J. H. COOK.

PHOTOGRAPH PRINTING MACHINE.

APPLICATION FILED OCT. 31, 1908.

950,661.

Patented Mar. 1, 1910.

Fig. 1.

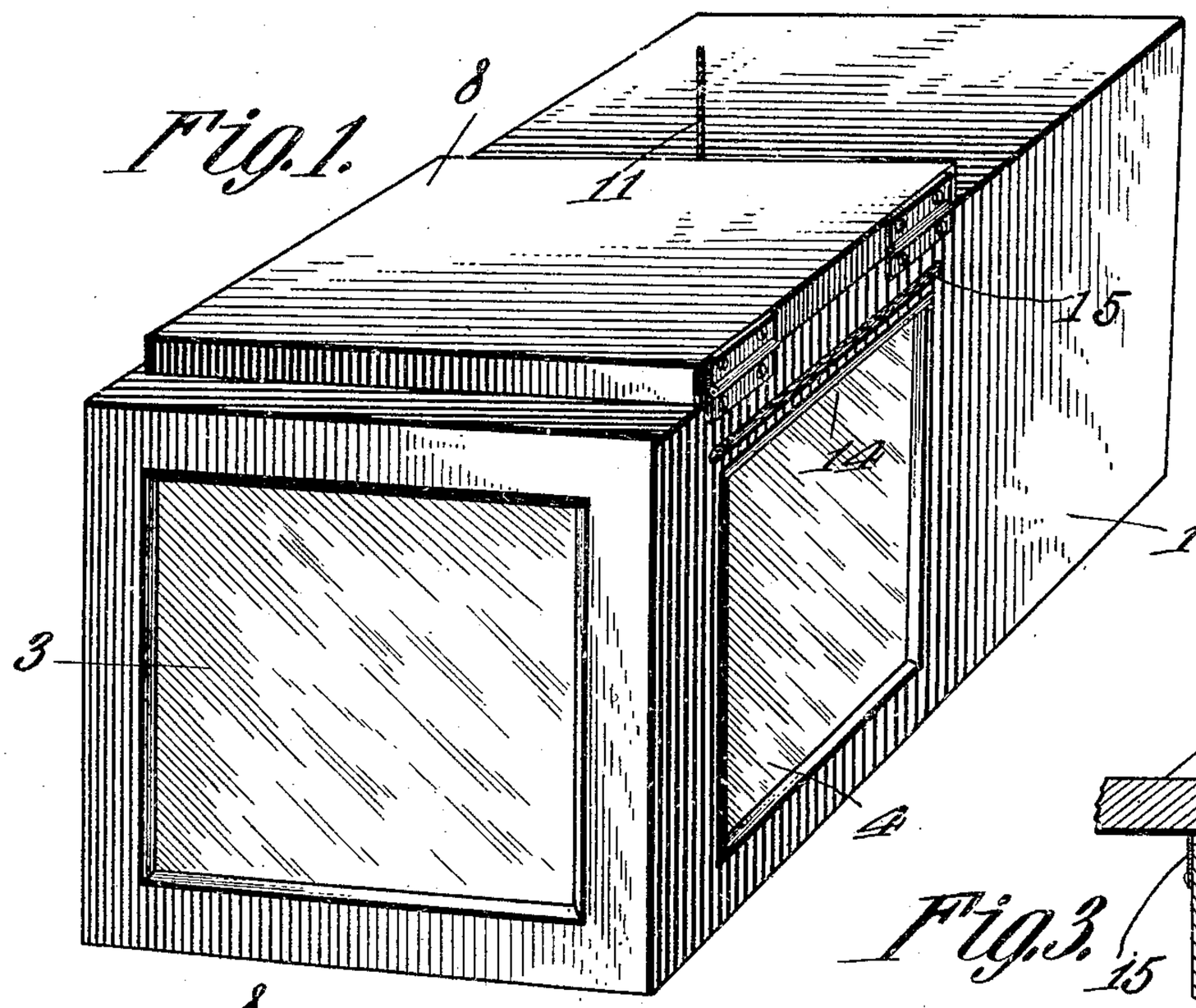


Fig. 3.

