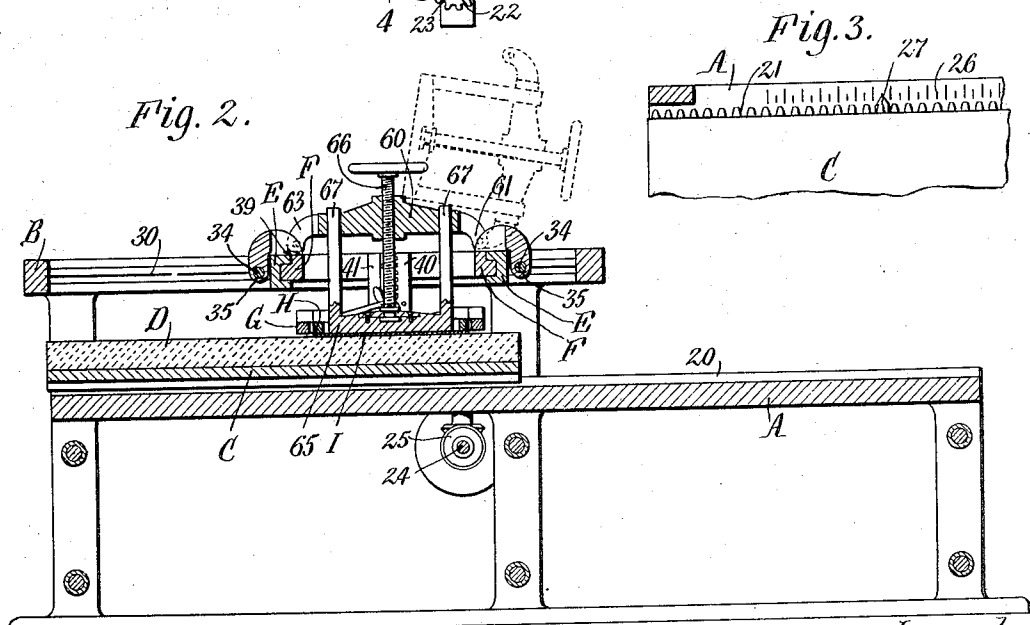


APPARATUS FOR PRODUCING PRINTING SURFACES.
APPLICATION FILED FEB. 19, 1907. RENEWED MAR. 11, 1908.

2 SHEETS-SHEET 1.



Witnesses:
E. A. Volk.
A. G. Dimond.

Inventor.
William C. Huetner.
By Wilhelm, Parker Ward
Attorneys.

