PRINTING FIXTURE FOR GLASS DIALS AND THE LIKE

Filed Oct. 26, 1936
UNITED STATES PATENT OFFICE

2,144,849

PRINTING FIXTURE FOR GLASS DIALS AND THE LIKE

Samuel A. Moore, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Application October 26, 1936, Serial No. 107,555

6 Claims. (C1. 101-40)

This invention relates to printing devices and more particularly to a fixture for holding a dial or panel of glass or other brittle material during printing thereof.

In the printing of brittle materials such as glass, for example, a large amount of breakage will occur unless extreme care is taken. This invention relates to a simple, compact and rapidly operated fixture which greatly reduces the amount of breakage as compared with devices heretofore used.

My invention comprises a resiliently mounted plate on which is fixed a suitable rubber pad. The pad in conjunction with the resiliently mounted plate acts as a cushion and an equalizer which takes care of any irregularities in the surface of the glass, and also compensates for any variance in the thickness of the glass or other brittle material. Preferably resiliently operated clamping arms are provided which hold the dial or panel firmly against fixed stop members which may be formed of fibrous material to reduce the possibility of edge chipping. The clamping arms preferably are pivoted to the resiliently mounted plate and have their clamping end portions provided with slotted portions which guide and support the arms. Guiding means is also provided for insuring that the resiliently mounted plate will move in proper relation with respect to a base member. My improved fixture is especially designed for delicate printing operations such as the glass dials of various instruments, but it will be understood that it may be used in printing other articles and materials.

It is an object of my invention to provide an improved fixture for use in printing materials of a brittle nature which may be rapidly operated and which will reduce breakage to a minimum.

Another object of my invention is to provide a rapidly operated clamping means which reduces edge chipping.

Still another object of my invention is to provide an improved resilient support for a glass dial during a printing operation.

It is also an object of my invention to provide a resilient pad having a rubber or other soft pad thereon for compensating for surface irregularities and for taking care of materials of variable thicknesses.

A further object of my invention is the provision of a printing fixture having spring pressed clamping arms pivoted to a resiliently mounted support.

A specific object of my invention is the provision of a fixture for use in printing glass dials of instruments comprising a base member, a plate member resiliently mounted thereon, a rubber pad cemented to the plate, a pin fixed to the base for guiding the plate to and from the base, and pivoted clamping members on the plate.

Another object of my invention is a printing fixture having a clamping means fixed to a resiliently mounted support.

Other objects and advantages of my invention reside in the combinations and arrangements of parts as will become more apparent as the description proceeds.

Reference is herein made to the drawing forming a portion of the specification in which:

Figure 1 is a view of a printing device with my improved fixture in place.

Figure 2 is a plan view of my improved fixture.

Figure 3 is an elevational view of the device illustrated in Figure 2.

Figure 4 is a detail view on line 4—4 in Figure 2.

Figure 5 is a sectional view on line 5—5 in Figure 2.

In the drawing, 10 is the table or base of a printing apparatus on which is located my improved fixture 12. Printing roller 14 is adapted to pass over pre-inked type at 15 and is then brought into printing relation with the fixture 12, having a glass dial thereon. My improved fixture may be used with any suitable printing device.

The fixture of my invention comprises a bottom or base plate 16 and a plate 18 thereon to which is fixed by means of a suitable cement such as shellac, a rubber or other soft resilient pad 20. The plates 16 and 18 are preferably made of a suitable metallic material such as steel, for example.

Spring members 22 are mounted between the two plates in openings 24, formed in each plate, and tend to force the two plates apart. Screw members 26 secure the plates to each other as best seen in Figure 5. The length of the screws is such that the springs 22 preferably are slightly compressed. Any desired number of springs and screw members may be used.

As best seen in Figures 1 and 4 pins 28 having bushings 30 are fixed to the upper plate 18 and act as fixed means for locating the glass dial 31. The bushings are preferably made of fiber or other equivalent material to prevent the glass from chipping when held in contact therewith.

