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2,277,884

MARKING MACHINE

Filed Oct. 25, 1939

2 Sheets-Sheet 1

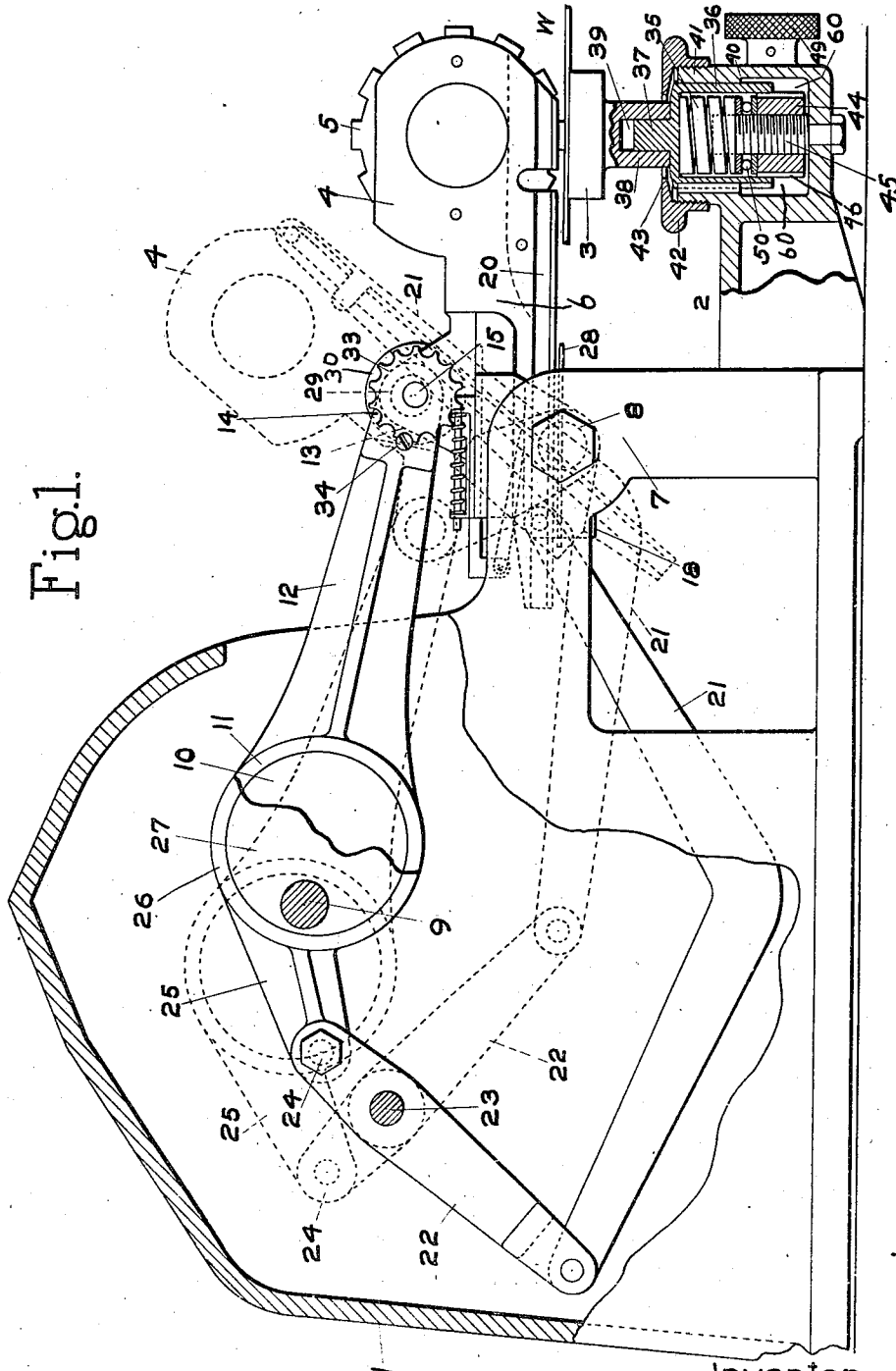


Fig. 1.

