

April 1, 1924.

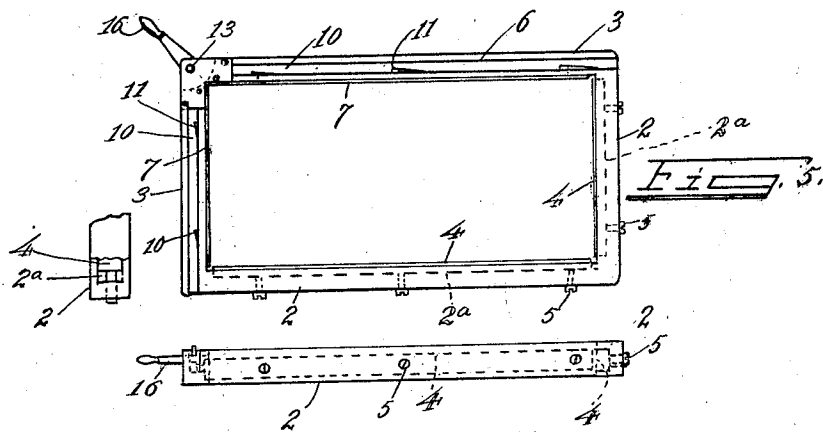
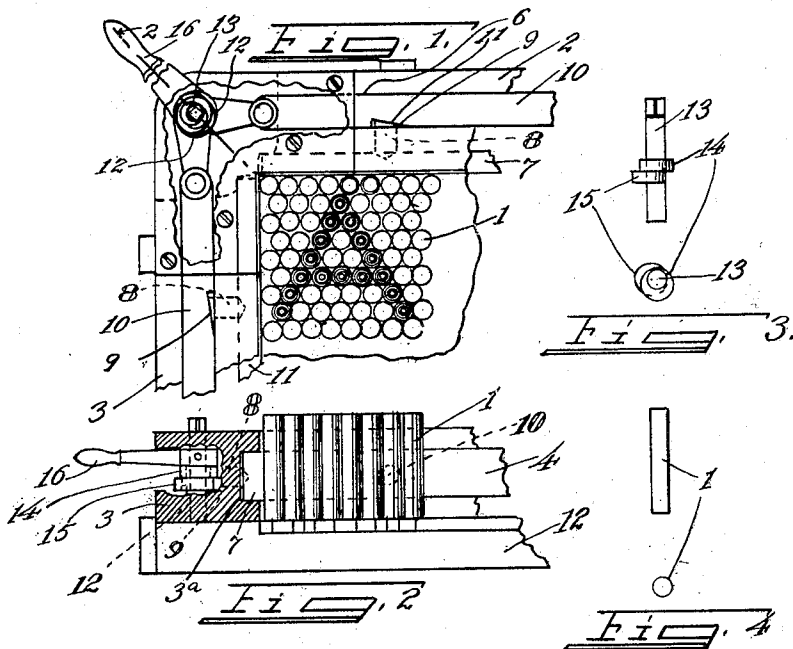
1,489,015

J. Q. SHERMAN

PRINTING DEVICE

Filed June 15, 1922

2 Sheets-Sheet 1



John Q. Sherman

INVENTOR.

BY

Heen Heen

ATTORNEY.

April 1, 1924.

