

K. R. HUFF.
 PRINTING APPARATUS.
 APPLICATION FILED FEB. 28, 1911.

1,013,018.

Patented Dec. 26, 1911.

2 SHEETS—SHEET 1.

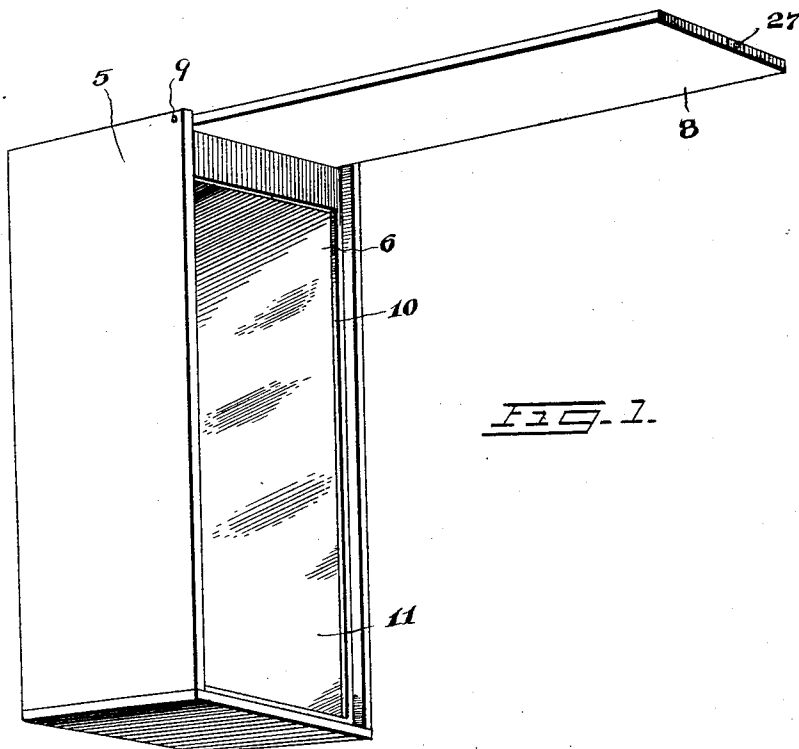


FIG. 1.

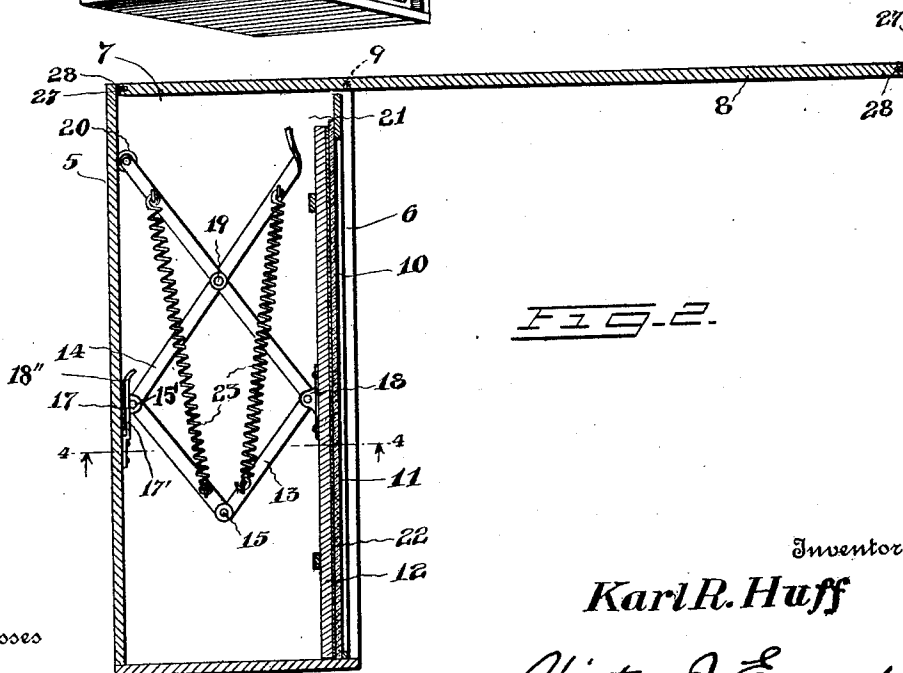


FIG. 2.