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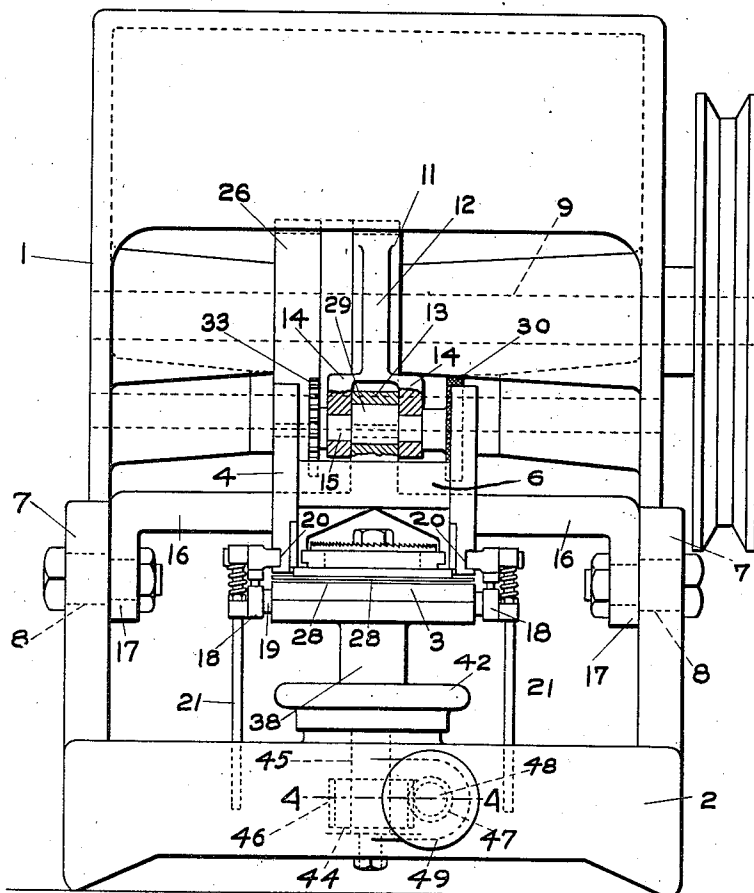
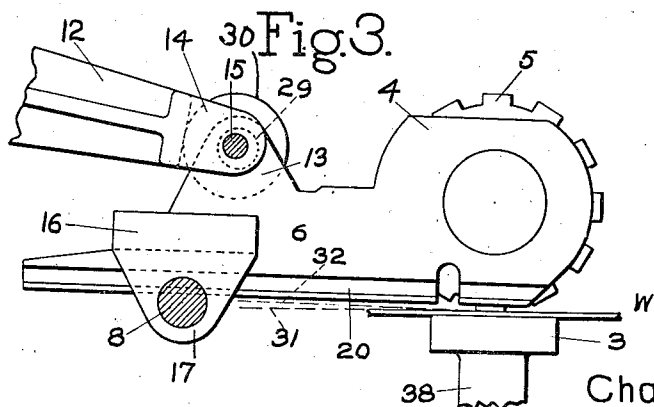
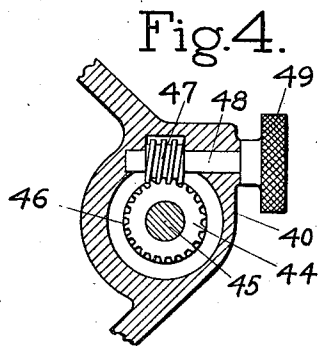
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2 Sheets-Sheet 2

Fig.2.



