C. H. ZEMKE.

DEVICE FOR APPLYING PRINTED MATTER TO EDGES OF BOOKS AND THE LIKE.

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1,322,667. Patented Nov. 25, 1919.

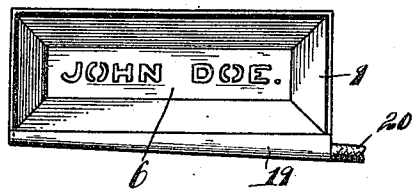


Fig. 2.

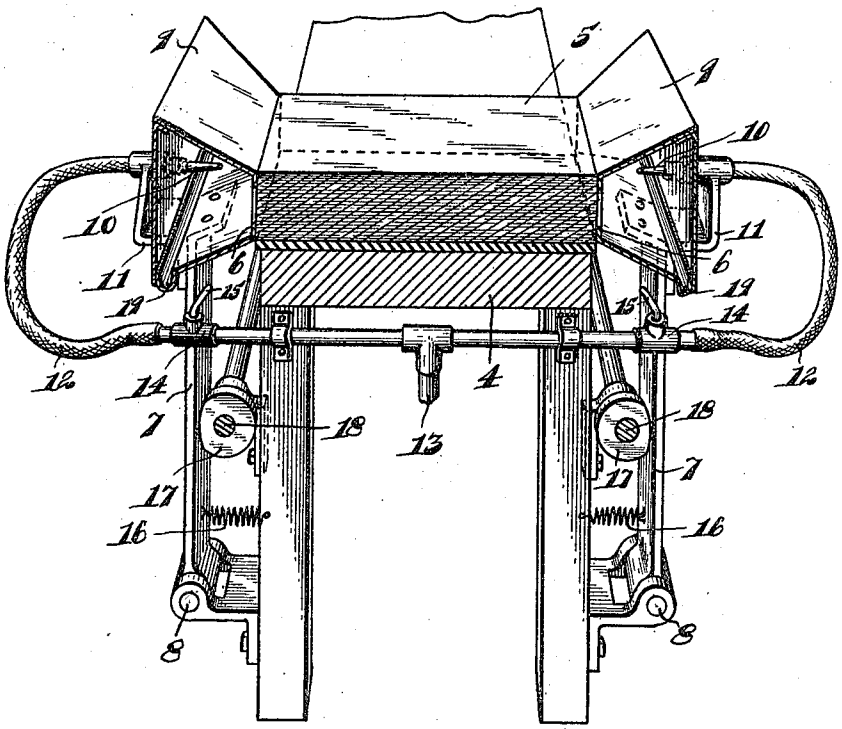


Fig. 1.

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UNITED STATES PATENT OFFICE.

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DEVICE FOR APPLYING PRINTED MATTER TO EDGES OF BOOKS AND THE LIKE.

1,322,667. Specification of Letters Patent. Patented Nov. 25, 1919.

Application filed March 19, 1918. Serial No. 223,343.

To all whom it may concern:

Be it known that I, CHARLES H. ZEMKE, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Devices for Applying Printed Matter to Edges of Books and the Like, of which the following is a specification.

My invention relates to improvements in devices and processes for applying printed matter to the edges of books and the like.

The application of printed matter to the edges of books and the like is effected, at the present time, by means of stamps or other impression devices, which are pressed against the edges of the books. The edges of the book however, are not smooth and even, the same being grooved or channeled due to the non-alinement, no matter how slight, of the leaves comprising the book; and for this reason it has been found that where printed matter is applied to the edges of the book through an impression element, only the high spots or lines on the surface engaged receive the ink or pigment, with the result that a pale or indistinct imprint is produced.

It is the object of this invention to provide a means and process for applying printed matter to the edges of books and the like which, notwithstanding the uneven or irregular character of the surface acted upon, as above mentioned, will at all times produce clear and distinct letters or characters upon the surface engaged. A further object is the production of a device of the character mentioned, which will be of durable and economical construction and highly efficient in use.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1, is a sectional perspective view of a device embodying the invention, and,

Fig. 2, a front elevation of one of the stencils of the device detached.

