

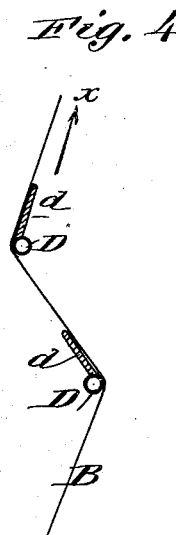
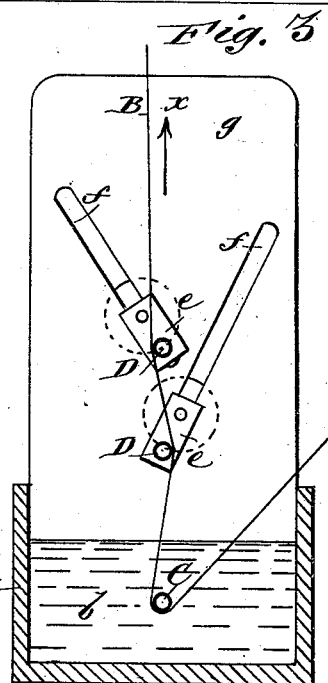
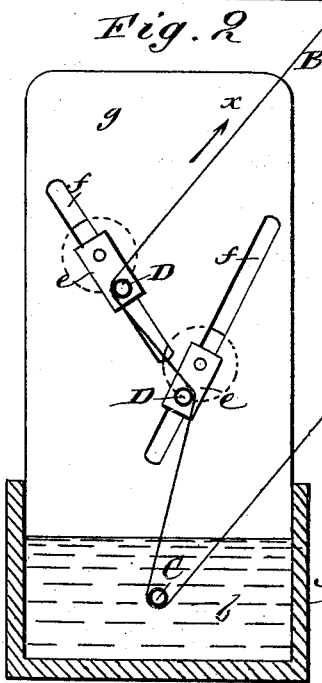
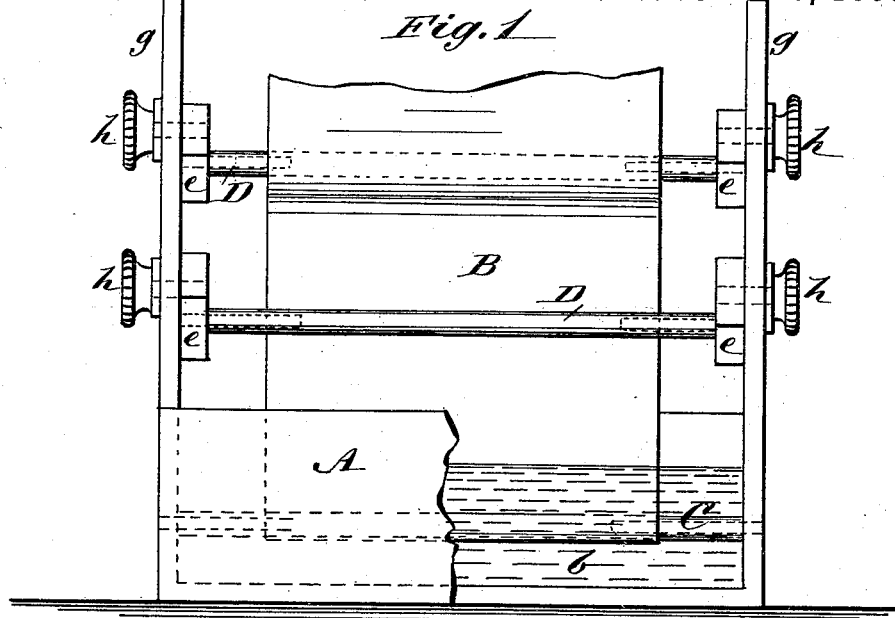
(No Model.)

H. J. NEWTON.

APPARATUS FOR MANUFACTURING DOUBLE FILM PHOTOGRAPHIC  
SENSITIVE PAPER.

No. 343,387.

Patented June 8, 1886.



WITNESSES:

*C. Newton*  
*C. Sedgwick*

INVENTOR:

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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

HENRY J. NEWTON, OF NEW YORK, N. Y., ASSIGNOR TO E. & H. T. ANTHONY  
& CO., OF SAME PLACE.

APPARATUS FOR MANUFACTURING DOUBLE-FILM PHOTOGRAPHIC SENSITIVE PAPER.

