No. 895,659. PATENTED AUG. 11, 1908.

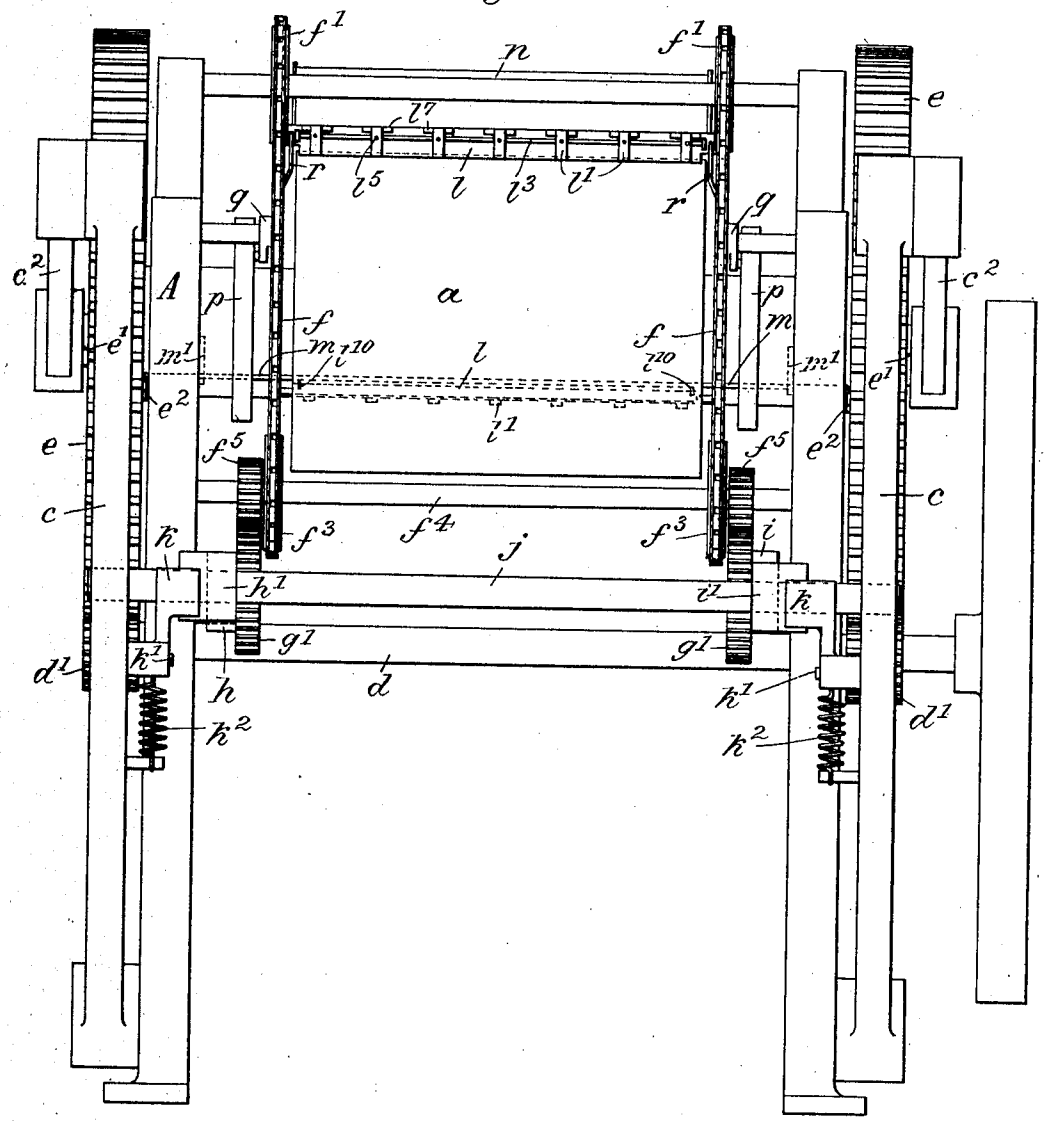
L. E. MORRISON.

PRINTING PRESS.

APPLICATION FILED SEPT. 23, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

Arthur Zimpe.

William Schulz.

Inventor,

Lewis E. Morrison

by Dawson Bros. Att'y.

No. 895,659. PATENTED AUG. 11, 1908.

