

N. H. BROWN.
BLUE PRINTING MACHINE.
APPLICATION FILED OCT. 13, 1909.

962,741.

Patented June 28, 1910.

Fig. 1.

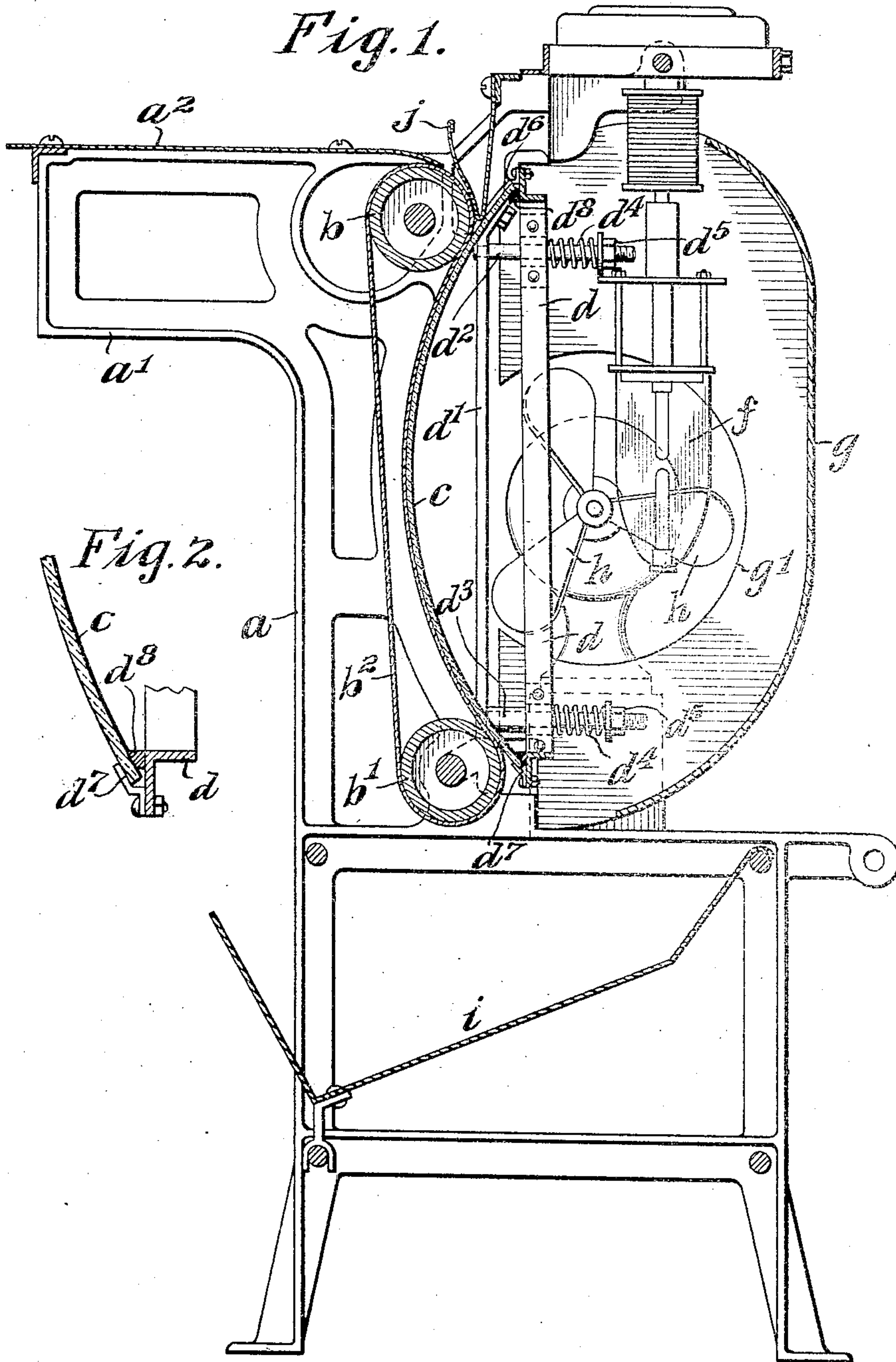
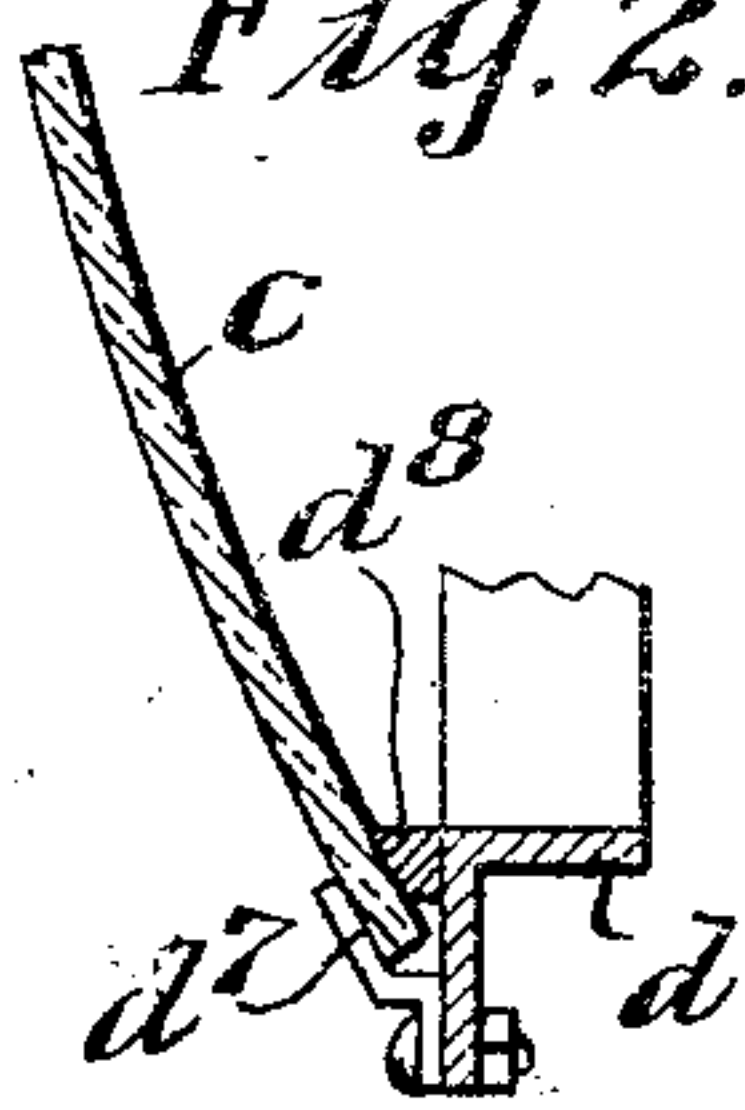