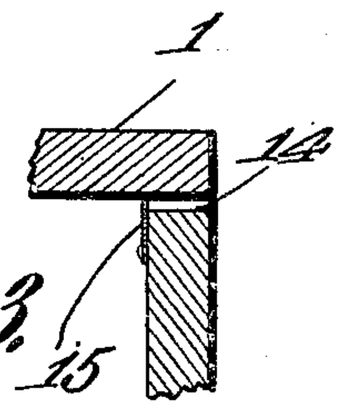


Fig. 2.

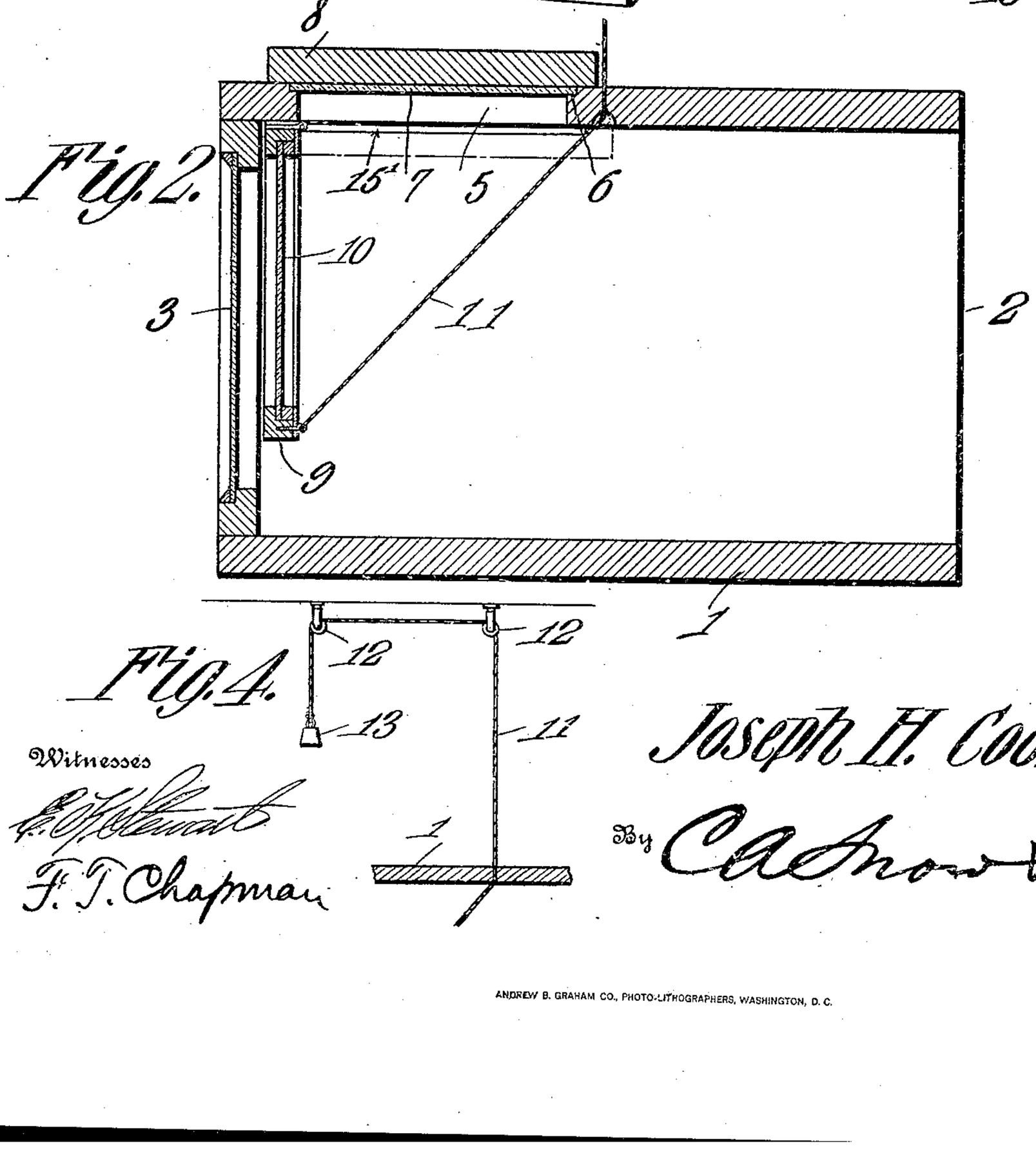


Fig. 4.




