March 12, 1940. H. J. MELIND 2,193,564

STAMP

Filed Aug. 14, 1939

Fig. 1.

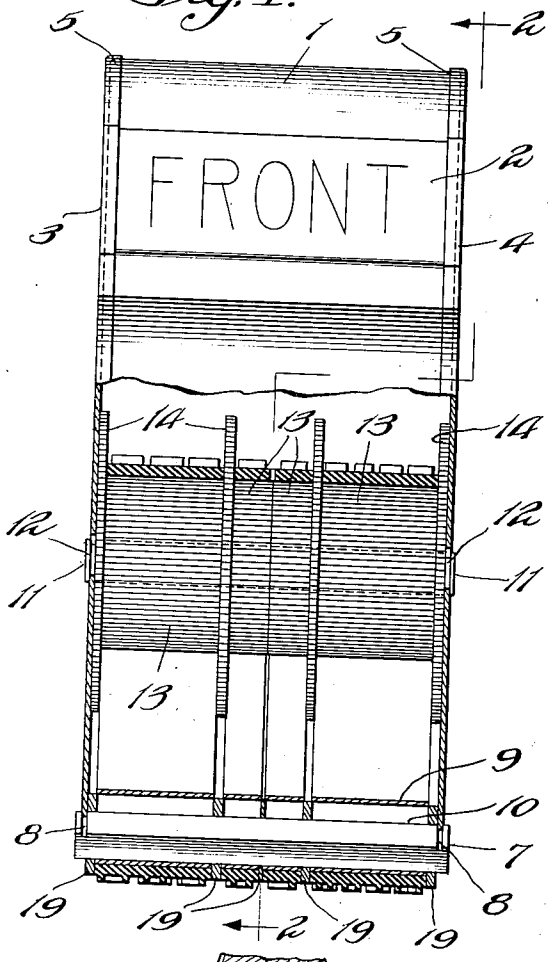


Fig. 2.

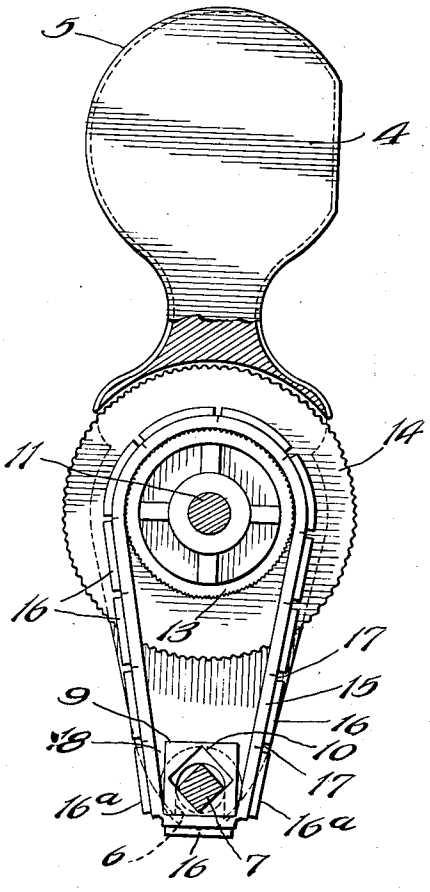


Fig. 4.

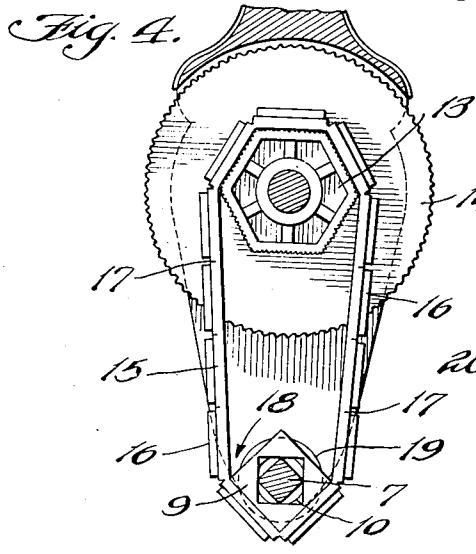


Fig. 5.

