H. BERGER, JR.

FILM HOLDER.

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1,405,892.

Patented Feb. 7, 1922.

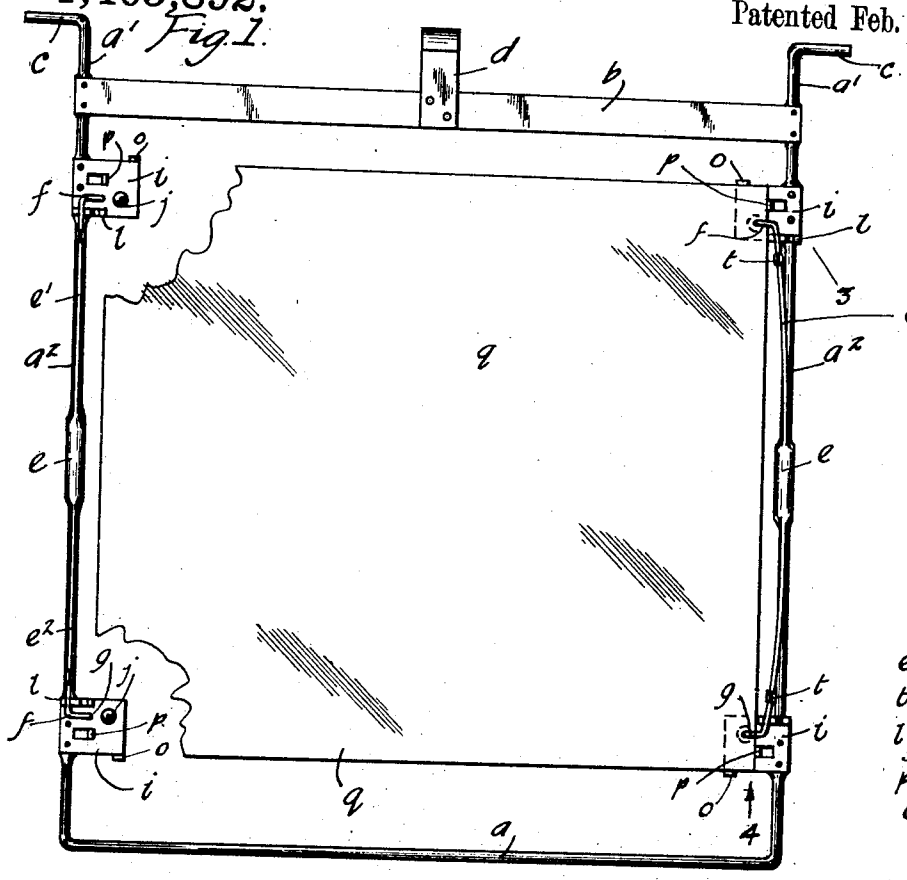

Fig. 1.

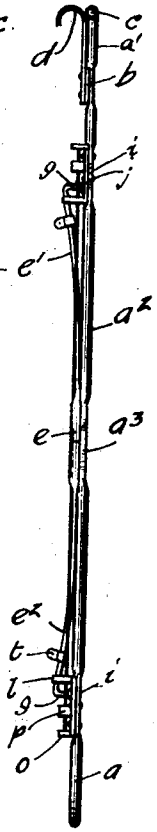

Fig. 2.

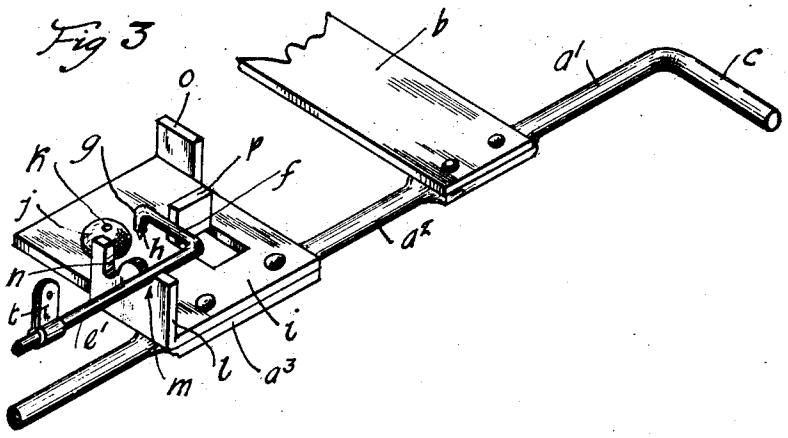

Fig. 3

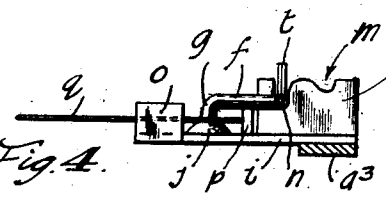

Fig. 4.