The form of the invention illustrated in the drawings is shown applied to the discharge conveyer of a conventional book gathering and trimming machine, the same comprising a table or platform 4 along which the books 5 or other articles to be acted upon are moved in the operation of the machine.

The mechanism forming the subject matter of this invention comprises a pair of stencils 6, which are arranged at opposite sides of the conveyer platform 4, said stencils being carried by swingingly mounted arms 7 which are fulcrumed at 8. The arrangement is such that said stencils are adapted to move toward and from the opposite sides of the conveyer platform in order to engage with the opposite edges of a book positioned thereon, as seen in Fig. 1 of the drawings.

The outer side of each stencil is inclosed in a hood 9, into which projects a spraying device 10 held in fixed relation with the stencil by means of a rigid supporting bracket 11. The ink or other pigment employed, is fed to the spraying devices 10 by means of flexible pipes or hose 12 which communicate with a common supply pipe 13 leading to any suitable source of ink or pigment supply under pressure. Discharge from the spraying devices 10 is controlled by normally closed valves 14 having oscillatory operating handles 15 which are positioned in the paths of movement of the arms 7. The arrangement is such that the valves 15 will be closed, and hence discharge from the spraying devices 10 prevented, except when the stencils 6 are in operative relation with the edges of the book acted upon, the valve handles 15 being so arranged that as the arms 7 swing to operative position, carrying the stencils into engagement with the opposite edges of the book, said handles will be rocked to open position. As said arms 7 move outwardly carrying the stencils away from the edges of the book, handles 15 will automatically swing to closed position.

The arms 7 and hence the stencils 6 are normally held in operative position by means of helical tension springs 16 which engage with said arms, as clearly seen in Fig. 1. Intermittent movement of the stencils toward and from the opposite sides of the conveyer platform in order to effect successive engagement thereof with the books traveling along said platform, is effected by means of cams 17 carried by rotary shafts 18, which will be suitably driven.

With the construction set forth, it will be seen that in operation, as each book reaches

a certain point in its travel along the platform 4, the stencils 6 will automatically engage with opposite edges thereof and the valves 15 will be simultaneously opened, causing the discharge of the ink or liquid pigment toward said stencils, with the result that the desired printed matter which has previously been formed in the stencils, will be applied to the opposite edges of the book. The operation will be practically instantaneous, the stencils, after the stenciling operation, as described, being moved outwardly by the cams 17. Each of the successive books will be thus engaged, the timing of the operations of the various parts being such as to effect this purpose.

The force of the spray of ink or pigment directed against the edges of the books through the openings in the stencils, will insure the complete covering of the portions of the edges exposed or registering with the openings in the stencils, notwithstanding irregularities in said surfaces such as may be due to non-alinement of the leaves of a book, and the work produced will be distinct and clear-cut.

At the bottom of each hood 9 is provided a drain trough 19, into which the ink or liquid pigment not applied to the edges of the book engaged will flow and be drained back through a suitable pipe or other passage 20 to the source of ink or pigment supply.

The production of a pair of stencils engaging with opposite edges of the book is of special advantage in that with this arrangement each stencil serves as a brace for the book against the pressure of the other stencil, the book being held securely between the two stencils which engage simultaneously therewith. Although but a single hook is shown in the drawing and the stencils are designed to engage with only one book at a time, it is apparent that the stencils may be increased in width or height to form a multiplicity of stencils in order to coöperate with a plurality of books piled one upon the other, such as is frequently the case where the books handled in a machine of the character under consideration are comparatively narrow.

While I have illustrated and described the preferred form of construction and process for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. The combination with a book conveyer, of a stencil movable into and out of operative relation with a book on said conveyer; and a spraying element mounted in fixed relation with said stencil and moving therewith, substantially as described.

2. The combination with a book conveyer, of a stencil movable into and out of operative relation with a book on said conveyer; a spraying element mounted in fixed relation with said stencil and moving therewith; and means operable through the movements of said stencil for automatically controlling the discharge from said spraying element, substantially as described.

3. The combination with a book conveyer, of two stencils arranged on opposite sides of said conveyer and movable simultaneously into and out of operative relation with a book on said conveyer; and a spraying element mounted in fixed relation with each of said stencils and moving therewith, substantially as described.

