

C. D. FOWLES.
FILM FRAME HOLDER.
APPLICATION FILED SEPT. 3, 1912.

1,055,457.

Patented Mar. 11, 1913.

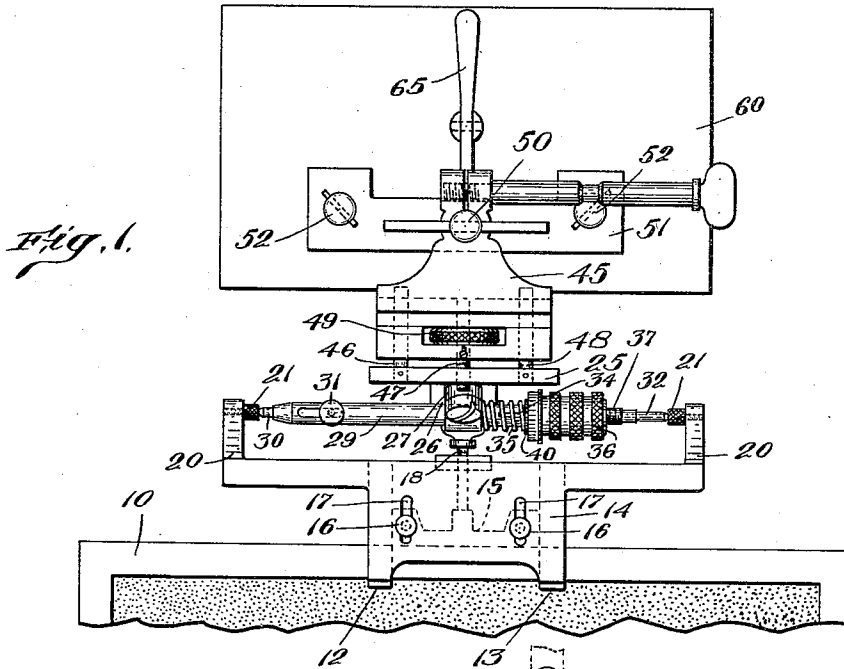
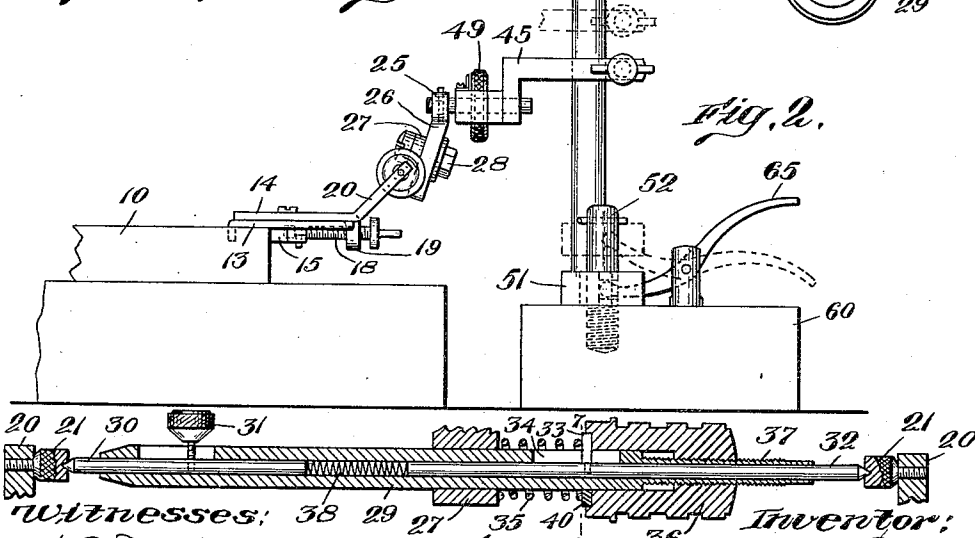


Fig. 4. Fig. 5. Fig. 6.



Witnesses:
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Fig. 3.
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UNITED STATES PATENT OFFICE.

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FILM-FRAME HOLDER.

1,055,457.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed September 3, 1912. Serial No. 718,263.

To all whom it may concern:

Be it known that I, CHARLES D. FOWLES, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Film-Frame Holders, of which the following is a specification.

This invention relates to adjustable film-frame holders for printing films, by which the film-frame may be minutely adjusted in two different directions at right angles with respect to each other, and the small dots, by which a shaded or stipple effect is produced, may be increased in size.

