

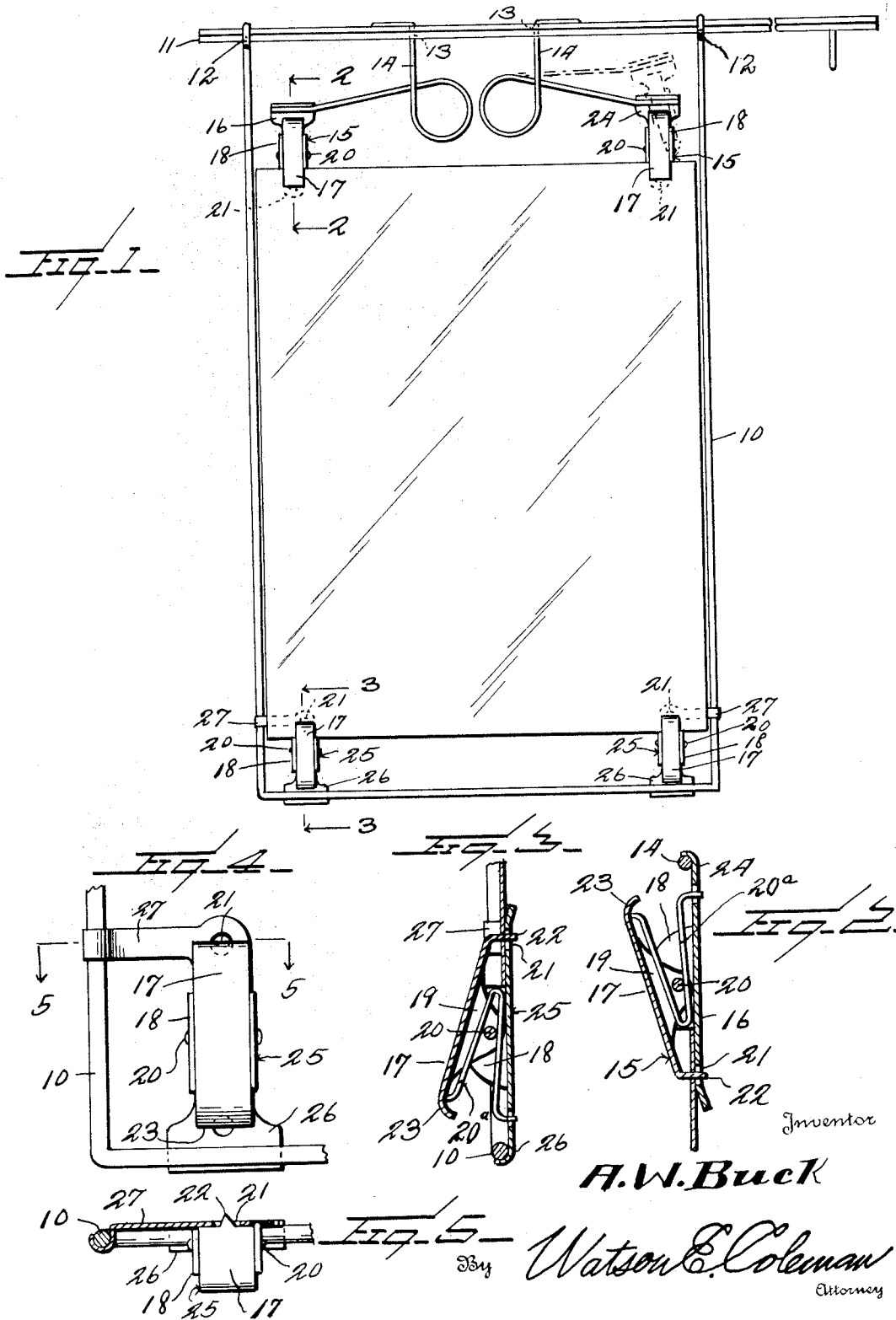
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FILM DEVELOPING AND HANDLING FRAMES

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FILM DEVELOPING AND HANDLING FRAMES

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1 Claim. (Cl. 95—100)

This invention relates to frames for support-
ing photographic films during the operations of
developing, fixing, washing and drying the film,
and particularly to the means for holding the film
in place within the frame and keeping the film
in a taut condition.

One of the objects of the invention is to provide
a film supporting frame of this character in
which there are four clips, two engaging the
lower edge of the film and two engaging the up-
per edge of the film, one pair of these clips being
fixed to the frame and the other pair of clips be-
ing resiliently mounted on the frame so as to
draw the film in a direction to hold the film taut.

A further object is to provide improved means
for supporting the clips which will prevent the
clips from breaking off under the strain to which
the clips are subjected.