Fig. 2.



WITNESSES

Thomas M. Smith
Daniel Webster, Jr.

BY

INVENTOR
Nathaniel H. Brown,
BY *J. Walter Douglas*
ATTORNEY

UNITED STATES PATENT OFFICE.

NATHANIEL H. BROWN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HENRY S. WILLIAMS, OF PHILADELPHIA, PENNSYLVANIA, NATHANIEL H. BROWN, OF NORRISTOWN, PENNSYLVANIA, AND MORRIS EARLE, OF PHILADELPHIA, PENNSYLVANIA, TRADING AS THE FIRM OF WILLIAMS, BROWN AND EARLE, OF PHILADELPHIA, PENNSYLVANIA.

BLUE-PRINTING MACHINE.

962,741

Specification of Letters Patent. Patented June 28, 1910.

Application filed October 13, 1902. Serial No. 522,371.

To all whom it may concern:

Be it known that I, NATHANIEL H. BROWN, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Blue-Printing Machines, of which the following is a specification.

My present invention relates to improvements in blue printing machines patented to me February 17th, 1903 and November 17th, 1903, and numbered 721,011 and 744,039 and of a pending application for a patent Serial No. 373,616, filed by me under date of May 14th, 1907.

In the present instance, the improvements in a blue printing machine reside first, in the manner of mounting a transparent bed of annealed or non-annealed glass in such a machine; second, in the manner of compensating for inequalities in matter passing between the bed and an endless conveyer carrying the blue-printing paper and objective or drawing to be copied; third, in the manner of preventing breakage of the glass by intensity of the heat to which exposed in use, from a series of arc lights in which presence the sensitive paper to receive the object or drawing quickly thereon is exposed, and while traveling in rear of the bed carried by said conveyer; fourth, in the manner of feeding regularly and evenly the paper with the objective or drawing thereon into the presence of the intense light emitting bodies and which also serves to guard or protect the eyes of the operator against the influence of such light emitting bodies; fifth, in the manner of automatically shifting back and forth the bed in the cradle or supporting frame therefor and; sixth, in the manner of cushioning the bed against contact with metal in the shiftings calculated to affect the glass bed and thus to prevent possible breakage of the glass bed due to difference in temperature of the bed with respect to that of the supporting means therefor, in shiftings changing momentarily the temperature of the bed with respect to its supporting frame, and thus if not provided for, subjecting the bed unduly to breakage.

My invention for a blue printing machine,

will be more fully understood from the accompanying drawings taken in connection with the following description, in which,

Figure 1, is a vertical central section through a blue printing machine embodying the said defined features of my invention; and Fig. 2, is a sectional detail view of the manner of mounting the glass bed in its cradle or supporting frame, showing the leather, rubber or similar insulating gasket against which it engages in said frame.

Referring to the drawing *a*, is one of the two end standards and *a*¹, the end supporting longitudinal frames for the feed-table *a*², of the machine.

b, *b*¹, are carrier rolls for an endless conveyer *b*², of duck or other flexible material and which rolls are journaled to the end standards *a*, the rolls being driven by a mechanism, not shown, but may be of the type set forth in my said pending application Serial No. 373,616, of May 14th, 1907, hereinbefore mentioned.

c, is a transparent annealed or non-annealed glass bed, supported in upright operative position in a cradle or skeleton frame *d*, and so arranged as to provide a convex-shaped contact surface to the travel of blue printing or other sensitized paper with an object or drawing thereon, to be copied thereby, between the traveling conveyer *b*², and bed *c*. The cradle or frame *d*, for supporting the bed, is held in a vertical position by means of end vertical rods *d*¹; which are bolted to the respective standards *a*; and these rods are each provided with extension bars *d*², *d*³, at the upper and lower portions of the said rods. These bars extend through bearings of the frame or cradle *d*, on which beyond the said frame are mounted coiled springs *d*⁴, and each bar being threaded for a portion of the length of the same to receive a jam-nut *d*⁵, to increase the spring tension of the said frame against said bed, as may be required. The upper and lower extremity portions of the glass bed *c*, fits into pockets or recesses *d*⁶, *d*⁷, and one or both sides of the said recesses or pockets are stripped lengthwise with leather, rubber or other insulating material *d*⁸, as clearly illustrated, in Fig. 2, so as to prevent the glass