The invention has for its object to provide a single clamp for engagement with the film-frame, a pivoted holder therefor which permits movement of the film-frame about a horizontal axis, and adjustable means, including a screw for moving said pivoted holder longitudinally in any position it may occupy; also a frame supporting said holder, a bracket supporting said frame and adjustable means including a screw for moving said frame in and out at right angles to the longitudinal movement of the holder, whereby two movements of the holder are provided in the same plane or in any plane it may occupy, which are at right angles with respect to each other; also an upright post on which said bracket is vertically adjustable, whereby the holder may be held in different elevated positions, and a vertically movable block supporting said post with means to move it, whereby the holder may be raised and lowered, as desired; also to provide a heavy base-block upon which said supporting-block is arranged having vertical guiding-means for said supporting-block, the top surface of the base-block and the bottom surface of the supporting-block being purposely made level and in parallel planes, so that when the base-block is arranged with its top surface in a predetermined plane with respect to the plane of the stone or other object, the supporting-block may be caused to occupy a plane to correctly position the holder with respect to the stone or other object, and the supporting-block may be repeatedly lifted and returned to normal position and the film-frame held in correct position to engage the stone or other object in all positions it may occupy.

Figure 1 is a plan view of an adjustable film-frame holder embodying my invention.

Fig. 2 is a side elevation of the same. Fig. 3 is a longitudinal vertical section of the adjusting means by which the film-frame holder is moved sidewise. Figs. 4, 5 and 6 represent in full lines enlarged views of the small dots produced by the film and in dotted lines the same increased in size. Fig. 7 is a sectional detail to be referred to.

10 represents one edge of a film-frame of any usual or suitable construction. Said frame is firmly engaged by a single clamp comprising stationary and movable clamping-members. The stationary clamping-members 12 and 13, as here shown, consist of flat bars attached to the under side of a plate 14, having their ends extended beyond the front edge of said plate and bent downward to engage the inner side of the frame. Said members are quite widely separated to engage the frame at two widely separated points. The movable clamping-member consists of a cross-bar 15 arranged at the under side of the plate 14, between the bars 12 and 13, so as to be guided in its movement by said bars, and said cross-bar is sustained by screws 16, in its upper side, passing through slots 17 in the plate 14, said slots admitting of a movement of the clamping-member 15 which is accomplished by a screw 18 passing through an ear 19 on the plate 14, and which loosely engages said member. The plate 14 has at each side right-angulantly formed extensions 20, 20, having at their extremities knurled headed screws 21 on their adjacent inner sides, the heads of which are formed with conical recesses adapting them to serve as step-bearings. Said step-bearings are arranged in alinement with each other for engagement with suitable pivots. Said plate and extensions thereon form a yoke which constitutes a pivoted holder for the clamp and is movable about a horizontal axis, thus admitting of the film-frame being swung into and out of engagement with the stone or other object.

The pivots of the clamp-holder here shown are arranged on a suitable frame and said pivots are adjustable longitudinally to provide for adjusting the film-frame holder as a unit, and said frame is adjustable in a direction at right angles to the pivots to provide for correspondingly adjusting the film-frame holder. Said frame, as here shown, consists of a plate 25 having a downwardly extended ear 26 and also having on

its front side a boss 27, rigidly secured thereto by a bolt 28, and a tubular cylindrical bar 29 extended through a hole in said boss and rigidly secured thereto, said bar being arranged horizontally. In a center hole in said bar, at one end thereof, a pivot-pin 30 is arranged which is designed to be moved longitudinally, but to be held fixed in any position it may be set by a set-screw 31, which extends through a slot in the side of the bar and enters a hole in the side of said pin and is adapted to engage the side of the bar when turned in, thereby to hold the pin in fixed position. In the center hole at the other end of the bar another pivot-pin 32 is arranged which is designed to be moved longitudinally, but to be held fixed in any position it may be set, and said pivot-pin 32 has a projection 33 extended laterally from it which extends through a slot 34 in the side of the bar, and a strong spring 35 encircles the bar, one end of which bears against the boss 27 and the other end against said projection 33, and said spring acts to hold said projection firmly against the end of a nut 36, which is arranged on a screw-threaded portion 37 of the bar. A split ring 40 is arranged at the end of the nut in a recess formed therein, to provide a bearing for the end of the spring 35. Upon turning said nut in one direction it is moved along on the bar in a direction toward the left and by engaging with the projection 33 moves the pivot-pin 32 longitudinally in a corresponding direction and compresses the spring 35, and upon turning said nut in the opposite direction it is moved along on the bar in a direction toward the right and the spring 35 extends and holds the projection 33 in engagement with the end of said nut, thereby moving the pivot-pin 32 in a direction toward the right. A spring 38 is arranged in the center hole in the bar between the two pivot-pins, so that longitudinal sliding movement of the pivot-pin 32 causes a corresponding movement of the pivot-pin 30, while the set-screw is loosened. The pivot-pins are made separate, and the spring arranged between them to enable the pivot-pin 30 to be moved independently of the pivot-pin 32 upon loosening the set-screw, for the purpose of removing the film-frame holder whenever desired.