A further object is to provide each of the clips
with two jaws, one of these jaws being formed
with a single flat tooth, the opposite jaw being
perforated to receive this tooth so that when the
jaw is clamped upon the film, it perforates the
film well in from the edge of the film.

A further object is to so form the jaws as to
prevent scratching of the film.

Other objects will appear in the course of the
following description.

My invention is illustrated in the accompany-
ing drawing, wherein:—

Figure 1 is a face view of a supporting frame
and clip showing the film in place;

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

Figure 3 is a section on the line 3—3 of Fig-
ure 1;

Figure 4 is an enlarged face view of the con-
struction shown in Figure 3;

Figure 5 is a section on the line 5—5 of Fig-
ure 4.

Referring to this drawing, 10 designates a rec-
tangular frame preferably formed of a single rod
or wire of sufficient strength, which is bent into
an approximately U-shaped form and connected
to a supporting rod 11 which is preferably many-
sided. The ends of the wire frame 10 are pref-
erably formed with eyes 12 which tightly em-
brace the rod 11. The rod 11 is perforated at 13
at two points and extending through these per-
forations are the ends of spring wires 14. The
extremities of these spring wires are inserted
through the perforations 13, then bent over par-
allel to and upon the rod 11 and soldered, brazed
or welded to this rod. The wires 14 extend down-
ward from the rod 11, then are bent in a

circle and then extend toward the adjacent side
of the frame. Mounted upon each of these rods
14 is the spring clip designated 15 comprising an
under jaw 16 and an upper jaw 17. The under
jaw is flanged at 18, the upper jaw is flanged
at 19, the two flanges being held together by the
pivot pins or rivets 20.

The under jaw 16 is formed at one end with
an aperture 21 and the upper jaw 17 is formed
with a tooth 22 engaging in said aperture. The
opposite end of the jaw 17 is curved inward at
23. The end of the inner jaw 16 remote from
the perforation 21 is increased in width to form
a base 24 and this is bent to form an eye receiv-
ing the extremity of the wire 14 and brazed,
soldered or otherwise connected to this wire. It
will be seen that the tension of the spring wires
urges the clips upward. 20a is the spring for the
clip.

Disposed at the opposite end of the frame 10
from the clips 15 are clips 25 which are con-
structed in the same manner as the clips 15 and
have the same reference numerals applied there-
to. The base 26 of each clip is formed to pro-
vide an eye, as previously described, which em-
braces or partly embraces the wire and frame
10 and is soldered, brazed or otherwise rigidly
connected thereto. The inner end of the under
jaw 16 of this clip is connected to the lateral
member of the frame 10 by means of the brace
27 which may be integral with the under jaw
or attached thereto by any suitable means, this
brace extending laterally outward to the lateral
element of the frame 10 and being formed with an
eye embracing this frame, this eye being sol-
dered, brazed, welded or otherwise attached to
the frame.

I do not wish to be limited to the means
whereby the braces 27 are engaged with the
frame 10 nor to the means whereby the clips are
engaged with the frame 10 or with the wire 14.
These clips might be soldered, welded, clinched
or riveted to the frame. Preferably, however,
the clips are spot-welded and then soldered.

It has been found in actual experience that
the braces 27 are most important as these braces
hold the clips 25 rigidly in place against lateral
bending movement and prevent these lower clips
from breaking off. This was due to the limited
amount of surface which permits welding or sol-
dering the base of the clip to the frame. Rough
handling tends to bend the base of the clip and
continual straightening causes the base of the
clip to break in two. By the use of the brace
27, it is impossible for the clip to bend out of

position and inasmuch as this bending is overcome, there is no difficulty in making the clip stay on the frame by either welding or soldering. Because of the fact that the upper clips are
5 mounted upon springs 14, they are not likely to break or become loose.

By the provision of a single tooth 22 on the outer jaws of the clips and the provision of the perforation 21 on the under jaw of each clip, the
10 single tooth perforates the film well inward from the edge of the film. The curved end 23 of the outer jaw of each clip prevents the clip from scratching the face of other films when the film is inserted in the holder and is being developed
15 with other films.

While I have illustrated a specific form of my device which has been found thoroughly satisfactory in actual practice, I do not wish to be

limited to this as obviously minor changes might be made without departing from the spirit of the invention as defined in the appended claim. These film holders are not only adapted for use in handling the film while it is being developed,
80 fixed and washed but are also particularly adapted for use with the photographic film dryer mechanism shown in my Patent No. 1,888,947 granted in November 22, 1932.

I claim:—

A film supporting element having angularly related portions, a clip including two spring actuated jaws, the base of one jaw being rigidly
85 attached to one portion of the frame, and a brace extending from the other portion of the frame
90 to the extremity of the said jaw.

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