Witnesses

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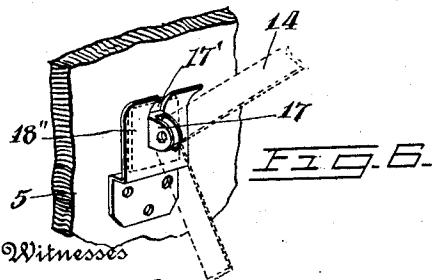
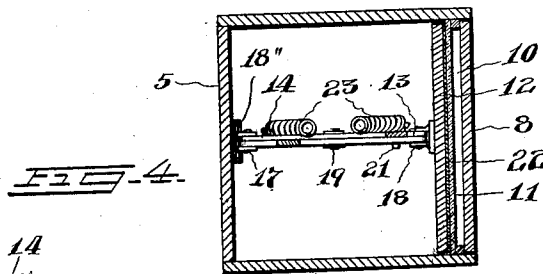
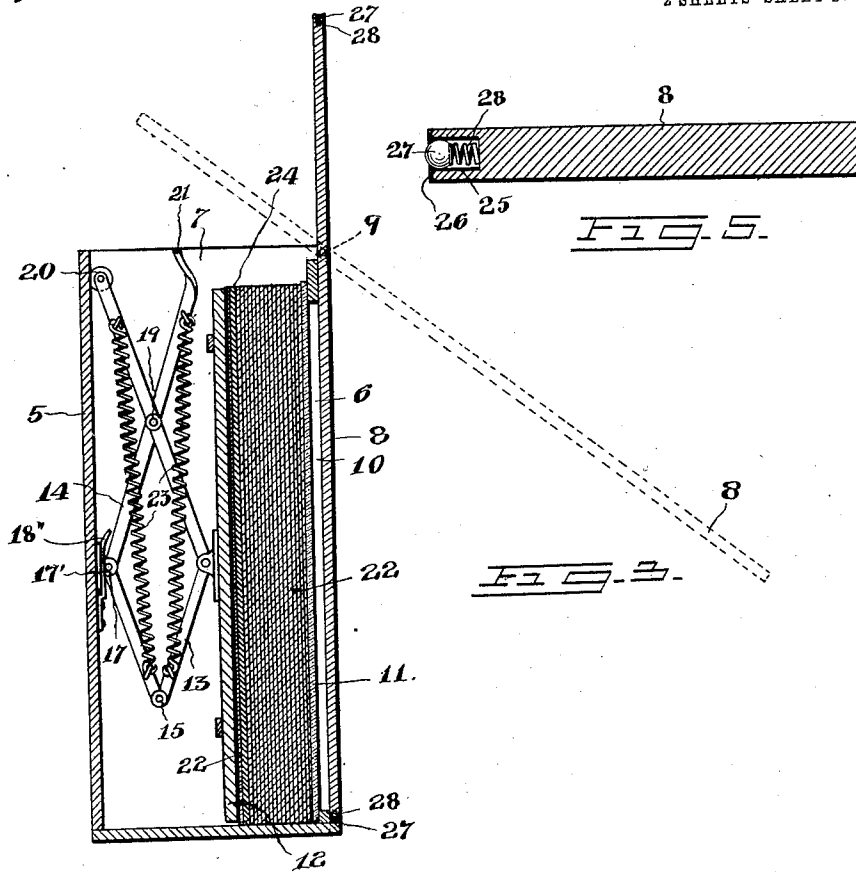
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UNITED STATES PATENT OFFICE.

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PRINTING APPARATUS.

1,013,018.

Specification of Letters Patent.

Patented Dec. 26, 1911.

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To all whom it may concern:

Be it known that I, KARL R. HUFF, a citizen of the United States, residing at Lineville, in the county of Wayne and State of Iowa, have invented new and useful Improvements in Printing Apparatus, of which the following is a specification.

The invention relates to a printing apparatus, and more particularly to the class of photographic printing machines.

The primary object of the invention is the provision of an apparatus of this character in which the negative and printing paper will be held in proper position for exposure to light rays, the front and one end of the apparatus being alternately closed by a swinging door or shutter, so that when the apparatus is in position for the exposure of the negative and printing paper to the light rays, the said shutter or door will be swung to a position for closing the end of the apparatus, thereby preventing light entering behind the paper and negative, and when removed from the light rays, the said door or shutter will swing into position for closing the front of the apparatus, thereby protecting the printed paper from the negative from undue exposure and permitting the ready and easy removal of the printed paper from the apparatus, and also the convenient disposal of the printed paper posterior to a card, thereby disposing of the print for readiness of another exposure.