bed coming in contact with the metal portions of the cradle or frame d , and thus to reduce possible breakage or cracking of the glass-bed to a minimum. It has been found that when a glass-bed is exposed to the intensity of a series of electric arc lights f , confined within a hood g , as illustrated in Fig. 1, if the bed is in contact with metal, there is a greater tendency to crack the glass of the bed, than if the bed is arranged as shown in Figs. 1 and 2, so as to bear against a leather, rubber or other insulating material in the form of strips arranged between the metal frame and the bed. Moreover, it has been found in extended practice of the said machine, that the bed c , must be so arranged as to yield in its supporting frame d , so as to compensate for inequalities between the fed sensitized paper carrying the object or drawing to be copied and the bed c , to insure avoidance of cracking of the same. The tensioning spring controlled bars d^2 , d^3 , are provided therefor, and they practically have been found to avoid such breakage. In one end of the hood g , is provided an opening g^1 , about which opening is mounted a fan or similar air cooling means h , for maintaining while the machine is in operation, the chambered compartment formed between the bed c and hood g , within which is arranged the series of electric arc lights f , uniformly cool or at a substantially uniform temperature throughout, in order that over-heating of the bed with its attending dangers of cracking or breaking the glass thereof, may be absolutely avoided. In the lower portion of the machine beneath the bed c , and conveyer b^2 , is located a trough i to receive the printed paper, tracing or object carried on the said paper and object copied thereby.

j , is a combined irregular V-shaped feed device and operative shield secured to the end standards of the machine as clearly shown in Fig. 1, and so arranged as to permit of regulated feeding without crimping or creasing the paper and object or drawing to be printed or copied upon the paper, in its travel from the table a^2 , to and between the endless conveyer b^2 and bed c ; and in a downward direction therefrom, when printed, into the receiving trough i , for being removed, and the printed paper then washed and dried, for subsequent use.

Having thus described the nature and objects of my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a machine of the character described, a bed, a cradle therefor, an endless conveyer located on one side of the bed and in contact therewith, means to support the bed in the cradle and the latter having spring controlled means yieldingly supporting the bed against pressure exerted thereon by said conveyer.

2. In a machine of the character described, a glass bed, a cradle for receiving the bed and having insulating means in which certain portions of the bed engage and said cradle having means yieldingly supporting the bed against pressure exerted thereon.

3. In a machine of the character described, a glass bed, an endless conveyer in rear of said bed and normally contacting therewith, a cradle provided with pockets to receive and support the bed and having insulating material mounted in said pockets against which the bed engages, said cradle being provided with spring controlled means to tension the bed in said cradle.

4. In a machine of the character described, a bed, a cradle for receiving and supporting the same and having tensioning means for cushioning said bed, a conveyer normally contacting with said bed and a feeding device and shield or guard located at one end of said bed and conveyer.

5. In a machine of the character described, a bed, a cradle therefor, an endless conveyer located in rear of said bed and normally bearing against the same, means connected with said cradle to support the bed in said cradle, said means having spring controlled means yieldingly supporting said bed against the pressure of an object passing between said conveyer and bed, a feeding device and shield located at one end of said conveyer and bed and a lighting means arranged in front of said bed.

6. In a machine of the character described, a bed, a cradle therefor, an endless conveyer located in rear of said bed and normally bearing against the same, means connected with said cradle to support the bed in said cradle, said means having spring controlled means yieldingly supporting said bed against pressure of an object or article passing between said conveyer and bed, a feeding device and shield or guard located at one end of said conveyer and bed, an inclosed lighting means arranged in front of said bed, whereof one portion is provided with an opening in which a ventilating device is mounted and means for actuating the same.

7. In a machine of the character described, an endless conveyer, a convex-shaped bed located in front of said conveyer and arranged to contact therewith, a skeleton frame for said bed having insulated pockets and spring tensioning means for said bed yielding to pressure of matter passing between said conveyer and bed, a light emitting body arranged in front of said bed, a hood inclosing the same and a feeding device located at one end of said conveyer and bed to shield an operator in feeding matter to be printed.

8. In a machine of the character de-

scribed, a bed, a cradle having means to support the ends of said bed in an operative position, means yieldingly supporting the bed against pressure from the rear by a
5 passing article, a light-emitting body arranged in front of said bed, a hood inclosing said body and having an opening wherein a ventilating device is arranged and actuating-means therefor, to maintain the tem-

perature within the hood, substantially uniform.

In witness whereof, I have hereunto set my signature in the presence of two subscribing witnesses.

NATHANIEL H. BROWN.

Witnesses:

THOMAS M. SMITH,

ELISABETH A. SHELDRAKE.