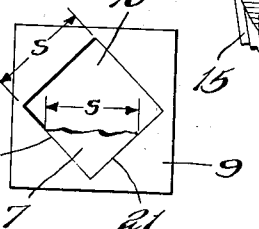
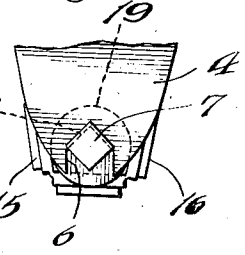


Fig. 3.



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UNITED STATES PATENT OFFICE

2,193,564

STAMP

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Application August 14, 1939, Serial No. 289,941

18 Claims. (Cl. 101—111)

This invention relates to band type stamps, more particularly to changeable band type stamps such as band dating stamps, band numbering machines and the like, and has for its principal object the provision of a new and improved device of this kind.

It is the main object of the invention to provide, in a changeable type stamp, means for automatically aligning the type characters in a straight line.

It is a further object of the invention to provide a changeable band type stamp in which the bands are moved in definite steps to change the setting of the stamp.

Still another object of the invention lies in the provision of a bridge for band type stamp having angular corners over which the type bands are sharply bent thereby to reduce the voids or spaces between adjacent type characters and to permit the use of a shorter band.

It is a still further object of the invention to provide, in a band type stamp, a bridge which moves with the type band as changes are being made thereby to eliminate the drag between the bridge and band and to lengthen the life of the band.

It is a still further object of the invention to provide a band type stamp in which the bands are under a lower tension so as to make it easier to change the stamp from one setting to another.

Still another object of the invention lies in the provision of a changeable type band that can be more cheaply manufactured without sacrificing quality.

Still further objects of the invention, not specifically mentioned here, will be apparent from the detailed description and claims which follow, reference being had to the accompanying drawing in which a preferred embodiment of the invention is shown by way of example, and in which:

Figure 1 is a front elevational view, partly in section, of a stamp, embodying the teachings of the invention;

Figure 2 is an end elevational view of the stamp, partly in section along the line 2—2 in Figure 1 looking in the direction of the arrows;

Figure 3 is a fragmentary detailed view showing particularly the bridge shaft slot;

Figure 4 is a fragmentary cross-sectional view showing a modified type of traction wheel; and

Figure 5 is a fragmentary detail view showing the bridge and bridge shaft construction.

Band type stamps are commonly employed as dating stamps, numbering stamps and the like. Heretofore these devices have employed a solid printing bridge having a flat surface for backing up the type characters in printing position and having rounded edges over which the type bands are bent. Traction wheels are employed to tension the bands and to move the same to change the setting of the stamp, the bands being dragged over the immovable bridge during this operation.

Because of the high friction between the type bands and the immovable bridge it has been necessary heretofore to place the band under considerable tension so as to secure a proper driving connection between the traction wheel and the band, to enable the same to be moved. This high tension has made it difficult to change the setting of the stamp and since the type bands have been under considerable tension their life has been relatively short. Furthermore, as is well understood by those skilled in the art, ink frequently works its way on to the spaces between the band and bridge, the ink drying and tending to increase the friction therebetween with the result that the bands frequently stick and are broken in effort to free them. This is particularly true of the year band since it is very seldom moved.

Furthermore, in the band type stamps of the prior art, of which I am aware, no satisfactory means has been provided for aligning the type characters in a straight line, and as a result considerable difficulty is experienced in setting the stamp so as to produce neat results with the characters accurately aligned, this being particularly true in band type numbering stamps employing a large number of bands.

In accordance with the objects of the present invention in its preferrred embodiment, the band type stamp is equipped with a movable bridge of polygonal cross section having printing faces whose lengths are exactly equal to the width of the type band and whose widths are exactly equal to the height of the type characters and clearance space between adjacent characters.

The bridge is equipped with an axially aligned non-circular hole running through the bridge and through which a polygonal shaft is projected. The shaft is smaller than the opening so as to permit the bridge to turn thereupon. The shaft is held against rotation and as the band is turned the bridge turns with it coming to rest again in a definite position at the end of a definite step of movement with the type characters accurately aligned.