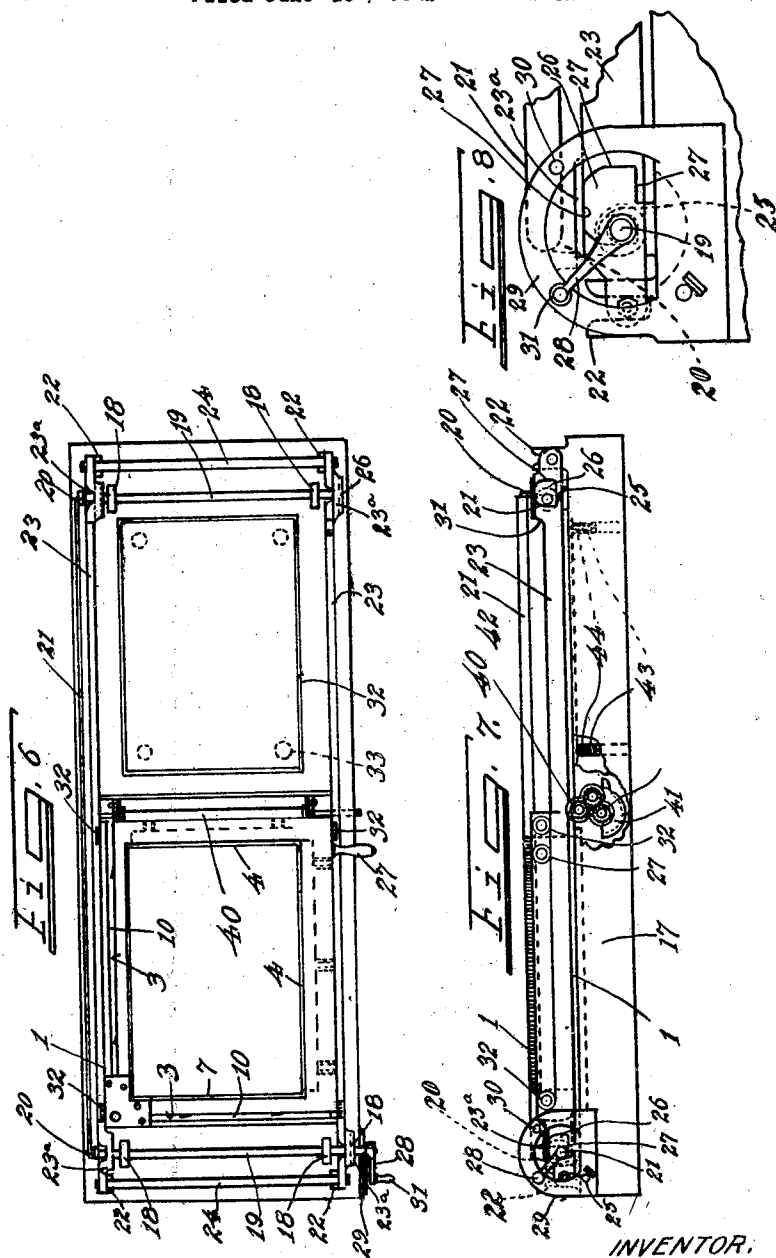
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J. Q. SHERMAN

PRINTING DEVICE

Filed June 15, 1922

2 Sheets-Sheet 2



INVENTOR.

John Q. Sherman
BY
Allen Allen
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN Q. SHERMAN, OF DAYTON, OHIO.

PRINTING DEVICE.

Application filed June 15, 1922. Serial No. 568,601.

To all whom it may concern:

Be it known that I, JOHN Q. SHERMAN, a citizen of the United States, and a resident of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Printing Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to printing devices wherein the printing plate is made up in a novel manner by means of a number of pins or plungers held in a chase, and having their ends in a common plane with only those pins which form the desired letters or design projected beyond the common plane.

So far as I am advised, this is a novel method of forming a plate and the impression given is varied in fineness of line by the dimensions of the pins used.

It is my object essentially to provide a pin assembly and chase wherein the proper design may be formed by projecting desired pins and the pins held under individually movable tension during the formation of the design, after which the chase is locked by a simple device to hold the desired arrangement.

It is also my object to provide a simple printing machine having suitable means for moving the chase, rectifying the pins with their printing ends back into a common plane, and applying ink to the pins prior to making the printed impression.

These various objects I accomplish by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawings,

Figure 1 is a detail plan view of one corner of the device.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a detail elevation of the eccentric chase locking member.

Figure 4 is a detail of one of the pins.

Figure 5 is a plan view of the chase by itself.

Figure 6 is a plan view of the complete machine.

Figure 7 is a side elevation of the complete machine.

Figure 8 is a detail end elevation of the one corner of the machine on a larger scale.

In my views I have not attempted to show

the pins as small as they will usually be made. It will be understood that the dimension of the pins will be such that they form a dot on the object to be imprinted of the desired size and spacing. The pins shown are merely cylindrical tempered pieces of wire 1 having their both ends flat.

The chase is made up of a rectangular frame having sides 2, 2, and sides 3, 3, leaving an open rectangular space within. The sides 2, 2, carry within the channels 2^a thereof bars 4, which are adjusted in position by set screws 5. The sides 3, 3, are formed with channels 3^a responding to the channels 2^a. They have also channels 6 in the tops thereof.

In the channels 3^a are bars 7, which have pins 8 thereon, which pass through holes 9 in the bars 3. Within the top channels of the sides 3 are bars 10, 10, which have cut out inclined notches 11 therein which engage the pins 8.

The pin assembly is arranged within the chase with the pins abutting each other and the bars 4 are adjusted to lock the pins together, while permitting individual movement of the pins. When the bars 10 are pulled lengthwise toward the corner between them, the bars 7 are forced inward against the pin assembly in such a way as to lock them tightly against any displacement.

The manner of moving the bars 10 may be made simple by linking to the end of each bar a strip 12 and providing a mounting in the corner of the chase frame for a shaft 13. The strips 12 are formed with apertures in their meeting ends, which lie over the eccentrics 14 and 15 on the shaft 13. These eccentrics are so arranged that when the handle 16 on the shaft is moved over the two bars 10 are pulled toward the corner, thereby pushing in on the pins of the bars 7.