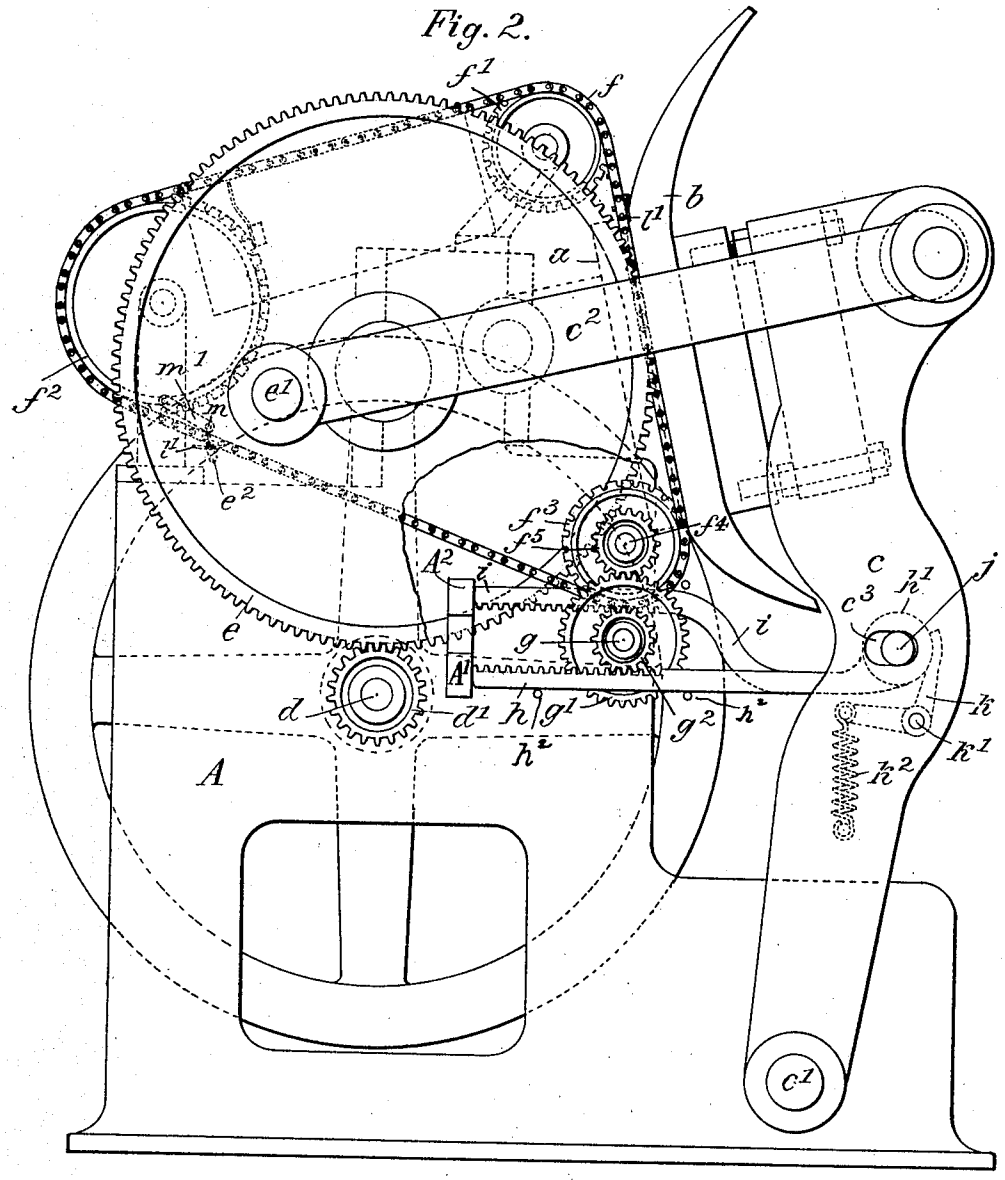
L. E. MORRISON.

PRINTING PRESS.

APPLICATION FILED SEPT. 23, 1905.

3 SHEETS—SHEET 2.

Fig. 2.



Witnesses:
Arthur Jumpe.
William Schulz.

Inventor:
Lewis E. Morrison
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No. 895,659. PATENTED AUG. 11, 1908.

L. E. MORRISON.

PRINTING PRESS.

APPLICATION FILED SEPT. 23, 1905.

3 SHEETS—SHEET 3.

Fig. 3.