As a result of this construction it has been found that the tension on the bands can be de-

creased appreciably and that the setting of the stamp is made easier by this decreased tension. Since there is no movement of the type band with respect to the bridge the clogging of ink on the surfaces of the bridge does not cause the bands to stick. The bands are separated from the bridge by moving at an angle thereto thereby placing a tearing stress upon the line of engagement of the band with the clogged ink on the bridge, thereby to more readily separate the two.

Referring now to the drawing in more detail, it will be seen that as shown the stamp of my invention comprises a handle block 1 which is of generally rectangular shape but is shaped to form a hand grip and is provided with a flat face 2 on which characters marking the front of the stamp, trade-mark data, etc., may be impressed. The handle 1 is provided with flat ends located in parallel planes. The block may be composed of wood or a molded material within the teachings of the invention.

Disposed against the ends of the block 1 are end plates 3 and 4 which are flat metallic plates having flanges 4 which overhang the block 1 to definitely locate the plates and block with respect to each other. The plates 3 and 4 extend beyond the block to form a mounting for the other elements of the stamp. These projecting portions of the plates are shaped so as to provide protection for the type bands and so as to be of pleasing appearance. If desired the plates may be composed of a bright shiny metal such as stainless steel, or if desired may be composed of other metals suitably plated and polished.

Located in the free ends of the plates 3 and 4 is a slot 6, Figure 3, which in the embodiment shown has a V shaped inner end disposed with its apex upon the median line of the plate. The slot has parallel straight edges extending from the V to the end of the plate.

Disposed in the slot 6 and extending between the end plates 3 and 4 is a bridge shaft 7 that is provided with slots 8 which overhang the edges of the slots 6 to fix the shaft against longitudinal movement.

Mounted upon the shaft 7 is a bridge 9, best seen in Figures 2, 4 and 5, which is provided with an axially aligned perforation 10 having faces located at angles of 45° with respect to the outer faces of the bridge, the corners of the perforation being located on the median lines of the bridge.

As will be seen in Figure 4 the distance between the opposite faces of the perforation 10 is slightly greater than the diagonal dimension of the shaft 7, so that the bridge may be turned upon the shaft. The shaft is located with its lower faces, Figure 2, disposed at angle of 45° with respect to a plane through the vertical center of the stamp, so that when the bridge 9 is at rest in the position in which it is shown in Figure 2, the lower or printing face of the bridge will be at right angles to a plane through the vertical center line of the stamp.

As shown in the drawing the shaft 7 and the perforation 10 and the bridge 9 are all shown as being of square cross section, this showing being by way of example only, as the use of other shapes is possible and is contemplated within the teachings of the invention. As will be seen best in Figure 5, when the bridge 9 is in printing position, adjacent sides 20 and 21 are disposed at an angle to the lower or printing face of the bridge. The shaft 7 has two flat faces disposed at an angle to each other, these flat faces bearing against faces 20 and 21 to hold the bridge firmly in position. When the bridge and shaft are square the faces 20 and 21 are disposed on an angle of 45°. With other polygonal shaped bridges and shafts this angle will vary. The bridge and shaft may both be triangular, or pentagonal, or hexagonal, or octagonal as well as shown, or a triangular bridge may be used with any one of the other shaped bridges, provided the angle between the faces of the shaft is the same as the angle between the faces, such as 20 and 21, engaged thereby. If desired the shaft may have but one flat face and the perforation in the bridge the same number of faces as the number of printing faces, the perforation faces being engaged with the shaft face one at a time as the bridge is turned. The shape of the opening must be the same as the shape of the bridge and the dimension S of the opening, that is the distance between opposite faces, must be slightly greater than the dimension S of the shaft, so as to permit the bridge to turn on the shaft, as will presently appear. The backside of the shaft, that is the side opposite the faces engaging 20 and 21, may be arcuate, or any other desired shape. Preferably the corners of the shaft are rounded slightly so as not to scrape the walls bounding perforation 10 as the bridge moves over the shaft.

A second shaft 11 extends between the end plates 3 and 4 and is provided slots 12 which engage the end plates to lock the shaft with respect to the plates.