W. C. HUEBNER.

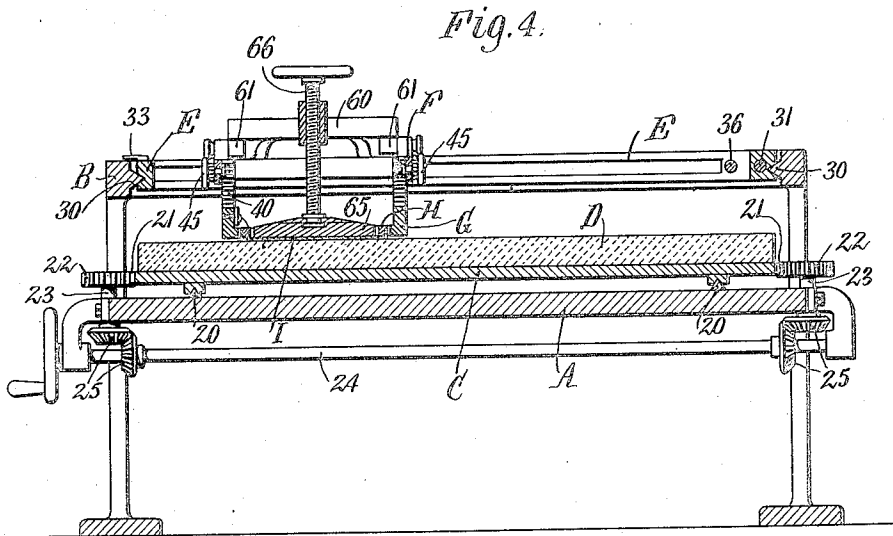
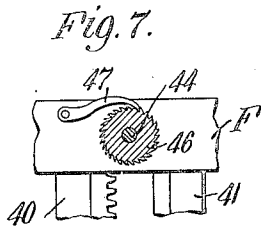
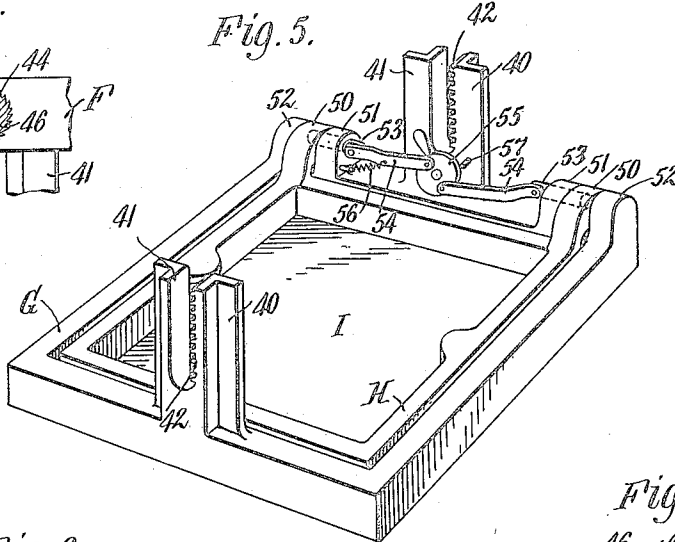
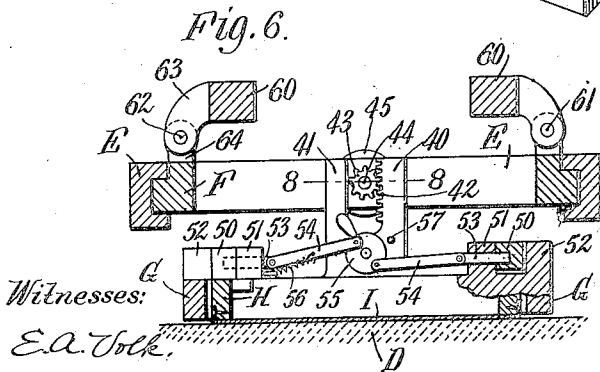
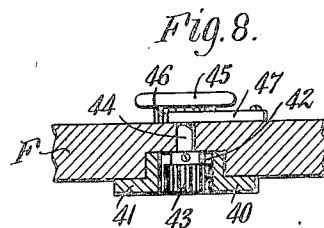
APPARATUS FOR PRODUCING PRINTING SURFACES.

APPLICATION FILED FEB. 19, 1907. RENEWED MAR. 11, 1908.

902,584.

Patented Nov. 3, 1908.

2 SHEETS—SHEET 2.



Witnesses:
E. A. Volk,
A. G. Dimond.

Inventor.
William C. Huebner,
By Wilhelm Racker Hard
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM C. HUEBNER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO GEORGE BLEISTEIN, OF BUFFALO, NEW YORK.

APPARATUS FOR PRODUCING PRINTING-SURFACES.

No. 902,584.

Specification of Letters Patent.

Patented Nov. 3, 1908.

Application filed February 19, 1907, Serial No. 358,252. Renewed March 11, 1908. Serial No. 420,454.

To all whom it may concern:

Be it known that I, WILLIAM C. HUEBNER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Apparatus for Producing Printing-Surfaces, of which the following is a specification.