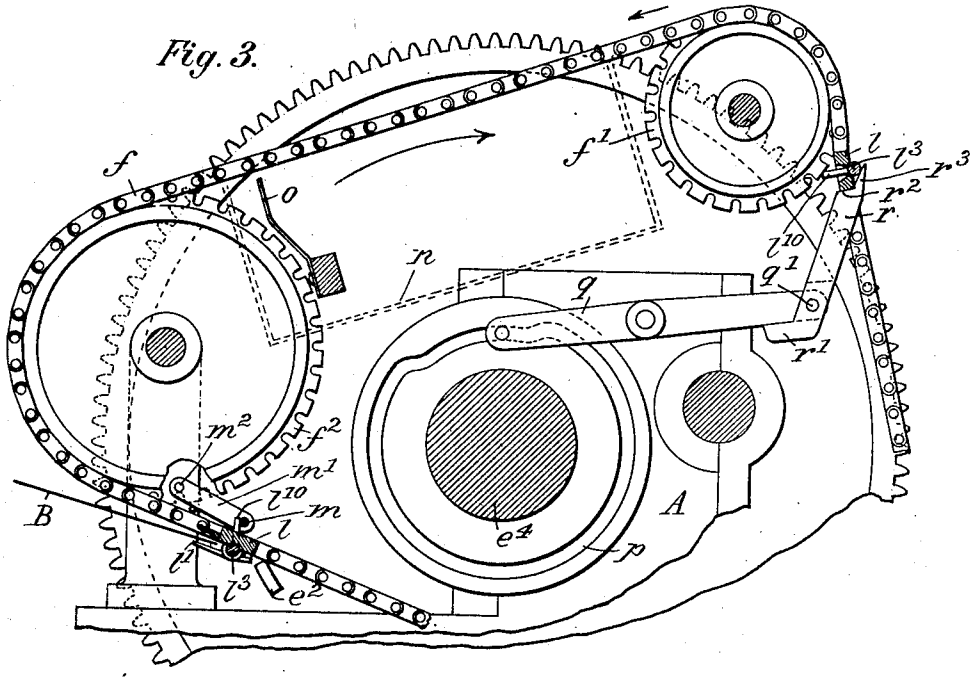


Fig. 6.

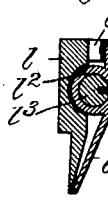


Fig. 5.

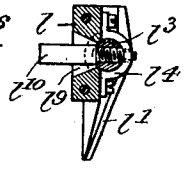


Fig. 4.

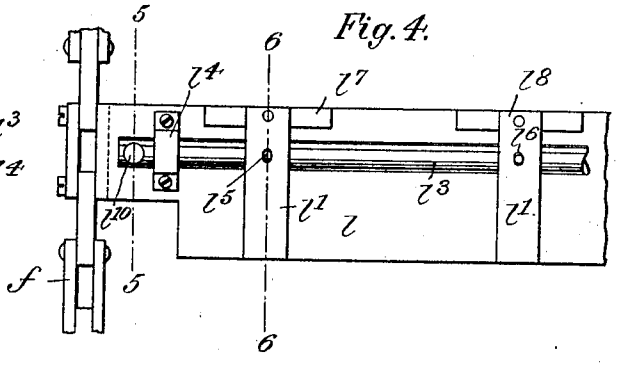


Fig. 7.

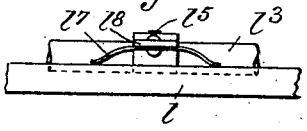


Fig. 8.

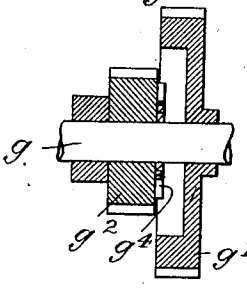


Fig. 9.

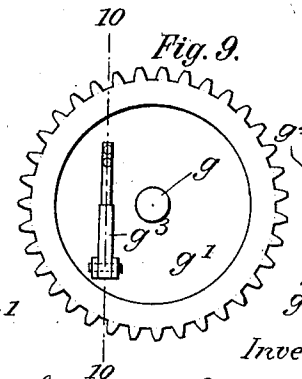
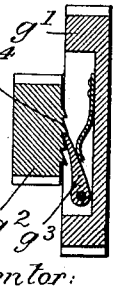


Fig. 10.



Witnesses:
Arthur Jumpe.
William Schulz.

Inventor:
Lewis E. Morrison
by Hauke & Bisser Att'y.

UNITED STATES PATENT OFFICE.

LEWIS E. MORRISON, OF NEWARK, NEW JERSEY, ASSIGNOR TO AUTOMATIC PLATEN PRESS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF ARIZONA TERRITORY.

PRINTING-PRESS.

No. 895,659. Specification of Letters Patent. Patented Aug. 11, 1908.