Journalled upon the shaft 11 are plurality of traction wheels each comprising a driving means 13 and a driving disk 14. In the embodiment shown in Figure 2 the driving means is cylindrical and its outer surface is knurled or otherwise roughened to establish a good driving connection with the type band. In the embodiment shown in Figure 4 the driving means 13 is hexagonal in shape and faces may be roughened if desired. This is not essential. Each face of the hexagonal driving means has precisely the same area as each face of the bridge 9. In both modifications of the invention the driving disk 14 has a serrated edge to facilitate rotating the disk to set the bands of the stamp.

Encircling the bridge 9 and the driving means 13 is a type band 15 preferably composed of rubber and having type characters 16 separated by spaces 17. The width of the type bands are precisely the same as the length of the bridges 9 and driving means 13.

In order to insure proper spacing between the type characters on the individual bands and to insure that the bridges will remain in proper alignment upon the shaft 7, washers 19 are placed upon the shaft between the bridges and between the bridges and the end plates. These washers are provided with perforations having diameter slightly greater than the diagonal dimension of the shaft, so that the washer may turn upon the shaft. The outer diameter of the washer is such that they extend slightly beyond the faces of the bridge so as to provide an abutment against which the edges of the type band rest to insure that the band will at all times be properly positioned upon the bridge.

When it is desired to change the type band from one setting to another the serrated disk is turned whereupon the type band and bridge begin to move in a corresponding direction the bridge sliding upon the shaft from the position in which it is shown in Figure 2 to the position to which

it is shown in Figure 4. During this movement the axis of the bridge which has been spaced above the axis of the shaft, as will be seen in Figure 2, is brought into alignment with the axis of the shaft. This movement increases the distance between the faces of the bridge engaged by the type band and the driving means 13 thereby to lengthen the type band and increase its tension. Because of the frictional drag of the bridge upon the shaft the leading type band, that is, the band moving from the bridge to the traction means 13, will be under slightly greater tension than the trailing band which is moving toward the bridge. When the bridge is located at the point of maximum tension in which it is shown in Figure 4 it is in an unstable position, and a slight additional movement will cause the bridge to snap ahead into the position in which it is shown in Figure 2. This operation produces a definite step by step movement of the type band and bridge during setting of the stamp.

It will be noted that there is no movement of the band across the printing face of the bridge during changing of the band. As will be seen in Figure 2 there are V shaped spaces 18 between the bridge faces adjacent to the printing face and the type band, and as the band is moved, during the first part of this movement, the angularity of this space 18 is increased to the value shown in Figure 4. Should there be ink or other sticky material upon the face of the bridge this increasing of the angularity of the space between the band and bridge produces a tearing action which readily separates the band from the bridge with the result that I have found that the band may be changed under conditions which would certainly cause freezing of the bands in the prior art stamps of which I am aware.

As will be seen in Figure 2 when the type character 16 is in printing position, the adjacent type characters 16—A are bent away from the type character 16 at a much sharper angle than has been possible in type bands in stamps of the prior art. As a result of this sharp bending of the band it is possible to move the characters 16—A out of printing position with a much smaller distance between these characters and the printing characters 16. In other words, the clearance space 17 between adjacent type characters can be reduced and as a result the length of the type band can be lessened. The sharp angles at which the bands are bent on leaving the bridge makes the width of the end of the stamps substantially the same as the height of the characters on the printing bridge. This is advantageous since it makes it easier to position the impression made by the stamp on a desired line or in a desired space.

The sharp angle bend in the type band produces a further advantage in that the type characters on the printing bridge are held flat so as to print clearly from top to bottom. In the prior art stamps using the U shaped bridge, the type characters are not flat and printing is not always satisfactory, particularly letters such as E and B having top and bottom horizontal parts.

I have found that with the foregoing construction much less tension is required upon the type bands to insure a satisfactory driving connection between the cylindrical driving means 13 and the band. I have also found that with a polygonal driving means, such as the hexagonal driving means shown in Figure 4, a still smaller tension may be successfully used with a result that less effort is required to change the type band from one setting to another.

As is customary in stamps of this type the assembly is held together by the engagement of the walls of the groove 12 the shaft 11 with the end pieces 3 and 4. The tension on the bands holds the bridge and shaft in the assembly. The flanges 5 upon the end plates hold the handle block securely in place.