In the embodiment illustrated I have formed a hollow at the selected corner of the chase frame, and extending the ends of the bars 10 through holes in the ends of the channel spaces 6, into this hollow space. The shaft extends across the hollow space and the eccentrics and links are mounted within the hollow space, as is the operating handle.

The printing machine using the above chase is adapted especially for use with it, although it will be understood that the chase may be used in any desired manner.

The machine frame has a bed 17 on which

are erected standards 18 for shafts 19, one at each end of the frame. These shafts are connected together at their ends by means of arms 20 on the shaft and links 21 between the arms.

At the corners of the machine beyond the shafts are bifurcated mounting lugs 22 for two lengthwise extending bars 23, said bars being connected together by rigid cross bars 24 coupling the ends together.

The two bars 23 have apertures 25 therein, which are set over the shafts 19, said slots 25 being elongated to permit up and down movement to the bars.

The bars have also projections or flanges 23^a which engage over special shaped cams 26 on the shafts. Thus there is an engagement with the bars for each corner of the machine. The cams have three flats 27 at different distances from the shaft center. A handle 28 may be provided at a selected corner of the machine, said handle having a pin riding over a sector plate 29 having holes 30 therein for the pin. By means of the pin which is part of the sliding hand piece 31 on the handle, the shafts and cams can be located and held in desired position.

As the above described method of holding the handle is common practice in many forms of machine I do not show the same in detail.

The chase is provided with rollers 32, which ride on the lengthwise bars 23, so that when the bars are raised by the cam device, the entire chase is elevated. The position of the bars is such that when the cam devices lower them to the lower point, the pins will all contact with the bed of the machine, thereby bringing them into a common plane.

When the bars are partially lifted up the desired design may be impressed on the upper face of the assembly thereby bringing the lower ends of the desired pins into projection in the same design as that impressed. In Figure 1 is shown a letter A impressed in the upper surface of the pin assembly and I have found that any object pressed into the assembly will result in the transfer of the exact impression or intaglio into an extension of like shape on the lower face of the assembly. The impressing of letters can be made by a typewriter as shown in my co-pending application, Serial No. 560,237.

After this impression has been made the handle that locks the pins is swung to hold the pins in the depressed position.

The chase is then in position with the pins all elevated from the bed, including those which have been depressed. The chase may then be rolled to the other end of the frame, which is usually about twice the length of the chase.

As the chase travels across the center of the frame, the projected pins receive ink from a roller 40 supplied through a series

of distributing rollers fed from a well 41 in the usual manner.

When the chase comes over the far end of the machine, it is lowered to the half way point again for making an impression on a piece of paper, fabric, or whatever is desired. This piece will be located on a tympan 42 mounted in the bed on a series of posts 43 set in holes in the bed, said posts having springs 44 set around them so that the tympan has some small movement as the chase is dropped.

After the imprint has been made the parts are returned by raising the bars to their full height and rolling the chase back to the starting point, or at least far enough to receive another coating of ink to make another impression. The entire plate may then be dropped against the platen to rectify the pin assembly after the same has been freed. The motions are all applied to the pin frame or chase by means of the bars 23 which are raised and lowered by manipulating the handle 28, thereby operating the cams 26, which in turn act on the bars at the four corners of the machine.

I have not attempted to describe more than one modification of my device, and do not desire that my claims be construed without the full application of the doctrine of equivalents because of my failure to point out other structures which will accomplish the spirit of the invention.

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

1. A device for making printed impressions, comprising a frame, an assembly of pins set into said frame and retained thereby, said frame being adjustable to retain the pins in position within the frame, but individually movable and also adjustable to lock the pins in the frame.

2. A device for making printed impressions, comprising a frame, an assembly of pins set into said frame and retained thereby in position to permit individual adjustment of the pins in the assembly, and means on the frame to lock the pins in adjusted position.

3. A device for forming printed impressions, comprising a frame, a series of pins arranged parallel to each other in said frame and essentially cylindrical in shape, pressure bars comprising part of the frame and adapted to hold the pins in the frame while permitting individual pins to be depressed without moving the others, and means for imparting additional pressure to said bars to lock the pins against movement during the forming of printed impressions by the depressed pins.

4. A device for forming printed impressions, comprising a rectangular frame, bars slidable in said frame, a series of pins ar-

ranged in contact with each other between said bars, means for applying pressure to the bars to hold the pins between them while permitting individual movement of selected pins, and means for applying by another mechanism, additional pressure to the bars to hold the pins against further movement relative to the frame.

5. A device of the character described, a frame, a series of bars about the interior of the frame, means in the frame for exerting inward movement on certain of the bars, and additional means for exerting a predetermined pressure on other of the bars, and an assembly of pins mounted between the bars within the frame, for the purpose described.