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UNITED STATES PATENT OFFICE

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MARKING MACHINE

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Application October 25, 1939, Serial No. 301,133

1 Claim. (Cl. 101—305)

This invention relates to marking machines of that type in which the printing head is mounted on a rocker arm and means are provided for rocking the arm about its pivot to move the printing head toward and from the platen. These marking machines are commonly provided with a control mechanism constructed to bring the printing machine to rest after each printing operation with the printing head in its raised position.

For some uses, it is desirable to provide a construction in which when the printing head is in its raised position, it will be widely separated from the platen and located in a position somewhat to the rear of the platen, thereby providing ample room between the platen and the raised printing head to facilitate any necessary manipulation of the work on which the printed impression is to be made.

One of the objects of the invention is to provide a novel way of mounting and operating the rocker arm so as to secure the above desiderata without increasing in any way the normal size of the marking machine.

In marking machines of the type above referred to the work-supporting platen is usually yieldingly mounted and is so adjusted that the printing type will be brought into contact with the work on the platen just before the printing head reaches the lower limit of its movement, said platen yielding downwardly during such final downward movement of the printing head, thereby making a prolonged printing contact and providing the necessary pressure between the type and the work to produce a proper printed impression.

A further object of the invention is to provide a novel means for adjusting the relation between the type and the platen so that when the printed impression is made, the type may be pressed squarely against the work or may engage the work with a greater pressure at either the top or bottom edge of the line of printing as desired.

Further objects of the invention are to improve generally marking machines in the particulars hereinafter set forth.

In the drawings:

Fig. 1 is a side view of a marking machine embodying my invention, parts being broken out to better illustrate the construction;

Fig. 2 is a front view of Fig. 1 with the type wheels omitted and with a part broken out to show the means for adjusting the relation between the type and the platen;

Fig. 3 is a fragmentary view illustrating the

rocker operating mechanism adjusted to cause the type to bear against the work with a greater pressure along one edge of the type;

Fig. 4 is a section on the line 4—4, Fig. 2.

In the machine herein shown, 1 indicates a frame which is provided with a front extension 2 on which is carried the work-supporting platen 3.

The printing head is indicated generally at 4 and it is provided with a plurality of independently settable type wheels 5 as usual in marking machines of this type. The printing head 4 forms the forward end of a rocker member 6 which is pivotally mounted to the frame to provide for the swinging movement of the printing head 4 toward and from the platen 3. In the present embodiment of the invention, the frame 1 is formed with the forwardly projecting cheek pieces 7, one on each side of the frame, and the rocker 6 is formed with lateral wings 16 which extend to the cheek pieces 7 and are provided with down-turned ends 17 through which extend pivotal studs 8 carried by the cheek pieces 7 and on which the rocker is pivotally mounted.

The frame 1 is provided with the usual drive shaft 9 from which the rocker 6 derives its rocking motion, and in the present embodiment of the invention, said drive shaft 9 has an eccentric 10 thereon, the eccentric strap 11 of which is formed at one end of an actuating member or link 12 that is pivotally connected to the rocker 6 at a point slightly in advance of and above the pivotal axis of the rocker. The rocker 6 is shown as having an upwardly directed extension 13 which is located above the pivotal studs 8 and slightly in advance thereof. The actuating member or link 12 is formed at its forward end with a fork 14 which embraces the extension 13, said fork being pivoted to the extension 13 by the pivotal pin 15.

As shown in the drawings, the amplitude of oscillation of the actuating member 12 is very nearly equal to the distance between the pivotal axis 8 of the rocker and the axis of the pivotal pin 15, and said pivotal axis 8 is directly beneath the arc in which the pivotal pin 15 travels as the actuating member is oscillated.