4. The combination with a book conveyer, of two stencils arranged on opposite sides of said conveyer and movable simultaneously into and out of operative relation with a book on said conveyer; a spraying element mounted in fixed relation with each of said stencils and moving therewith; and means operable through the movements of said stencils for automatically controlling the discharge from the corresponding spraying elements, substantially as described.

5. In a device of the class described, the combination of a stencil adapted for application to the edge of a book; a spraying element arranged in fixed relation with the outer side of said stencil; and automatically operated means for controlling the discharge from said spraying element, substantially as described.

6. In a device of the class described, the combination of a stencil adapted for application to the edge of a book; a spraying element arranged in fixed relation with the outer side of said stencil; and automatically operated means for controlling the discharge from said spraying element, whereby discharge from said spraying element will take place only when said stencil is in operative relation with the book, substantially as described.

7. The combination with a book conveyer, of a stencil movable into and out of operative relation with a book on said conveyer; a spraying element mounted in fixed relation with said stencil and moving therewith; and a flexible hose connection for supplying material to said spraying element, substantially as described.

8. The combination with a book conveyer, of a stencil movable into and out of operative relation with a book on said conveyer; a spraying element mounted in fixed relation with said stencil and moving

therewith; a flexible hose connection for supplying material to said spraying element; and means, operable through the movements of said stencil, for automatically controlling the discharge from said spraying element, substantially as described.

9. The combination with a book conveyer, of two stencils arranged on opposite sides thereof and simultaneously movable into and out of operative relation with a book on said conveyer; a spraying element mounted in fixed relation with each of said stencils and moving therewith; a flexible hose connection for supplying material to each of said spraying elements; and means, operable through the movements of each of said stencils, for automatically controlling the discharge from the corresponding spraying element, substantially as described.

10. In a device of the class described, the combination with a conveyer for the articles to be acted upon, of a movably supported stencil arranged adjacent said conveyer; means for intermittently moving said stencil to effect successive engagement thereof with the articles carried by said conveyer; a spraying element arranged in coöperative relation with said stencil; and automatically operated means for controlling the discharge from said spraying element, whereby discharge from said spraying element will take place only when said stencil is in operative relation with the article acted upon, substantially as described.

11. The combination with a book conveyer, of outwardly and inwardly swinging arms mounted on opposite sides of said conveyer; a hood at the upper end of each of said arms; a stencil at the inner side of each of said hoods arranged to come into contact with the corresponding edge of a book on said conveyer; a spraying element in each hood directed toward the corresponding stencil; and a flexible hose connection with each spraying element for supplying material thereto, substantially as described.

12. The combination with a book conveyer, of outwardly and inwardly swinging arms mounted on opposite sides of said conveyer; a hood at the upper end of each of said arms; a stencil at the inner side of each of said hoods arranged to come into contact with the corresponding edge of a book on said conveyer; a spraying element in each hood directed toward the corresponding stencil; a flexible hose connection with each spraying element for supplying material thereto; a valve controlling the passage of material to each of said flexible hose connections; and means, operable by the swinging of said arms, for operating said valves, substantially as described.

13. The combination with a book conveyer, of outwardly and inwardly swinging arms mounted on opposite sides of said conveyer; a hood at the upper end of each of said arms; a stencil at the inner side of each of said hoods arranged to come into contact with the corresponding edge of a book on said conveyer; a spraying element in each hood directed toward the corresponding stencil; a flexible hose connection with each spraying element for supplying material thereto; a valve controlling the passage of material to each of said flexible hose connections; means, operable by the swinging of said arms, for operating said valves; springs connected with said arms and normally holding said stencils in positions to contact with the edges of a book on said conveyer; cam shafts coöperating with said arms; and cams on said shafts contacting with and operating said arms to swing them simultaneously into and out of operative relation with the edges of a book on said conveyer, substantially as described.

14. The combination of a stencil; a hood inclosing one side thereof; and a spraying element entering said hood, substantially as described.

15. The combination of a stencil; a hood inclosing one side thereof; a spraying element entering said hood; and a drain at the lower side of said hood, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. ZEMKE.

Witnesses:
JOSHUA R. H. POTTS,
HELEN F. LILLIS.