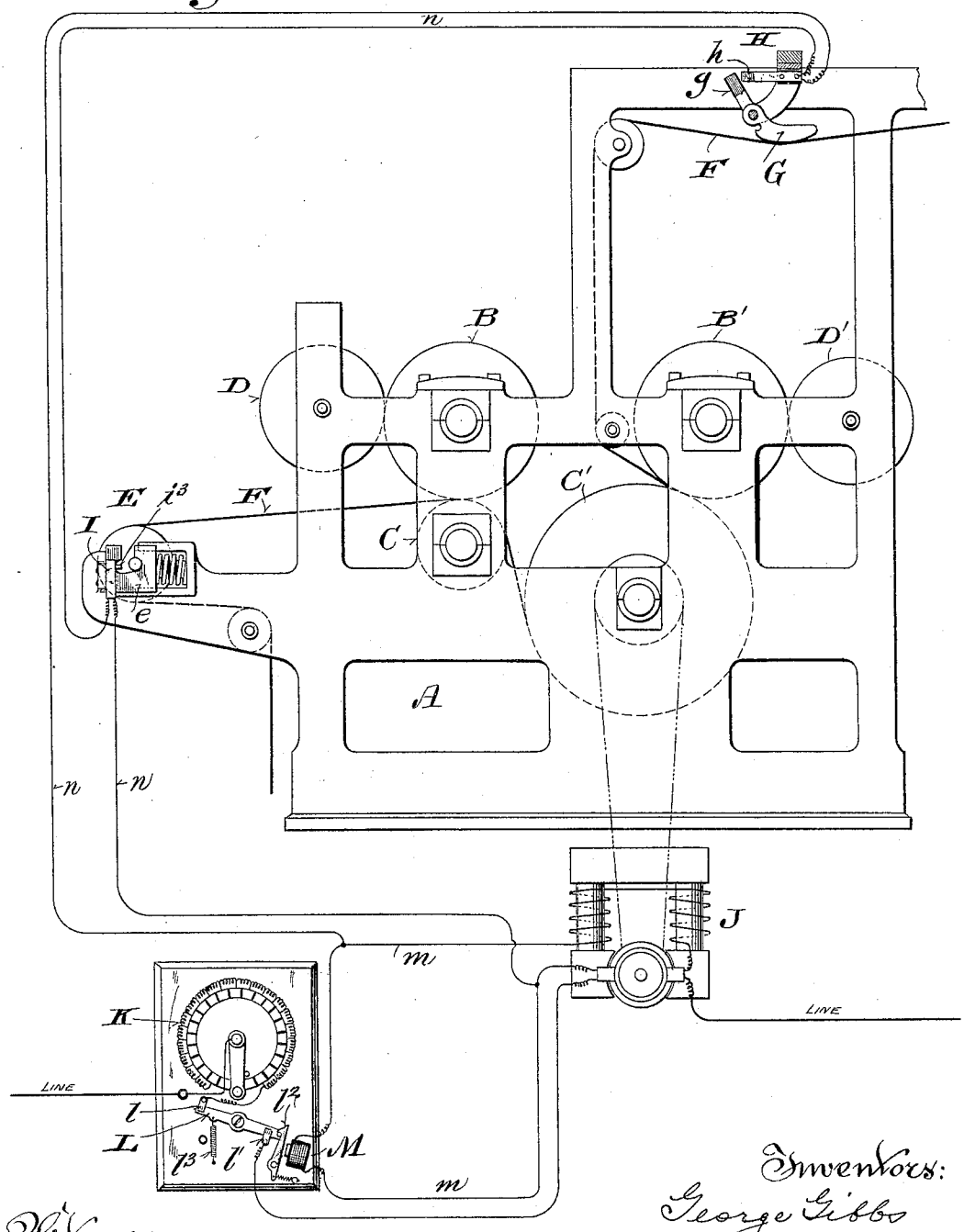
(No Model.) 2 Sheets—Sheet 1.

G. GIBBS & I. STONE.

AUTOMATIC STOP MECHANISM FOR PRINTING PRESSES.