Application filed September 23, 1905. Serial No. 279,766.

To all whom it may concern:

Be it known that I, LEWIS E. MORRISON, a citizen of the United States, residing at Newark, Essex county, State of New Jersey, have invented new and useful Improvements in Printing-Presses, of which the following is a specification.

This invention relates to an improved platen printing press and more particularly to improved means for automatically conveying the sheet of paper to the platen, holding it there during the printing operation and shortly before and after the same, and for finally conveying the printed sheet to a receiving box or table.

In the accompanying drawings: Figure 1 is a front elevation of a printing press embodying my invention, with some of the parts omitted; Fig. 2 a side elevation, with some of the parts broken away; Fig. 3 a detail side view, partly in section of the conveyer and coöperating parts; Fig. 4 a plan, partly broken away, of the gripper; Fig. 5 a cross section on line 5—5, Fig. 4; Fig. 6 a cross section on line 6—6, Fig. 4; Fig. 7 a rear view of part of the gripper; Figs. 8 and 9 are details of the transmission wheels, and Fig. 10 a cross section on line 10—10, Fig. 9 looking to the left.

The letter A, indicates the frame of a printing press, of which *a*, is the platen; *b*, the form-holder, and *c*, the form-rocker, the latter turning on fulcrum *c'*. Oscillating movement is imparted to form-rocker *c*, from shaft *d*, by pinions *d'*, gear wheels *e*, wristpins *e'*, and draw-bars c^2, all as usual.

In order to feed the sheets B, to be printed upon, between platen and form-holder, I provide a pair of parallel endless chain conveyers *f*, running over sprocket wheels *f'*, f^2, f^3. These wheels are so placed, that each chain has a lower run towards the platen, an upward run in parallelism with the platen, and a top run away from the platen. The spacing of the chains is such, that they flank the platen by their upward runs, (Fig. 1).

Intermittent feed is imparted to the conveyer for the purpose of first carrying the sheet B, to the platen, then holding it in position shortly before, during, and after the printing operation, and finally carrying the printed sheet to the receiving box or table. The means illustrated for obtaining this intermittent movement of the conveyer from the oscillating movement of form-rocker *c*, are as follows: The shaft f^4, of sprocket wheels f^3, carries a pair of fast gear wheels f^5, meshing into gear wheels *g'*, fast on counter-shaft *g*. This counter-shaft also carries a pair of loose pinions g^2. One of the pinions g^2, is engaged at its bottom by a rack *h*, while the other pinion is engaged at its top by a rack *i*. Rack *h*, is held in mesh with its pinion g^2, by means of a pair of transverse supporting pins h^2. The racks *h*, *i*, are located at opposite sides of the press and terminate in eyes *h'*, *i'*, respectively, that embrace a shaft *j*. This shaft is received by elongated slots c^3, of form-rocker *c*.

It will be seen that by the oscillation of form-rocker *c*, and the consequent reciprocating movement of racks *h*, *i*, the pinions g^2, will be simultaneously rotated in opposite directions. To convert this rotatory movement into the desired intermittent movement of shaft f^4, means are provided for alternately coupling pinions g^2, to their respective gear wheels *g'*. These means are shown to consist of a spring-influenced pawl g^3, pivoted to wheel *g'*, and engaging a tooth or ratchet g^4, of pinion g^2. Thus, when form-rocker *c*, advances *i. e.*, moves towards the platen *a*, the pinion g^2, engaged by rack *h*, is coupled to its gear wheel *g'*, while pinion g^2, engaged by rack *i*, is loose. The reverse is the case, when the form-rocker is retracted. It is therefore obvious that the conveyer *f*, will be advanced when the form-rocker advances, as well as when it recedes.

To arrest the conveyer a short time before the printing operation, and to re-start it a similar period after said operation, so as to avoid blurring, I provide a pair of stops A', A^2, adapted to be encountered by racks *h*, and *i*, respectively shortly before form-rockers *c*, reach their foremost position. Against the eyes *h'*, *i'*, bear elbow-levers *k*, fulcrumed at *k'*, to form-rockers *c*, and influenced by springs k^2, which tend to seat shaft *j*, within the forward ends of elongated slots c^3. When the form-rocker advances it will by shaft *j*, rack *h*, and pinion g^2, advance conveyer *f*, until the racks *h*, *i*, encounter stops A', A^2, by which engagement the racks and consequently the conveyer *f*, are arrested.