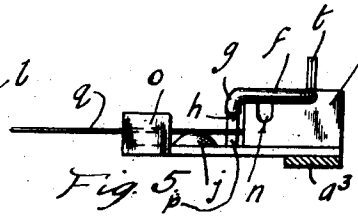

Fig. 5.

Inventor:
Henry Berger Jr.
by J. Pfeifer
Atty.

UNITED STATES PATENT OFFICE.

HENRY BERGER, JR., OF PORTLAND, OREGON.

FILM HOLDER.

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To all whom it may concern:

Be it known that I, HENRY BERGER, JR., a citizen of the United States, and a resident of the city of Portland, county of Multnomah, and State of Oregon, have invented a certain new and useful Improvement in Film Holders, of which the following is a specification.

My invention relates to means for holding photographic films in such way as to facilitate their draining and drying.

The object of my invention is to provide means which will not only securely hold the film at its four corners, but which embody no parts tending to cause the draining liquid to adhere and collect on the film supporting parts of the holder; and in this way to promote the effective draining of the liquid.

It is further the object of my invention to provide holding means which will not tend to tear the film, at the same time firmly holding the latter. It is further my object to provide a holder having only devices which are simple in construction, and simple and convenient to manipulate.

The above enumerated and incidental features I attain by the device illustrated in the accompanying drawings, in which:

Fig. 1 is a front elevation of my holder showing the same as being used for supporting a film by its four corners; two corners of the film being broken away so as to disclose more clearly the holding means;

Fig. 2 is an elevation looking at the right hand side of my holder;

Fig. 3 is a perspective detail of parts which would be seen by looking at my holder approximately at an angle indicated by the arrow 3 of Fig. 1; and

Figs. 4 and 5 are details of the right hand lower corner of my holder, and of the means there provided for holding a corner of the film, and the means by which the holding means are arranged in their active and inactive positions; their active positions being shown in Fig. 4, and Fig. 5 showing the same means as they appear when arranged in their inactive positions.

My invention comprises a rectangular supporting frame a which may be made of a piece of wire bent as shown. The upper ends a' of the frame are united by a cross bar b, and said upper ends may be bent outward as shown by c. A hook d is affixed to the bar b. On each of the frame sides a^2 is affixed a spring arm e preferably constructed as shown, and firmly mounted on the flat middle parts a^3 of the frame sides as shown in Figs. 1 and 2, thus each spring-arm has opposite free ends e' and e^2.

Said free ends are bent inwardly as at f, and downwardly as at g in Fig. 3, and the downwardly bent extremity g terminates in a shouldered pin-point h.

At the four corners of the frame a are provided rigid ledges i, and on such ledges are provided film-supporting protuberances j which are preferably made hemispherical. It is on these supporting protuberances j that the corners of the film are rested, and these supporting surfaces are made hemispherical so as to recede abruptly from the film surface resting thereon, and thus avoid having two parallel surfaces between which the liquid may adhere and collect.

The film supporting protuberances j are provided with cavities k to receive the shouldered pin-points of the free ends e' and e^2 of said spring arms.

In order to hold said free ends of the spring arms in their out of the way or inactive position, and also so that the pin-points thereof will be placed in registration with the cavities k, I provide each of the ledges i with rests l having a notch m adapted for supporting the free ends of the spring arms in their inactive position, and another notch n adapted to hold said free ends in their active position as mentioned; so that the pin-points h of said free ends of the spring-arms may be punched through the film, and thus the latter may be held securely in place by its four corners. The pin-points h are shouldered so as to avoid making larger perforations in the corners of the film than necessary for holding the same securely in place.

In order to facilitate the placing of the film on the supporting surfaces k I provide each of the ledges i with guide lugs o and p; and it is to be noted that these guide lugs do not connect, thus avoiding any angular surfaces which would tend to cause the adhering or collecting of the liquid draining from the film.

The ledges i, and their parts, are so constructed that they may be readily stamped out of metal, thus facilitating the inexpensive manufacture of my device.

The operation of securing the film in place on my holder consists first in placing the film within the guide lugs o and p;

having previously arranged the free ends of the spring arms in their inactive position; said free ends are then lifted into their active positions and snapped through the corner of the film.

The drawings are intended to represent a convenient mode of carrying my invention into practice.

I claim:

1. A film holder comprising, a skeleton frame provided at each of its four corners with a hemispherical film supporting protuberance, and means for holding the corners of a film on said film supporting protuberances.