Another object of the invention is the provision of a printing apparatus in which the paper to be printed from the negative held therein will be sustained in smooth and stretched condition against the negative, and that may be easily and readily removed from the negative after the printing of the paper, without possibility of tearing or damaging the same or the negative.

A further object of the invention is the provision of a printing apparatus in which the swinging door thereof may be shifted so as to close the apparatus at the end thereof in which the negative and sensitized paper are introduced, so as to shut out any rays of sunlight entering the apparatus in rear thereof, and that may be swung into position for closing the front of the apparatus to exclude light therefrom, while the said apparatus is being removed from the light rays, thus obviating the possibility of an over exposure or the over printing of the paper from the negative.

A still further object of the invention is the provision of an apparatus which enables the leaving of an unprinted paper in the apparatus when all printing is done, thereby saving time of replacing it in another place of protection, it being duly protected in the apparatus.

A still further object of the invention is the provision of an apparatus in which a card is placed posterior to the unprinted paper behind which the prints are readily placed after printing, thus protecting them from light until development, the card also serving as an indicator as to when all the paper is exhausted, as well as containing the directions for the manipulation of the apparatus.

A still further object of the invention is the provision of a printing apparatus which is simple in construction, thoroughly reliable and efficient in operation, and inexpensive in manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a perspective view of an apparatus showing the shutter thereof in position for the exposure of the negative to the light rays, whereby the sensitized paper therein may be printed from the negative. Fig. 2 is a vertical longitudinal sectional view thereof. Fig. 3 is a similar view, showing the shutter in position for closing the front of the apparatus and the follower board or tympan retracted, whereby the printed paper may be readily removed from the apparatus. Fig. 4 is a sectional view on the line 4-4 of Fig. 2, looking in the direction of the arrow. Fig. 5 is an enlarged vertical sectional view through a portion of the shutter or door, showing the automatic catch device carried thereby. Fig. 6 is a fragmentary perspective view of the clip bearing for the toggle.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings by numerals, the apparatus comprises a box-like body 5, the same being provided with an open front and one end 7, the said box-like body being constructed preferably from light wood ma-

terial, although the same may be made from any other suitable material, and its open front is normally closed by a swinging shutter 8, the latter being arranged between the side walls and connected thereto by means of a pivot 9, the said shutter 8 being of a length equal to the length of the box-like body 5, and its depth, so that when the shutter 8 is shifted or swung in a direction to open the front 6 of the body 5, it will close the open end 7 thereof, for a purpose as will be hereinafter more fully described.

Secured to the inner face of the side walls and the closed end wall of the box-like body 5, contiguous the front edges thereof, are alining abutment strips 10 forming the frame against which is adapted to rest the photographic negative 11. Within the box-like body 5, rearwardly of the negative 11, is disposed a follower board or tympan 12, the same being supported by a toggle comprising opposed short and long levers 13 and 14, respectively, the short levers 13 being connected together at adjacent ends by means of a pivot 15, these levers 13 also being connected to common pivots 15' mounted in bearing ears 17, and the levers 14 are also connected at their inner ends to these pivots 15'. The bearing ears 17 are formed and extending inwardly from a base plate 17' which is removably engaged in the bifurcated resilient clip 18'' secured to the back of the body 5. Thus, it will be seen that the toggle and the follower board or tympan may be readily removed from the said body, if desired, while ears 18 extend from a suitable base plate fixed to the follower board or tympan 12, as is clearly shown.

The levers 14 are crossed intermediate their lengths and are connected together by means of a pivot 19 at their crossing point, one of said levers being provided with a friction roller 20 at its free end adapted to travel upon the inner face of the back of the body, 5, while the other lever terminates at its free end in a handle 21, whereby on the manipulation of the said handle, the toggle may be opened and closed for advancing and retracting the follower board or tympan 12 toward and away from the negative 11 when positioned within the printing apparatus, thus clamping the sensitized paper strip 22 against the negative 11 or permitting its free removal from the body of the apparatus.

Connected to the long and short arms 13 and 14, respectively, are coiled retractile springs 23 which serve to normally sustain the toggle in open position, thereby forcing the follower board or tympan 12 in the direction of and against the paper 22 when positioned between the said board or tympan and the negative within the body of the apparatus, thus sustaining the printing paper smooth and in stretched condition against

the rear face of the negative for the printing thereof when the negative is exposed to light rays, thereby reproducing the image from the negative onto the printing paper.