This invention relates to the production of printing surfaces, such as plates of copper, aluminum or zinc, or lithographic stones, in which each printing surface contains a plurality of prints or designs. Such surfaces are desirable in many cases, for instance, when a large edition is to be printed, in which case a corresponding number of like impressions is produced simultaneously, whereby the time required for printing the edition is correspondingly shortened, or, when several multi-colored pictures are to be printed upon the same sheet, for instance, in wall paper and illustrated newspapers, when a corresponding number of printing surfaces on the same plate or stone would produce in a single impression all of the pictures on the sheet in the same color. In printing with several colors it is essential to success that the corresponding printing surfaces on the several stones or plates should be in exact register, and the object of this invention is to produce an apparatus for producing upon the plate or stone a plurality of impressions in predetermined locations with great accuracy and in a very expeditious and inexpensive manner, such impressions being afterward prepared by any of the well known methods for printing therefrom.

In the accompanying drawings, consisting of two sheets: Figure 1 is a plan view of my improved apparatus. Fig. 2 is a vertical section in line 2—2, Fig. 1. Fig. 3 is a fragmentary plan view showing one corner of the movable bed. Fig. 4 is a vertical section in line 4—4, Fig. 1. Fig. 5 is a detached perspective view of the holding frame and film frame. Fig. 6 is a vertical section in line 6—6, Fig. 1, on an enlarged scale. Fig. 7 is a fragmentary elevation showing the ratchet and pawl on the carrying frame. Fig. 8 is a horizontal section in line 8—8, Fig. 6, on an enlarged scale.

Like letters and numerals of reference refer to like parts in the several figures.

The apparatus comprises, briefly stated, a stationary frame, a bed frame to which the plate or stone is secured and which is preferably movable on the stationary frame, a carriage which is mounted on the stationary frame so as to be movable over the surface of the plate or stone in one direction, a carrying frame which is movable in the carriage over the surface of the plate or stone at right angles to the direction in which the carriage is movable, a frame to which the film is attached and which is connected with said carrying frame, the film being provided in relief with the picture or design which is to be placed on the plate or stone, and a pressure mechanism which is mounted on said carrying frame and by means of which pressure is applied to the film and the latter is pressed against the plate or stone for producing the impression thereon after the film has been inked and the position of the film has been properly adjusted.

The stationary frame of the apparatus may be of any suitable construction and comprises, as shown, a lower portion A and an upper portion B, both extending horizontally. C represents the bed upon which the plate or stone D is secured and which is movable horizontally on the lower portion A of the frame which is provided with horizontal guide bars 20 on which the bed is slidably mounted. A suitable mechanism is provided for adjusting the bed on the stationary frame, which mechanism may comprise, as shown, rack bars 21 secured to the longitudinal sides of the bed, gear wheels 22 which mesh therewith and are secured to upright shafts 23 journaled in the frame A, and a transverse shaft 24 which is geared to said shaft by bevel wheels 25 and is turned by hand for moving the bed on the frame.

The lower part A of the frame extends horizontally beyond the upper part B so that the bed can be moved beyond the upper part of the frame for applying the plate or stone to the bed, or removing it therefrom, or for other purposes. The stationary frame is preferably provided with a graduation or scale 26 and the bed with a pointer 27 by which the position of the bed and the plate or stone thereon can be regulated.

The upper part B of the stationary frame is provided with longitudinal guides 30 in

which is mounted a carriage E which in turn carries a frame F, movable horizontally in the carriage at right angles to the direction in which the carriage is movable in the stationary frame. Suitable mechanism is provided for adjusting the carriage, for instance, as shown, a screw 31 journaled in the part B of the frame and engaging a nut in the carriage. A scale or graduation 32 is arranged on the frame B and a pointer 33 on the carriage for determining the position of the latter.

The carrying frame F is adjusted on the carriage by any suitable means, for instance, as shown, by two screws 34 journaled in the carriage and engaging nuts 35 on the carrying frame, and a hand-actuated shaft 36 which is geared with said screws by bevel wheels 37. The carriage is provided with a scale or graduation 38 and the carrying frame with a pointer 39 by which the position of this frame in the carriage can be ascertained.