Witnesses

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# UNITED STATES PATENT OFFICE.

JOSEPH HARRY COOK, OF EAST ST. LOUIS, ILLINOIS.

## PHOTOGRAPH-PRINTING MACHINE.

950,661. Specification of Letters Patent. Patented Mar. 1, 1910.

Application filed October 31, 1908. Serial No. 460,528.

*To all whom it may concern:*

Be it known that I, JOSEPH H. COOK, a citizen of the United States, residing at East St. Louis, in the county of St. Clair and State of Illinois, have invented a new and useful Photograph-Printing Machine, of which the following is a specification.

This invention has reference to improvements in photograph printing machines and its object is to provide a machine of simple and cheap construction by means of which the printing of photographs from suitable negatives is greatly facilitated.

The present invention is designed to be used in a dark room and comprises a light tight box having one end open and designed to be placed next to a window for the admission of daylight to the interior of the box, or the open end of the box may be placed in position to receive other actinic light, which light however should be excluded from access to any portion of the exterior of the box.

In accordance with the present invention the box is provided with means for sustaining a suitable photographic negative in a horizontal position so that photo-printing paper may be applied to the negative and be exposed to actinic light passing through the negative from the interior of the box. Provision is also made for the admission of non-actinic light to the negative so that the paper may be properly placed without danger of fogging the paper and then may be exposed to the action of the actinic light while held to the negative either by mechanical devices or by the hand of the operator.

The present invention is also adapted to the lighting up of the dark room for the development of negatives or the development of developing paper. The invention however will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings, forming a part of this specification, in which drawings,

Figure 1 is a perspective view of the improved photograph printing machine. Fig. 2 is a longitudinal section thereof. Fig. 3 is a detail view, and Fig. 4 is a view illustrating a counter-weight used in connection with the non-actinic transparent screen.

Referring to the drawings there is shown a box 1, illustrated in the drawings as substantially rectangular in cross section and longer than it is either wide or high. It will be understood however that these proportions may be changed as desired since the shape of the box is not material to the present invention. One end 2 of the box is open and is designed for the introduction into the interior of the box of suitable actinic light. For instance this end of the box may be placed against a window in a photographic dark room and all other light excluded from the room except that which will enter through the open end of the box 1. The other end of the box remote from the end 2 is closed in by means of a sheet 3 of a material suited for the transmission of non-actinic light. For instance the sheet 3 may be of ruby glass or ruby paper, or any other red transparent or translucent material. The ruby sheet 3 is for the purpose of admitting light to the dark room suited for watching the development of photographic negatives.

In one side of the box 1 there is introduced a sheet 4 of transparent or translucent material of different non-actinic properties than the sheet 3 since it is designed for the introduction of light in the dark room for observing the development of the exposed sheets of photographic printing paper, especially the bromid or other quick printing papers generally known as gas light papers or developing papers. Since such papers are far less sentitive than the average photographic plate or film, the sheet 4 may be made of orange glass or orange paper or other suitable material of like character permitting the passage of a greater volume or greater brightness of light than the sheet 3. Such light, that is light transmitted through an orange glass or sheet of any kind is practically non-actinic to the so-called gas light or developing papers.

Through the top of the box there is formed an opening 5 near the end remote from the open end 2. Around the upper edge of the opening 5 there is formed a rabbet 6 for the reception of a photographic negative or of a plain sheet of glass, either of which may be taken as indicated at 7.

Hinged to the top of the box is a cover 8 adapted to overlie the opening 5 and a negative or glass plate 7 resting in the rabbet 6.

Hinged to the inner face of the top of the box adjacent to the opening 5 is a frame 9 carrying a sheet 10 of non-actinic material such for instance as orange glass or paper

or like transparent or translucent material and this frame 9 is so located that when folded up against the inner face of the top of the box the glass sheet 10 will cover the opening 5 and thereby exclude from the negative any light except the orange colored light passing through the sheet 10, such light being non-actinic to the developing or gas light printing papers.

Made fast to the frame 9 at the end remote from the hinge is a cord or strand 11 passing up through the top of the box near the opening 5 and this cord or strand is carried around pulleys 12 located in the ceiling of the dark room and has on the end remote from the box 1 a weight 13 capable of overbalancing the frame 9 and maintaining it normally up against the top of the box 1 so as to cover the opening 5.