2. A film holder comprising, a skeleton frame provided with ledges at its four corners, each of said ledges provided with a hemispherical film supporting protuberance, the latter having a central cavity, spring arms fixed on opposite sides of the frame, each of said arms terminating in an angular pin-point adapted for entering said cavity of said protuberance of said corner ledge.

3. A film holder comprising, a skeleton frame provided with ledges at its four corners, each of said ledges provided with hemispherical film supporting protuberance, the latter having a central cavity, spring arms fixed on opposite sides of the frame, each of said arms terminating in an angular shouldered pin-point adapted for entering said cavity of said protuberance of said corner ledge.

4. A film holder comprising, a skeleton frame provided with ledges at its four corners, each of said ledges provided with a hemispherical film supporting protuberance, the latter having a central cavity, spring arms fixed at their middle portions on opposite sides of the frame and having opposite free ends, each of the latter terminating in an angular shouldered pin-point adapted for entering said cavity of one of said protuberances.

5. A film holder comprising, a skeleton frame provided with ledges at its four corners, each of said ledges provided with a hemispherical film supported protuberance, the latter having a central cavity, said ledges having film alining lugs, spring arms fixed at their middle portions on opposite sides of the frame and having opposite free ends, each of the latter terminating in an angular pin-point adapted for entering said cavity of one of said protuberances.

6. A film holder comprising, a skeleton frame provided with ledges at its four corners, each of said ledges provided with a hemispherical film supporting protuberance, the latter having a central cavity, spring arms fixed at their middle portions on opposite sides of the frame and having opposite free ends, each of the latter terminating in an angular pin-point adapted for entering said cavity of one of said protuberances, and means on each of said ledges for supporting the free end of said spring arm in its active and inactive positions.

7. A film holder comprising, a skeleton frame provided with ledges at its four corners, each of said ledges provided with a hemispherical film supporting protuberance, the latter having a central cavity, spring-arms fixed at their middle portions on opposite sides of the frame and having opposite free ends, each of the latter terminating in an angular pin-point adapted for entering said cavity of one of said protuberances of said corner ledges, each of said ledges being provided with a rest having a notch adapted for holding the adjacent free end of said spring-arm in its inactive position, and with another notch adapted to guide and hold said free end of said spring-arm in its active position, thereby bringing said pin-point into registration with said cavity of the adjacent film protuberance.

8. A film holder comprising, a skeleton frame provided with ledges at its four corners, each of said ledges provided with a hemispherical film supporting protuberance, the latter having a central cavity, each of said ledges having film alining lugs, spring-arms fixed at their middle portions on opposite sides of the frame and having opposite free ends, each of the latter terminating in an angular pin-point adapted for entering said cavity of said protuberance of said corner ledge, and means on said ledge for supporting the free end of said spring arm in its active and inactive positions.

9. A film holder comprising, a skeleton frame provided with ledges at its four corners, each of said ledges provided with a hemispherical protuberance, the latter having a central cavity, each of said ledges having film alining lugs, spring-arms fixed at their middle portions on opposite sides of the frame and having opposite free ends, each of the latter terminating in an angular pin-point adapted for entering said cavity of said protuberance of said corner ledge, each of said ledges being provided with a rest having a notch adapted for holding the free end of said spring arm in its inactive position, and with another notch adapted to guide and hold said free end of said spring arm in its active position, thereby bringing said pin-point into registration with said cavity of the adjacent film protuberance.

10. A film holder comprising, a skeleton frame provided with ledges at its four corners, each of said ledges provided with a hemispherical film supporting protuberance, the latter having a central cavity, each of said ledges having film alining lugs spaced

apart so as not to constitute continuous angular surfaces for the liquid to adhere to.

11. A film holder comprising a skeleton frame provided at each of its four corners with a film supporting protuberance, the latter being provided with a cavity, and spring arms affixed on opposite sides of the frame, each of said arms terminating in a pin point adapted for entering the cavity of the adjacent protuberance.

12. A film holder comprising a skeleton frame provided at each of its four corners with a film supporting protuberance, the latter being provided with a cavity, spring arms affixed on opposite sides of the frame, each of said arms terminating in a pin point adapted for entering the cavity of the adjacent protuberance, and means for supporting the free end of said spring arm in its active and inactive positions.

13. A film holder comprising a skeleton frame provided at each of its four corners with a film supporting protuberance, means for holding a corner of the film on said protuberance, and the corners of the frame being also provided with film alining lugs spaced apart so as not to constitute continuous angular surfaces for the liquor to adhere to.

HENRY BERGER, JR.