During the forward movement of the rocker, the shaft *j*, is held within the forward ends of slots c^3, by the springs k^2, which are of a strength sufficient to overcome the power required for advancing the conveyer. After

the racks have been arrested by stops A', A², the forward stroke of form-rockers c, is continued by draw-bars c^2, such further movement being permitted by the elongated form of slots c^3. When the form-rockers recede, the racks h, i, will be held at rest by springs k^2, until the elongated slots c^3, again engage shaft j, with their forward ends. After this engagement has taken place, the shaft j, as well as the racks h, i, will be taken along by the rockers c, so that the conveyer is re-started by rack i, and its pinion g^2.

To the conveyer f, are secured a suitable number of grippers that receive the sheet B, and carry it to the platen, a conveyer with two grippers being shown in the drawing. Each gripper consists of a transverse plate l, connecting the chains f, and of a series of pivoted fingers l'. Of these, the plate l, constitutes the fixed jaw, while the fingers l', constitute the movable jaws of the gripper. The jaws l', have eyes l^2, that surround a spindle l^3, turning in bearings l^4, of plate l. A pin l^5, of spindle l^3, passing through an enlarged opening l^6, of eye l^2, transmits movement from the spindle to jaw l'. A spring l^7, is interposed between plate l, and a tail-piece l^8, of jaw l', and tends to normally close the gripper.

From the spindle l^3, project through a slot l^9, of plate l, a pair of pins l^{10}. These pins are adapted to strike a tripping-bar m, supported by a pair of links m', pivoted to frame A, at m^2. When the pins l^{10}, strike bar m, the jaws l', are opened against the action of springs l^7, to permit the introduction of the sheet B, to be printed. This sheet may be fed to the gripper either by hand or by mechanical means. The machine is so timed that the grippers are opened while the conveyer is at rest, (Fig. 3), to permit the ready introduction of the sheet, and are closed before the conveyer is re-started. For closing the grippers each wheel e, is provided with an abutment e^2, in the path of rod m, which strikes said rod shortly after the introduction of the sheet between the gripper-jaws. In this way the rod m, is raised to liberate pins l^{10}, and permit springs l^7, to close jaws l'. After the sheets have been printed, they are carried by the grippers over a receiving box or table n, when the grippers are opened by the engagement of their pins l^{10}, with a suitable fixed stop o. In this way the printed sheets are released and drop with their printed side upwards into the box n.

It is desirable that all the sheets B, are uniformly carried by the conveyer to the same position upon the platen a, irrespective of any wear or slack of the conveyer chains. For this purpose a restricted positive movement is imparted to the chains additional to the movement imparted to them by the racks. This additional movement will thus set the chains and is obtained from a pair of cams p, fast on shaft e^4, of wheels e. Each cam p, is engaged by one end of a cam lever q, to the other end of which is pivoted at q', a finger r. The lower end of this finger has a stop r', which, by engagement with lever q, limits the outward oscillation of the finger. At its upper end, the finger has a seat r^2, and a tapering projection r^3, back of said seat. When the plate l, strikes the rear edges of the fingers r, it will swing said fingers slightly inwards, so that the plate l, may pass the same. As soon as the gripper has cleared the fingers, the latter will swing outward by gravity, such outward movement being limited by stops r'. The cam p, will now raise finger r, by lever q, to first carry seat r^2, against plate l, and to then raise the plate for a short distance. This movement is imparted to the plate l, after the transmission of movement to the conveyer by rack h, has ceased, and as this additional movement is dependent upon the shape of cam p, it will be positive and will carry the sheets p, always to the same position on platen a. The beveled form of projections r^3, causes the conveyer to be drawn towards the platen, so as to exclude air between platen and paper and produce a superior impression.

It will be seen that by my invention the sheets are conveyed in a positive manner to the platen, where they are held for a predetermined time, necessary for the printing operation, and that they are then delivered to the receiving box with their printed side upwards, whereby blurring is prevented.

What I claim is:

1. A printing press provided with an oscillating form-rocker, a shaft carried thereby and slidable therein, an endless sheet conveyer, and means connected to the shaft for imparting an intermittent movement to said conveyer, substantially as specified.

2. A printing press provided with a form-rocker having an elongated slot, a shaft seated therein, a pair of racks engaging the shaft, a pair of stops adapted to be engaged by the racks, an endless sheet conveyer, and means for operatively connecting the racks to said conveyer, substantially as specified.

Signed by me at New York city, (Manhattan), N. Y., this 22nd day of August, 1905.

LEWIS E. MORRISON.

Witnesses:

JOSEPH T. KAVENAUG.

FRANK V. BRIESEN.