Each rotation of the drive shaft 9 will give the printing head 4 a complete excursion from its raised position shown in dotted lines, Fig. 1, to its printing position shown in full lines, and back to its raised position again, and as stated above, machines of this type are commonly provided with suitable clutch-controlling means, which, however, is not illustrated herein, by which the

machine will be brought to rest after each printing operation with the printing head in its raised position. By placing the pivotal axis for the printing head in the forwardly extending cheek pieces 7 of the frame, and by placing the pivotal connection 15 between the actuating member 12 and the rocker 6 at a distance above the pivotal axis 8 for the rocker which is nearly the same as the amplitude of oscillation of the actuating member and which is slightly forward of said axis when the printing head is in printing position, it is possible to provide for swinging the printing head through a wide angle in its traveling movement between its raised position and its printing position without increasing the over-all length or size of the machine. Furthermore, because of the relative position of the pivotal axis 8 and pivotal stud 15, the movement of the printing head away from the platen will not only carry it upwardly but also backwardly so that in its raised position it is located in the rear of the platen 3. This is very advantageous in connection with some printing operations because it provides generous space between the platen and the raised printing head for manipulation of the work on which the printed impression is to be made.

The machine herein shown is provided with the usual means for inking the type which comprises an ink roll carrier 18 carrying an ink roll 19 and mounted for sliding movement in ways 20 formed in the sides of the rocker member 6. The ink roll carrier 18 is connected by two links 21 to the lower end of the lever 22 which is mounted on a pivotal pin 23 carried by the frame, the upper end of said lever 22 being pivotally connected at 24 to an arm 25 fast with an eccentric strap 26 that encircles an eccentric 27 fast on the drive shaft 9. The construction is such that when the printing head moves upwardly, the inking roll carrier will be moved forwardly to ink the type, said carrier being retracted into its rearward position as the printing head moves into its printing position, thereby bringing the ink roll into contact with an inking plate 28.

The connection between the link 12 and the rocker 6 is not only a pivotal connection but is constructed to provide for changing the angular relation between the type and the platen. The pivotal pin 15 is provided with a central eccentric portion 29 which is located in the upstanding extension 13, and said pin is provided at one end with a knurled thumb piece 30 by which it may be turned. When the pivotal pin 15 is turned about its axis, the eccentric portion 29 thereof will shift the relative position of the fork 14 and the upstanding portion 13, and this will result in changing the plane of the face of the type which are in printing position relative to the plane of the work-supporting surface of the platen.

If it be assumed that with the eccentric 29 occupying the position shown in Fig. 1, the plane of the face of the type characters that are in printing position will be parallel to the work-supporting face of the platen 3 when the printing head is in its lowered position, than with the eccentric 29 adjusted into the position shown in Fig. 3. The printing head will be carried into a slightly lower position when it is in printing position than when the eccentric is in the central position shown in Fig. 1. This swinging of the type head into a slightly lower position will cause the plane of the face of the type which are in printing position to have a slight angle to the plane of the work-supporting face of the platen,

as indicated in Fig. 3 wherein the dotted line 31 indicates the plane of the surface of the work W on which the impression is to be made, that is, a plane parallel to the upper face of the platen 3, while the dotted line 32 indicates the plane of the face of the type which are in printing position.

With this adjustment, the type will bear heaviest on the work at the front edge thereof.

If the eccentric 29 is adjusted into an opposite position, or one 180° from that shown in Fig. 3, then the printing head 4 will be in a position slightly above that shown in Fig. 1 when it is in its lowered position, and since said printing head is carried by the non-adjustable trunnions 8, said head will in such adjusted position operate to produce a greater printing pressure on the back edge of the type.

The pivotal stud 15 is not only provided at one end with the thumb wheel 30 by which it may be adjusted, but on the other end it is provided with a notched disk 33 which cooperates with the screw 34 carried by the fork 14 of the link 12 for locking the pivotal stud 15 and its eccentric 29 in any adjusted position.

The platen 3 is yieldingly supported on a spring 35 which is so adjusted that during the making of the printed impression, the spring will be slightly compressed. This spring is confined within a housing 36 which is formed at its upper end with a stud 37 on which the platen 3 is received, said platen having the depending stem 38 provided with a recess 39 in which the stud 30 is received.