SPECIFICATION forming part of Letters Patent No. 343,387, dated June 8, 1886.

Application filed December 30, 1885. Serial No. 187,130. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY J. NEWTON, of the city, county, and State of New York, have invented a new and useful Improvement in Apparatus for Manufacturing Double-Film Photographic Sensitive Paper, of which the following is a full, clear, and exact description.

This invention relates to novel means, substantially as hereinafter described, for evenly laying or distributing the sensitive emulsion on both sides or surfaces of photographic paper or tissues simultaneously.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a partly-broken front view of an apparatus embodying my invention, or such portion thereof as is necessary to explain the invention, also showing a strip of paper as in the act of having the sensitive emulsion applied simultaneously to its opposite sides or faces. Figs. 2 and 3 are vertical transverse sections of the same, showing certain tension and wiping devices in different positions; and Fig. 4 is a transverse section in part, showing a modification of the devices for removing the surplus emulsion from the paper.

A indicates a tank containing the sensitive emulsion, *b*, used to make the double-film photographic paper. Said tank may be of any desired length to work paper of different widths. The paper is introduced within and passed through the sensitive emulsion in the tank in the form of a strip, *B*, of any desired length, and which may be fed to the tank and be taken up therefrom by and from suitably-arranged take-up and supply rollers, or otherwise.

Arranged longitudinally within the tank, in or through the portion thereof occupied by the emulsion, is a submerged lower guide, *C*, for the paper. This guide, which may be made of glass or other smooth-surfaced material, it is preferred to make in the form of a roller, to allow of the free run of the paper beneath and against it as said paper or strip *B* is drawn, as indicated by the arrow *x*, through the emulsion in the tank.

*D D* are two upper longitudinal rollers or bars arranged above or outside of the emulsion in the tank in parallel relation with each other and with the guide *C*. These rollers or bars may either be in the same vertical plane with each other and with the submerged guide *C*, as shown in Fig. 3, or they may be set in different vertical planes, as shown in Fig. 2, and so that they are not only one above the other, but also laterally out of line with each other, in order to give an extended or more decided zigzag course to the paper strip *B*, as it passes first under and partly around the guide *C*, and then up and over the one side of the lower bar *D*, and to and over the opposite side of the upper bar *D*. These bars or rollers *D D*, which also may be made of glass or other suitable material, not only act as additional guides for the paper, but, and which is the main object of them, also constitute tension and surplus-emulsion-removing devices for the paper, as the latter after it leaves the bath is drawn up over them; and they further serve to evenly distribute or lay the emulsion on the paper, said devices, by the arrangement and the passage of the paper, acting respectively upon opposite sides of the paper, in order to give the paper a like thin and even sensitive film on both of its sides or faces. If desired, said guiding, tension, and wiping devices *D D* may, as shown in Fig. 3, be provided with attached strips or flaps *d*, of any suitable flexible material, and of the same length, or thereabout, as the bodies of said devices, said flaps being arranged to act upon opposite sides of the paper, and being drawn against its coated surfaces by suction as the paper is drawn from the bath. Such construction, although giving an extended soft wiping action, is not absolutely necessary, however.

As it is very important, in order to give an even double film, that the paper, as it passes through and from the bath, should be kept at a proper tension, and as some papers or tissues require more tension than others, the tension and wiping devices *D D* are made adjustable to vary their distance apart, and so as to give a quicker or slower zigzag travel to the paper in its passage from the submerged guide *C* to and between and over the devices *D D*. This

may be done in various ways and by separate standards carrying the devices D D; but it is here shown as effected by supporting said devices in bearings *e e*, fitted so as to be adjustable in or along reversely-oblique slots *f f* in each of two uprights, *g g*, and as being retained in position, when adjusted, by thumb nuts or screws *h h*, the devices D D, when being adjusted, moving both up and down and laterally to change their zigzag position in relation with each other and with the submerged guide in the bath. Any number of these devices D D, arranged one above and out of vertical line with each other, may be used, if desired.

15 Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The guiding, tension, and wiping devices D, supported in bearings which are obliquely adjustable in reverse directions respectively, 20 whereby said devices may have their distances apart regulated both upwardly and laterally, substantially as specified.

2. The combination, with the guiding, tension, and wiping devices D, of the flexible 25 flaps or wipers *d*, arranged for operation on opposite sides of the paper, essentially as described.

HENRY J. NEWTON.

Witnesses:

C. SEDGWICK,  
EDW. M. CLARK.