The carrying frame F carries a pendent frame G which is so attached to the frame F that it is movable toward and from the same, and movable toward and from the plate or stone D upon which the impression is to be made. As shown, the attaching devices comprise two pairs of standards 40 41, formed on the holding frame G, the standard 40 of each pair having on its inner side a vertical gear rack 42 with which engages a gear wheel 43 secured to a horizontal shaft 44 journaled in the carrying frame F. By turning these gear wheels simultaneously the holding frame is raised or lowered. The shafts of these wheels are provided on the outer sides of the carrying frame with hand wheels 45, and ratchet wheels 46 and pawls 47 are provided on the carrying frame for engaging the ratchet wheels and holding the holding frame G in the raised position when it is desired to expose the underlying surface of the plate or stone.

The holding frame contains a frame H to which the film I is secured. The film frame H is detachably secured to the holding frame, preferably in such manner that the film frame can be swung up in the holding frame to expose the film and can also be removed from the holding frame. For that purpose the film frame is provided with hinge lugs 50, each arranged between a pair of lugs 51 52 on the holding frame, and the inner lug 51 of each pair is provided with a retractable hinge pin 53 which normally projects into the lug 50 of the holding frame, as shown in Figs. 5 and 6. In this position of the parts the film frame H can be swung on its hinges. By withdrawing the hinge pins from the lugs of the film frame H the latter is detached from the holding frame G and can be lifted from the latter. When it is desired to examine

the impression on the plate or stone, or the film, or to ink the film, it is sufficient to swing the film frame up on its hinges, but when it is desired to change the film it is more convenient to remove the film frame from the holding frame.

The two hinge pins are preferably operated simultaneously by suitable mechanism, for instance, as shown, by rods 54 connecting the two pins with an intermediate hand wheel 55 which is journaled in the holding frame G. The hinge pins are preferably held in engagement with the lugs of the film frame by a spring 56 applied to said wheel and the releasing movement of said wheel may be arrested by a stop 57.

The carrying frame F carries in addition to the described parts by which the film is supported a suitable mechanism by which pressure is applied to the film after the latter has been adjusted to stand exactly over that part of the plate or stone upon which the impression is to be made. This pressure mechanism is preferably constructed as follows:

60 represents a cross head which is hinged at one side to the carrying frame F by hinges 61 and detachably secured at the opposite side to said frame by any suitable fastening devices, for instance, locking pins 62 passing through lugs 63 on the cross head and lugs 64 on the frame. 63 represents the pressure platen which is operated by a hand screw 66 working in the cross head and serves to press the film against the plate or stone. This platen is preferably guided by rods 67 which slide in openings in the cross head. When the latter is locked to the holding frame, as shown in full lines in Figs. 2 and 4, the platen stands over the film and can be operated by the screw to press the film, which is flexible, against the plate or stone. When it is desired to examine the impression so produced, or to ink the film, the platen is swung on its hinges away from the film, as shown in dotted lines in Fig. 2, and the film frame is swung up on its hinges, as described.

The film may be of any suitable construction and material and may be produced in any suitable manner. It is attached to the film frame and by means of the latter to the holding frame and after having been inked and adjusted to the desired position with reference to the plate or stone an impression is made upon the latter in the desired position. The film is then adjusted to stand successively over the different portions of the plate or stone upon which similar impressions are to be made and these portions are noted by reference to the scales provided on the stationary frame and the carriage. When the plate or stone has been so provided with the desired number of impressions it is removed from the bed and another plate or stone for

the next color is secured to the same. The film for this color is now substituted for the film previously used and the plate or stone is provided with impressions from this film in exactly the positions in which the impressions for the first color were produced upon the first plate or stone, which can be readily done by adjusting the film to the several positions by reference to the scales provided on the carriage and the stationary frame. Corresponding impressions produced on successive stones or plates in this manner will register correctly.

If it is desired to provide the plate or stone with a plurality of printing surfaces which differ from each other, the operation is carried on in the same way but different films are applied to the holding frame for each impression. The prints on the same plate or stone are different from each other in this case but the corresponding prints on the several plates or stones are alike and in correct register. Where the same film is required to be applied and removed a number of times it is advisable to have a separate film frame H for each film, so that the film is not required to be detached from its frame.