The stamp of my invention is possessed of many advantages. It can be manufactured at low cast without sacrificing quality. The type band is moved in definite steps coming to rest at the end of each step with the type characters accurately aligned in printing position, which is very advantageous in stamps having a large number of bands. The bands are under low tension at all times and consequently their life is prolonged. Accumulations of ink or other foreign substances on the bridge surfaces do not cause sticking of the bands. The stamp is neat and of attractive appearance.

While I have chosen to show my invention by illustrating and describing a preferred embodiment of it, I have done so by way of example only as there are many modifications and adaptations which can be made by one skilled in the art within the teachings of the invention.

Having thus complied with the statutes and shown and described a preferred embodiment of my invention, what I consider new and it is to be protected by Letters Patent is pointed out in the appended claims.

What is claimed is:

1. In a band type stamp, a frame, a traction wheel journalled in said frame, a type band encircling said traction wheel, a rotatable bridge around which said band extends, a journal for said bridge on which the bridge turns as the band is moved by the traction wheel, and means including a flat face on said journal and a cooperating flat face on said bridge for bringing the band and bridge to rest in predetermined positions at the end of said movement.

2. In a band type stamp, a frame, a traction wheel journalled in said frame, a rotatable bridge, journal means for said bridge, a type band encircling said traction wheel and bridge, said band being under tension and adapted to be moved by the traction wheel and to rotate said bridge, a flat on said journal, and means including a flat face on said bridge brought into engagement with said flat face on said journal by the tension in said band for bringing said band and bridge to rest in predetermined positions at the end of said movement.

3. In a band type stamp, a frame, a traction wheel journalled in said frame, a rotatable bridge, journal means for said bridge, a type band encircling said traction wheel and bridge, said band being under tension and adapted to be moved by the traction wheel and to rotate said bridge, a plurality of flat faces on said journal, and means including a plurality of flat faces on said bridge brought into engagement with said flat faces on said journal by the tension in said band for bringing said band and bridge to rest in predetermined positions at the end of said movement.

4. In a band type stamp, a frame, traction wheels journalled therein, type bands encircling said wheels, a polygonal rotatable bridge for each band around which the band extends, means for journalling said bridges in said frame, and means including a planar face on said journalling

means and cooperating planar faces on the bridges for aligning the bridges and type bands in printing position.

5. In a band type stamp, a bridge shaft, means for holding said shaft against rotation, a rotatable bridge mounted upon said shaft, a type band encircling said bridge, means for moving said band and bridge to set the stamp, and means including planar faces on the shaft and cooperating planar faces on the bridge, for aligning the type band in printing position.

6. In a band type stamp, a frame including arms, a plurality of traction wheels journalled in said frame between said arms, type bands encircling said wheels, and means including a rotatable printing bridge mounted upon a polygonal shaft for aligning said type bands in printing position.

7. In a band type stamp a frame including parallel arms, a plurality of traction wheels journalled in said frame between said arms, type bands encircling said wheels, and means including a printing bridge mounted upon an angular shaft for aligning said type bands in printing position.

8. In a band type stamp, a frame including parallel arms, a plurality of traction wheels journalled in said frame between said arms, type bands encircling said wheels, a printing bridge for each type band, around which the band extends, and means for mounting said bridges for rotation said means including means for determining definite printing positions for said bridges and bands.

9. In a band type stamp, a rectangular bridge having a rectangular perforation extending through it end to end, the faces of the perforation being disposed at 45° with respect to the faces of the bridge, a rectangular shaft extending through said bridge, a traction wheel and a type band encircling said traction wheel and bridge, said wheel turning the band and bridge and said shaft cooperating with said perforation to align the band and bridge in printing position.

10. In a band type stamp, a square bridge having a square opening extending through it, an angular shaft extending through said opening, the axis of said shaft being normally spaced from the axis of said bridge and opening, a type band encircling said bridge, means for applying tension on said band, said means also serving to turn the band and bridge, and means for bringing the axis of the bridge into alignment with the axis of the shaft as the bridge is turned thereby to momentarily increase the tension on said band.