Through one side of the box close to the top thereof is a narrow slot or slit 14 which may be closed on the inside by a valve or door 15, say a strip of felt, so as to render the slot light tight. This slot is designed for the introduction of vignetting cards or sheets across the opening 5 and in the side wall opposite the wall traversed by the slot 14 there may be provided a recess 15′ for sustaining the corresponding end of the vignetting sheet.

Let it be assumed that a suitable light is entering the box through the open end 2 and that it is desired to make photographic prints from a negative 7 supported in the rabbet 6 above the opening 5. Under normal conditions the frame 9 with its non-actinic screen 10 is in the uppermost position under the action of the counter-weight 13 so that under such conditions nothing but non-actinic light is passing through the negative 7. Because of the brilliancy of the light the operator may readily place and position the paper upon the negative, it being understood that the cover 8 is raised. After the paper has been properly positioned upon the negative then the cover 8 is brought down upon the paper to clamp it in place, or in the case of heavy printing papers such for instance as postal cards, the weight of the hand of the operator is sufficient to make good contact between the sensitive surface of the paper and the negative. As soon as the paper has been properly placed and clamped in position either by the hand of the operator or by the cover 8 then the operator grasps the strand or cord 11 and pulls the same against the action of the weight 13, thus allowing the frame 9 to assume the pendent position shown in Fig. 2. The actinic light within the box 1 now reaches the negative and passing through the same will act on the paper against said negative in the usual manner. As soon as the exposure has been made the cord 11 is released and the weight 13 will return the frame 9 to its uppermost position thus cutting off the actinic light and permitting the passage only of the non-actinic light to the negative.

For modifying the actinic light tissue paper or ground glass may be placed over the open end 2, or where a greater intensity of light is desired a reflector of suitable type may be placed opposite the opening 5. These are common expedients for the purpose and need not be further considered.

Since the normal position of the frame 9 is up against the opening 5 where it is held by the action of the weight 13 it will be seen that the ruby sheet 3 or orange sheet 4 may be employed at any time for the development of highly sensitive negatives or watching the development of the less sensitive papers as the case may be.

By having the opening 5 so that the negative 7 is in a horizontal position it is most conveninently located for the rapid exposure of the quick printing type of paper and where the stiffer papers are used and the light is sufficiently strong many sheets of paper may be exposed to a negative per minute by being simply placed on the negative and there held by the hand of the operator while the other hand is utilized for causing the swinging of the frame 9 to the pendent position for the brief period required for the exposure to actinic light.

It will thus be seen that the device is of an extremely simple nature and may be operated with the greatest rapidity while it provides without change of structure the various qualities of light desirable in a photographic dark room.

When it is desired to print from negatives smaller than the opening 5 or from films then a piece of plain glass is seated in the rabbet 6 and the smaller negative or the film is laid thereon and the printing of the paper proceeds as before.

What is claimed is:—

1. A photographic printing machine comprising a box having its walls normally actinically light tight and having an opening in its upper side for the reception of a photographic negative, a screen for said opening permitting only the passage of non-actinic light and hinged at one edge to the interior of the box adjacent to the opening for the negative, a flexible strand connected to the screen and extending to the outside of the box, a counterweight connected to the end of the strand remote from the screen and normally holding the latter in position to close the opening leading to the negative, and a hinged cover for the opening exterior to the box and independent of the counter-weighted screen.

2. A photographic printing machine comprising a box having its walls normally actinically light tight and having an opening on its upper side for the reception of a

photographic negative, a screen hinged to the inner wall of the top of the box and movable to a pendent position, said screen permitting only the passage of non-actinic light, a flexible strand connected to the end of the hinged screen remote from the end connected to the inner wall of the top of the box and extending through the latter to the outside thereof, a counterweight connected to the end of the strand remote from the screen and tending to normally keep the screen up against the under wall of the top of the box and thereby closing the opening through the top of the box, a cover for the said negative receiving opening hinged to the exterior of the box and independent of the counterweighted hinged screen, and light transmitting screens in the wall of the box having different non-actinic values.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH HARRY COOK.

Witnesses:

BENJ. L. BOWEN,

LAWRENCE BARNEY.