By providing a screw-threaded portion 37 on the bar and the nut 36, and means connected with the pivot-pin and engaging said nut, it will be seen that a very minute longitudinal adjustment of the pivot-pins is obtained, permitting the film-frame to be moved to increase the size of the dots at each side, as represented in Figs. 4 and 5. The frame supporting the clamp-holder is arranged on the front of a bracket 45, and has three supporting and guiding-pins 46, 47, 48, arranged in a row, which enter holes

in the bracket, whereby they slidably engage the bracket, and the middle pin 47 is screw-threaded and receives upon it the nut 49, which occupies a position in a hole in the bracket by which adjustment of the frame is accomplished. Upon turning said nut 49 the frame is moved forward and backward, thereby to move the film-frame endwise, or in a direction at right angles to the adjustment previously described. By employing a screw, as here shown, a very slight adjustment may be made and the size of the dot increased above and below, as indicated in Fig. 6.

The bracket 45 is arranged on an upright post 50, being adjustably secured thereto, and said post rises from a supporting-block 51, which normally rests upon a base-block 60, and is movable vertically with respect to the base-block, thereby to cause the film-frame to occupy different elevated positions. As here shown said block 51 has two holes through it which receive vertical pins 52 rising from the base-block, thus to support against lateral displacement and to guide vertically the supporting-block.

To facilitate lifting the supporting-block a hand-lever 65 is provided, which is pivotally supported on the base-block and which engages the supporting-block, and pressure upon said lever acts to lift the supporting-block and thereby correspondingly lift the film-frame above the stone or other object.

The under face of the supporting-block and the upper face of the base-block are both made flat, in a plane in parallel with the surface of the stone, so that when the supporting-block rests upon the base-block the film-frame will rest upon the stone, and when thus constructed it will be seen that the film-frame may be lifted repeatedly and subsequently returned to correct position without adjustment.

1 claim:—

1. In a film-frame holder, the combination of a frame adjustable forward and backward, having a boss, a horizontally arranged tubular support engaged by said boss at a point midway its length, two longitudinally adjustable pivot-pins arranged in said support in alinement and projecting outwardly from the ends thereof, a yoke having step-bearings for engagement with said pins, and a forwardly extended clamp on said yoke, intermediate its length, for engagement with the film-frame, substantially as described.

2. In a film-frame holder, the combination of a clamp to engage the edge of the film-frame, a holder for said clamp having extensions at its ends and step-bearings on the adjacent sides of said extensions, a frame having a tubular bar provided with longitudinally movable pivot-pins arranged between said extensions and in engagement with the step-bearings, and means to move

said pivot-pins longitudinally simultaneously, thereby to adjust the holder sidewise, and supporting-means for said frame, substantially as described.

5 3. In a film-frame holder, the combination of a clamp to engage the edge of the film-frame, a pivoted holder for said clamp, a frame having an elongated stationary tubular bar which provides a guide for longitudinally movable pivot-pins which engage said holder, said bar being externally screw-threaded at one end, a nut thereon for moving said pivot-pins longitudinally simultaneously, thereby to adjust the holder sidewise, and supporting-means for said clamp, substantially as described.

10 4. In a film-frame holder, the combination of a single clamp to engage the edge of a film-frame, a pivoted holder for said clamp having extensions at its ends, a frame having two pivot-pins arranged between said extensions to engage said holder, screw adjusting-means for one of said pivot-pins and a spring arranged between and in engagement with the pivot-pins whereby a corresponding movement is imparted to the other pin yet said other pin is adapted to be moved independently, substantially as described.

15 5. In a film-frame holder, the combination of a clamp to engage the edge of a film-frame, a pivoted holder for said clamp, a frame having two pivot-pins for engagement with said holder, a projection on one of said pins, a nut arranged on a screw-threaded support, a spring engaging said projection and acting to hold the pin bearing it in engagement with said nut, and means arranged between the two pins, whereby longitudinal movement of one is imparted to the other, substantially as described.

20 6. In a film-frame holder, the combination of a clamp to engage the edge of the film-frame, a pivoted holder for said clamp, a supporting-frame for said holder having

adjusting means for the holder, a bracket 45 with which said frame is slidably connected and adjusting-means for said frame, an upright post bearing said bracket, a supporting-block bearing said post, a base-block and means to slidably connect the supporting-block with the base-block, substantially 50 as described.

7. In a film-frame holder, the combination of a clamp to engage the edge of the film-frame, a pivoted holder for said clamp, 55 a supporting-frame for said holder having adjusting-means for the holder, a bracket with which said frame is slidably connected and adjusting-means for said frame, an upright post bearing said bracket, a supporting-block bearing said post, a base-block, means to slidably connect the supporting-block with the base-block, and a hand-lever for lifting said supporting-block, substantially 60 as described. 65

8. In a film-frame holder, the combination of a clamp to engage the edge of the film-frame, a pivoted holder for said clamp, a supporting-frame for said holder having adjusting-means for the holder, a bracket 70 with which said frame is slidably connected, adjusting-means for said frame, an upright post bearing said bracket, a supporting-block bearing said post, a base-block and means to slidably connect the supporting block with 75 the base-block, said supporting block and base-block having their adjoining faces made flat and in parallel with the surface of an object to be engaged by the film-frame, substantially as described. 80

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CHARLES D. FOWLES.

Witnesses:

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H. B. DAVIS.