11. In a band type stamp, a type band, a traction wheel engaging the band and adapted to move the same to set the stamp, means for imparting a step by step motion to said band comprising a polygonal bridge around which said band extends under tension, there being a polygonal perforation in said bridge, a polygonal shaft extending through said perforation, said shaft being smaller than the perforation to permit the bridge to turn around the axis of the shaft as the band is turned, said bridge on turning first increasing and then decreasing the tension on the band to form a step in the movement thereof.

12. In a band type stamp, a frame, traction means journalled in said frame, a type band having uniformly spaced apart type characters, a bridge having a plurality of faces each equal in width to the height of said type characters and the space between adjacent type characters, journal means in said frame for mounting said bridge for rotation, said type band encircling said traction means and bridge and being moved by the traction means to rotate the bridge on said journal, and means on the journal cooperating with means on the bridge for bringing the bridge and band to rest in printing position at the end of said movement.

13. In a band type stamp, a plurality of type bands, a traction wheel for each band for moving the same to set the stamp, and means for aligning the type bands in printing position comprising a square bridge for each band around which bridge and traction wheel the band extends and having a square perforation having faces disposed at an angle of 45° to the faces of the bridge, and a square shaft extending through said perforations, said shaft having faces disposed at an angle of 45° to the bridge faces in printing position.

14. In a band type stamp, a handle having flat parallel ends, end pieces disposed against said ends and extending therefrom in the planes thereof, flanges on said end pieces overlying said handle, bridge means extending between the free ends of said end pieces, a plurality of traction means disposed between said end pieces in juxtaposition to said handle, a type band encircling each of said traction means and said bridge means, a shaft extending between said end pieces upon which said traction means are journalled, a second shaft extending between said end pieces and through said bridge means, said shafts being located with respect to each other so as to place said type bands under tension, and means on said shafts engaging said end pieces for holding said assembly together.

15. In a band type stamp, a plurality of type bands, a traction wheel for each band adapted to move the band to set the stamp, and means for imparting a step by step motion to the band as the wheel is turned comprising a square bridge for each band between which bridge and said traction wheel the band is stretched under normal tension, there being a square perforation extending through the bridge on an axis parallel to the faces of the bridge, and a square shaft extending through the bridges, said shaft being smaller than the perforation and fixed against rotation and positioned so that the tension on a band is increased from and then reduced to normal to form a step as the band and bridge are turned, said shaft being further positioned so that under normal tensions the bands and bridges are aligned in printing position.

16. In a band type stamp, a handle having parallel end faces, parallel end pieces disposed against said faces and extending therefrom, flanges on said end pieces overhanging said handle, a slot in the free end of each end piece, said slots having V shaped inner ends, a square shaft disposed in said slots against said V ends and extending between said end pieces, said shaft having grooves into which said end pieces project to hold the shaft against endwise movement, bridge means mounted upon said shaft, a plurality of traction wheels disposed between said end pieces adjacent to said handle, a second shaft extending between said end pieces upon which said traction wheels are journalled, type bands encircling said traction wheels and bridge means, said bands being under a normal tension to hold said bridge means and first shaft in place, and means on said second shaft en-

gaging said end pieces for holding said assembly together.

17. In a band type stamp, a handle, end pieces disposed against the ends of said handle and extending therefrom, flanges on said end pieces overlying said handle, a bridge shaft extending between the free ends of said end pieces, a plurality of rotatable bridges on said shaft, a plurality of washers on said shaft between said bridges to space the same therealong, a corresponding plurality of traction wheels disposed between said end pieces in juxtaposition to said handle, a type band encircling each bridge and corresponding traction wheel, said washers extending beyond said bridges and engaging the bands to hold the same on the bridges, a shaft extending between said end pieces upon which said traction wheels are journalled, and means on said latter shaft engaging said end pieces for holding the assembly together.

18. A frame for band type stamps comprising, a handle block, a pair of flat end plates disposed against the ends of said block and projecting therefrom, means projecting out of the planes of said end plates and engaging said block to locate the plates and block with respect to each other, means extending through and engaging said end plates for connecting together the free ends of said plates, and other means engaging said plates and co-operating with said end engaging means for holding the frame together.

HENRY J. MELIND.