The housing 36 is capable of vertical sliding movement in a recess or well 60 in the end portion 40 of the frame extension 2, and this end portion 40 is provided with an exteriorly screw-threaded boss 41 on which is screw-threaded a retaining ring 42, the latter having a flange portion 43 which engages the housing 36 and limits its upward movement.

The spring 35 is supported on a supporting member 44 capable of vertical adjustment. This supporting member 44 is in the form of a nut screw-threaded on a stud 45 which is anchored in the end portion 40 of the frame extension 2. Said nut 44 is in the form of a gear, it having worm teeth 46 that mesh with a worm 47 carried by a shaft 48 that is journaled in the end portion 40 of the frame. The shaft 48 is provided with a knurled thumb piece 49 at its end on the outside of the end portion 40 of the frame, said knurled thumb piece providing means by which the shaft may be turned. The turning of the shaft 48 produces a rotation of the nut 44, thereby screwing said nut up or down on the stationary screw-threaded stud 45.

This vertical adjustment of the nut 44 accomplishes two things: (1) It provides for adjusting the tension of the spring 35 and, therefore, the pressure which the type will apply to the work W in making the printed impression. (2) It functions together with the retaining collar 42 to provide for adjusting the vertical position of the platen to accommodate work of different thicknesses.

Normally the platen 3 will assume a vertical position determined by the adjusted position of the retaining collar 42, since the spring 35 normally maintains the spring housing 36 up against the flange 43 of the collar 42. If it is desired to lower the platen somewhat slightly to accommodate work having an increased thickness, this may be accomplished by turning the collar 42 so

as to screw it downwardly on the boss 41. If the spring were supported on a fixed support, this forcing of the spring housing and the platen downwardly by the operation of the collar 42 would compress the spring 35 and thus increase the pressure of the type against the work during the printing operation. However, since the spring-supporting member 44 is adjustable vertically, it is possible to adjust said member 44 so as to maintain the spring 35 at a uniform tension in any adjusted position vertically of the platen.

On the other hand, if it is desired to raise the platen to accommodate work having a decreased thickness, then the collar 42 will be backed off, thus allowing the spring 35 to force the platen upwardly, and by adjusting the spring-supporting member 44, the tension of the spring may be maintained at a desired point, even though the platen has been raised.

The means for supporting the platen thus provides for adjusting the platen vertically into different positions and at the same time maintaining any desired tension on the spring 35.

Referring again to the connection between the rocker 6 and the actuating arm or link 12, it will be noted that the pivotal axis 8 for the rocker is situated directly beneath the arc through which the pivotal pin 15 travels when the printing head is swung from its raised to its printing position, and vice versa.

It will be also noted that when the pivotal pin 15 is turned or adjusted, the action of the eccen-

tric 29 serves to vary the effective length of the actuating arm or link 12.

While I have illustrated herein some selected embodiments of my invention, I do not wish to be limited to the constructional features shown.

I claim:

A marking machine comprising a frame having forwardly extending cheek pieces, a platen stationarily supported on the frame in front of the cheek pieces, a horizontally extending rocker member carrying a printing head at its outer end, said rocker member having laterally extending wings with downturned ends, means pivotally connecting said downturned ends with the cheek pieces thereby providing a pivotal axis for the rocker member, said rocker member also having an upstanding extension, a horizontal actuating member pivoted to said extension, and means to oscillate said actuating member in the general direction of its length with an amplitude of oscillation which is nearly the same as the distance between the pivotal axis of the rocker member and the pivotal connection between said rocker member and the actuating member, the pivotal axis for the rocker being directly beneath the arc through which the pivotal connection between said actuating member and the rocker member travels as the actuating member is oscillated, whereby the rocker moves through a wide angle in travelling from its printing position to its raised position.

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