6. A device for making printed impressions, comprising a frame, an assembly of pins set into said frame and retained thereby, said frame being adjustable to retain the pins in position within the frame, but individually movable and also adjustable to lock the pins in the frame, said pins having flat tops and bottoms.

7. A device for use in printing with a pin chase of substantially the character described, comprising a frame, means forming a track on said frame, a pin chase adapted to ride on said track, and means on the frame for raising and lowering the chase to positions of high elevation of the chase during printing, and full depression of the chase for rectification of the pins.

8. A device for use in printing with a pin chase of substantially the character described, comprising a platen or bed, a resiliently retained tympan, an inking device, and means for supporting a pin chase movably over the bed, said means being adapted for depression of the chase over the tympan for printing and elevation of the chase during a setting of the pins.

9. A device for use in printing with a pin chase of substantially the character described, comprising a frame, bars extending along said frame, a paper supporting means on said frame, a pin chase having means for riding on said bars, and means for elevating and lowering said bars, for the purpose described.

10. A device for use in printing with a pin chase, comprising a frame, an inking device and a paper support on said frame, and means for movably supporting a pin chase to permit movement thereof across the frame in one plane and toward and away from the frame in another plane, whereby as a sequence of operations the pins may be set, the chase given an inking movement and then the chase may be lowered against the paper support.

11. A device for use in printing with a pin chase, comprising a bed, rails extending along said bed, a paper support at one

end of the bed, a rectifying base at the other end of the bed, an inking device intermediate the ends, and a pin chase having means for riding on said rails and means for raising and lowering the rails.

12. A device for use in printing with a pin chase, comprising a bed, rails extending along said bed, a paper support at one end of the bed, a rectifying base at the other end of the bed, an inking device intermediate the ends, and a pin chase having means for riding on said rails and means for raising and lowering the rails, said means being operable on the rails at the four corners of the frame.

13. A device for use in printing with a pin chase, comprising a bed, rails extending along said bed and mounted for movement in planes at an angle to the bed, rock shafts at the end of the bed, said shafts being interconnected and having cams thereof, said rails being adapted to engage said cams, and a paper support mounted at a portion of the bed between said rails, for the purpose described.

14. A device for use in printing, comprising a frame and shiftable means of uniform thickness held within said frame and adapted upon imposition of an object on the upper face thereof to adapt itself to said object by a corresponding depression on the upper face, and to form an extension on the under face corresponding to the said depression, said extension thereby forming a copy of said object.

15. A device for use in printing, comprising a frame, and shiftable means of uniform thickness held within said frame and adapted upon imposition of an object on the upper face thereof to adapt itself to said object by a corresponding depression on the upper face, and to form an extension on the under face corresponding to the said depression, said extension thereby forming a copy of said object, said frame including means for locking said shiftable means in the position resulting from imposition of an object.

16. A device for use in printing, comprising a frame, and shiftable means held within said frame and adapted upon imposition of an object on the upper face thereof to adapt itself to said object by a corresponding depression on the upper face, and an extension on the under face corresponding to the said depression, said extension thereby forming a copy of said object, and a mounting device for movably retaining said frame, said mounting device being supplied with an inking member for the extended part of the shiftable means.

17. A device for use in printing, comprising a frame, and shiftable means held within said frame, and adapted upon imposition of an object on the upper face thereof to adapt itself to said object by a correspond-

ing depression on the upper face, and an extension on the under face corresponding to the said depression, said extension thereby forming a copy of said object, said frame
5 including means for locking said shiftable means in the position resulting from imposition of an object, and a mounting device for movably retaining said frame, said mounting device being supplied with an
10 inking member for the extended part of the shiftable means.

18. A device for use in printing, comprising a frame, and shiftable means held within said frame and adapted upon imposition
15 of an object on the upper face thereof to adapt itself to said object by a corresponding depression on the upper face, and an extension on the under face corresponding to the said depression, said extension thereby forming a copy of said object, and a
20 mounting device for movably retaining said frame, said mounting device being supplied with an inking member for the extended

part of the shiftable means, and said mounting device also having means for depressing the frame for forming printed expressions. 25

19. A device for use in printing, comprising a frame, and shiftable means held within said frame, and adapted upon imposition of an object on the upper face thereof to
30 adapt itself to said object by a corresponding depression on the upper face, and an extension on the under face corresponding to the said depression, said extension thereby forming a copy of said object, said frame
35 including means for locking said shiftable means in the position resulting from an imposition of an object, and a mounting device for movably retaining said frame, said mounting device being supplied with an
40 inking member for the extended part of the shiftable means, and said mounting device also having means for depressing the frame for forming printed expressions.

JOHN Q. SHERMAN.