first named end portion of said arm transversely and longitudinally with respect to the longitudinal plane of said arm, means for intermittently moving the first named end portion of the arm vertically, said first named means being rotatable in said arm, and means for intermittently rotating said first named means.

19. In a machine of the class described, a casing having an elongated top plate, an elongated arm arranged above and in spaced relation to said plate and formed from a flat strip of material, the central portion of which is disposed horizontally with respect to said top plate, one end portion of the strip being offset in a downward direction to form a curved end portion, said curved end portion terminating at its free end in an angularly extending apertured flange, the other end portion of the arm being offset downwardly and inwardly, means intermediate the offset end portions of the arm for coupling an operating crank therewith to impart forward, backward and swinging movement to said arm, and means engaging the arm adjacent the first named end portion thereof for guiding the arm in the movement thereof.

20. In a machine of the class described, a casing having an elongated top plate, an elongated arm arranged above and in spaced relation to said plate and formed from a flat strip of material, the central portion of which is disposed horizontally

with respect to said top plate, one end portion of the strip being offset in a downward direction to form a curved end portion, said curved end portion terminating at the free end in an angularly extending apertured flange, the other end portion of the arm being offset downwardly and inwardly, means intermediate the offset end portions of the arm for coupling an operating crank therewith to impart forward, backward and swinging movement to said arm, means engaging the arm adjacent the first named end portion thereof for guiding the arm in the movement thereof, and means arranged in said apertured flange for detachably and adjustably supporting the marking element therein.

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