In supplying the apparatus with sensitized paper 22, the shutter is swung to position for closing the open front of the body 5 and an operator presses upon the handle 21, thereby causing the closing of the toggle which retracts the follower board or tympan 12 from the negative 11 held within the body, whereupon the paper may be freely and conveniently introduced into proper position rearwardly of and against the negative. After the paper has been placed within the body 5 and against the negative 11 therein, the operator releases pressure on the handle 21 and through the medium of the tension of the springs 23, the toggle is opened, thereby forcing the follower board 12 against the paper for holding the paper smooth and stretched against the inner face of the negative 11 within the body. Now, the shutter 8 is shifted so as to close the open end 7 of the body 5, thereby excluding light from the body rearwardly of the paper to be printed and the negative held therein, and in this manner, the front 6 of the body is opened, whereby the negative 11 and the printing paper rearwardly thereof may be exposed to the light rays for the printing of said paper.

It is obvious that on the opening and closing of the toggle within the body 5 of the apparatus, the friction roller 20 will traverse the inner face of the back of the body, and should the paper be of varying thicknesses in its area, the said follower board or tympan 12 may automatically adjust itself to accommodate the paper.

Arranged between the negative 11 and the tympan or follower board 12 is a partition, such as a card 24, the same being disposed posteriorly to the unprinted paper, while the printed paper forwardly of this card may be readily removed and placed behind the same, thus the said card will serve to protect the said printed paper from light until the time of development thereof, thereby obviating the necessity of removing the printed paper from the body 5. Also, this card serves for indicating as to when all the unprinted paper is exhausted, as the same is arranged forwardly thereof, as is clearly shown in Fig. 3 in the drawings. Also, if desirable, this card may have printed thereon suitable indicia for indicating the manner of manipulation of the apparatus for the guidance of the user of the same.

Suitably mounted within each end of the shutter or door 8 is a catch device, comprising a cylindrical tube 25 embedded in the said door or shutter and opening through the end thereof, the tube being formed with an outturned annular flange 26 and loosely

mounted within this tube is a ball 27, against which works an expansion spring 28 confined within the tube and having its opposite end bearing against the closed end of the said tube; thus it will be seen that this ball will frictionally engage the body 5 and sustain the door or shutter in opened or closed position.

• What is claimed is:

10 1. In a printing apparatus, a body having an open front and end, a pivotal shutter connected with the body and adapted to alternately close the open front and end, and a plate holder frame secured to the body
15 contiguous the edges of the open front.

2. In a printing apparatus, a body having an open front and end, a pivotal shutter connected with the body and adapted to alternately close the open front and end, a
20 plate holder frame secured to the body contiguous the edges of the open front, a follower board arranged within said body, and spring-operated means advancing the board toward the open front.

25 3. In a printing apparatus, a box-like body having an open front and end, a plate holder frame secured to the body contiguous the open front, a follower arranged within the body rearwardly of the frame, a toggle
30 connected with the back of the body and the follower, a lever being formed on the said toggle for retracting the same, and a shutter pivoted to the body and adapted to alternately close the open end and front.

35 4. In a printing apparatus, a box-like body having an open front and end, a plate holder frame secured to the body contiguous the open front, a follower arranged within the body rearwardly of the frame, a

toggle connected with the back of the body
40 and the follower, a lever being formed on the toggle for retracting the same, a shutter pivoted to the body and adapted to alternately close the open end and front, and means acting on the toggle for opening the
45 same, whereby the said follower will be advanced toward the plate holder frame.

5. In a printing apparatus, a box-like body having an open front and end, a plate holder frame secured to the body contiguous
50 the open front, a follower arranged within the body rearwardly of the frame, a toggle connected with the back of the body and the follower, a lever being formed on the toggle for retracting the same, a shut-
55 ter pivoted to the body and adapted to alternately close the open end and front, and a retractile spring connected with the toggle for normally opening the same.

6. A printing apparatus, comprising a
60 box-like body having an open front and end, and a shutter connected with the body for alternately closing the said open end and front.

7. A printing apparatus, comprising a
65 box-like body having an open front and end, a shutter connected with the body for alternately closing the said open end and front, and means within the body for holding the plate and negative in close relation to each
70 other.

In testimony whereof I affix my signature in presence of two witnesses.

KARL R. HUFF.

Witnesses:

E. E. CALBREATH,
J. T. FORSTER.