After the impressions have been so made upon the plates or stones they are fixed upon the plates or stones by any of the well known methods of etching employed for that purpose.

I claim as my invention:

1. In an apparatus for producing prints upon flat plates or stones, the combination of a stationary frame having a support upon which the plate or stone is held stationary during the printing operation, a carriage which is adjustable in said frame over the surface of the plate or stone in one direction, a carrying frame which is adjustable on said carriage over the surface of the plate or stone at right angles to said direction, means for separately adjusting said carriage and said carrying frame and holding each in its adjusted position, a film support connected with said carrying frame, and a pressure platen movable toward and from said film support and adapted to exert pressure upon the film, substantially as set forth.

2. In an apparatus for producing prints upon flat plates or stones, the combination of a stationary frame having a support upon which the plate or stone is held stationary during the printing operation, a carriage which is adjustable in said frame over the surface of the plate or stone in one direction, a carrying frame which is adjustable on said carriage over the surface of the plate or stone at right angles to said direction, means for separately adjusting said carriage and said carrying frame and holding each in its adjusted position, a holding frame for a film

support movably attached to said carrying frame, and a pressure mechanism mounted on said carrying frame, substantially as set forth.

3. An apparatus for producing prints upon plates or stones, comprising a carrying frame which is adjustable over the surface of the plate or stone, a holding frame which is attached to said carrying frame, a film frame secured to said holding frame, and a pressure mechanism mounted on said carrying frame, substantially as set forth.

4. In an apparatus for producing prints upon plates or stones, the combination of a carrying frame, a holding frame which is attached to said carrying frame and movable toward and from the same, a pressure mechanism mounted on said carrying frame, and a film frame which is hinged to said holding frame, substantially as set forth.

5. In an apparatus for producing prints upon plates or stones, the combination of a carrying frame, a holding frame which is attached to said carrying frame and movable toward and from the same, a film frame which is hinged to said holding frame, and means for simultaneously withdrawing the hinge pins to disconnect the film frame from the holding frame, substantially as set forth.

6. In an apparatus for producing prints upon plates or stones, the combination of a carrying frame, a holding frame which is attached to said carrying frame and movable toward and from the same, a pressure mechanism mounted on said carrying frame, a film frame which is hinged to said holding frame, and means for simultaneously withdrawing the hinge pins to disconnect the film frame from the holding frame, substantially as set forth.

7. An apparatus for producing prints upon plates or stones, comprising a carrying frame, a film frame, means for connecting said frames, and a pressure mechanism which is hinged to the carrying frame, substantially as set forth.

8. An apparatus for producing prints upon plates or stones, comprising a carrying frame, a holding frame, means for connecting said frames, a film frame hinged to said holding frame, and a pressure mechanism hinged to said carrying frame, substantially as set forth.

9. An apparatus for producing prints upon plates or stones, comprising a carrying frame, a holding frame attached thereto and movable toward and from the same, a film frame removably attached to said holding frame, and a pressure mechanism hinged to said carrying frame, substantially as set forth.

10. An apparatus for producing prints upon plates or stones, comprising a stationary frame having a support for the plate or

stone, a carriage adjustable in said frame
over the surface of the plate or stone, a carry-
ing frame adjustable in said carriage, a hold-
ing frame depending from said carrying
5 frame and provided with means for support-
ing a film, and a pressure mechanism mounted
on said carrying frame and adapted to press
the film against the plate or stone, substan-
tially as set forth.

10 11. An apparatus for producing prints
upon plates or stones, comprising a station-
ary frame having a movable bed for support-

ing the plate or stone, a carriage adjustably
mounted on said frame and having means
for supporting a film, and a pressure device 15
mounted on said carriage for pressing the
film against the plate or stone, substantially
as set forth.

Witness my hand in the presence of two
subscribing witnesses.

WILLIAM C. HUEBNER.

Witnesses:

EDWARD WILHELM
C. B. HORNBECK.