Clamping arms 32 and 34 pivoted to the upper plate at 36 and 38, respectively, are resiliently...
pressed against the edge of the glass dial by means of spring 40 mounted between the handle portions 42 and 44 of the clamping arms, the arms acting to resiliently press the glass dial against the locating stops 30.

The outer ends 46 and 48 of the arms 32 and 34, respectively, contact the glass and are guided and held at their outer ends by means of screws 50 and 52 fixed to the upper plate and fitted within slots 54 and 56 in the arms. The contacting portions of the arms 46 and 48 are rounded and contact the glass dial at points substantially midway between its surfaces as shown in Figure 5. Holes 58 are provided in the bottom plate to accommodate bolts 58 for securing the fixture to the printing table.

Locating or guiding pins 60 are press fitted to the bottom plate and are loosely fitted in the top plate in openings 61 and guide the upper plate during any movement relative to the lower plate.

In the operation of printing the fixture will be secured to the table 10 by means of suitable bolts extending through the holes 58. The handle portions 42 and 44 of the clamping arms will be grasped by the hand of the operator and urged toward each other which will, of course, force the ends 46 and 48 outwardly. A glass dial may then be placed on the rubber pad against the fiber bushings 30. The clamping arms will then be released and the spring 40 will resiliently urge the clamping arms against the edge of the glass dial, thus holding the same against the fiber bushings.

The rubber pad compensates for any irregularities or curvature in the surface of the glass dial and acts as a support for the glass dial. The pad and spring support for the upper plate allow for any slight variation in thickness of the glass. If a dial is thicker than standard the upper plate may move downwardly against the force of springs 22 and carry the screws 26 therewith. The heads of the screws may move within the openings 66 in the bottom plate the necessary amount as will be apparent from Figure 5 of the drawing.

It will be understood that changes and modifications may be made in the several parts and/or combinations thereof without departing from the spirit of my invention and I do not wish to limit the patent granted thereon other than as necessitated by the prior art.

I claim:
1. A device as in claim 1 in which guide pins are fixed to the base member and mating guide openings are provided in the plate member within which the pins move during relative movement between the plate and base.
2. A device as in claim 1 in which guide pins are fixed to the base member and mating guide openings are provided in the plate member within which the pins move during relative movement between the plate and base.
3. A printing fixture for glass dials, a base, a plate movable with respect thereto, spring means between the base and plate for biasing the plate away from the base, means which limits the movement of the plate away from the base, a rubber pad fixed to said plate for supporting a glass dial, fiber stop members fixed to said plate, spring pressed clamping arms pivoted to said plate and resiliently pressing a glass dial against the fiber stop members and means for limiting the inward and outward movement of said clamping arms.
4. A fixture as in claim 3 in which the means for limiting the inward and outward movement of said clamping arms comprises a slotted end for each clamping arm and a member fixed to said plate member within each of the slots.
5. In a printing fixture for fragile articles, a base having a series of openings therein, a plate member having a series of openings in alignment with the openings in said base, spring members in the openings for biasing said plate member away from said base, means for limiting the biasing movement, a rubber pad secured to said plate member and means for securing a fragile article to said rubber pad comprising fixed stop members and resilient clamping arms pivoted to said plate member.
6. In a printing fixture for glass dials, a base having a series of printing openings, a plate member having a series of printing openings in alignment with the openings in said base, spring members within the openings for biasing said plate member away from said base, means for limiting the biasing movement, a rubber pad secured to the plate, fiber stop members secured to the plate, spring pressed clamping arms pivoted on said plate for holding a glass dial in contact with said fiber stop members, means for limiting the inward and outward movement of said clamping arms comprising a slotted end for each clamping arm and a pin fixed to the plate member within each of the slots, and means for guiding the plate member during movement with respect to the base comprising guide pins fixed to the base member and mating guide openings in the plate member.

SAMUEL A. MOORE.