No. 605,478. Patented June 14, 1898.

Fig. 1.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

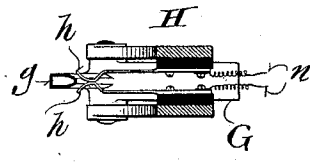


Fig. 3.

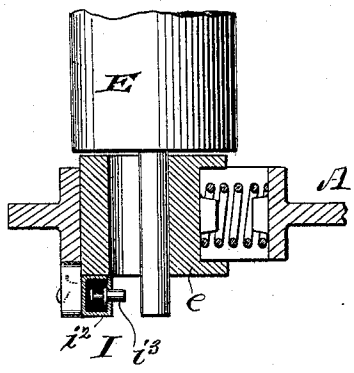


Fig. 4.

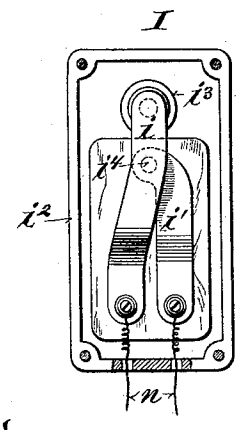
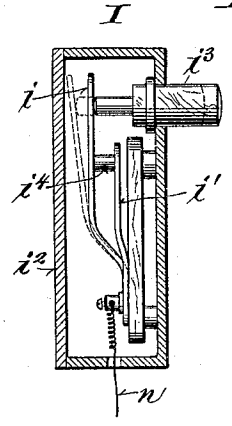


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE GIBBS, OF MILWAUKEE, WISCONSIN, AND IRVING STONE, OF CHICAGO, ILLINOIS, ASSIGNORS TO THE GIBBS ELECTRIC COMPANY, OF MILWAUKEE, WISCONSIN.

AUTOMATIC STOP MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 605,478, dated June 14, 1898.

Application filed June 12, 1897. Serial No. 640,434. (No model.)

To all whom it may concern:

Be it known that we, GEORGE GIBBS, of Milwaukee, in the county of Milwaukee and State of Wisconsin, and IRVING STONE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Stop Mechanism for Printing-Presses or other Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates particularly to that class of printing-presses which are designed to print paper fed thereto in a continuous web, but may be applied to other machines which are constructed and arranged to operate upon material fed thereto in continuous strips or webs. Its main object is to automatically and promptly stop the press or other machine or the motor which drives it whenever the web or strip of paper or other material is severed, torn, or broken.

It consists in certain novel details in the construction and arrangement of the apparatus, as hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a side elevation of a portion of a printing-press to which stop mechanism embodying our invention is applied. Fig. 2 is a detached view, in plan and horizontal section, of one form of circuit-breaker constituting a part of the stop mechanism shown in Fig. 1; and Figs. 3, 4, and 5 are detail views, on an enlarged scale, of another form of circuit-breaker designed for use in connection with the tension-roller of a web-printing press, Fig. 3 being a plan view, on an enlarged scale, of one end of the tension-roller and a horizontal section of the adjacent bearing and of the circuit-breaker; Fig. 4, a front elevation, on a still larger scale, as viewed from the left with reference to Figs. 1 and 3; and Fig. 5 a side elevation as viewed from the right with reference to Fig. 4, the box or casing inclosing the contacts being shown in vertical section.

Referring to Fig. 1, A designates a portion of the frame of a printing-press; B B′, the type or printing cylinders; C C′, the impression-cylinders, and D D′ the ink-rollers.

E is the usual tension-roller over or around which the web of paper F passes to the first printing and impression cylinders B and C. It is supported in the usual way in horizontally-yielding boxes *e*, which have downwardly-inclined elongated bearings for the roller-journals, whereby the weight of the roller is partially sustained by the paper, and the paper is held taut as it passes to the first printing and impression cylinders.

I is a circuit-breaker comprising two spring-contacts $i\,i'$, which are attached to a suitable insulating-base and are inclosed by a case or box i^2, and a push button or pin i^3, which projects through the case into the path of one journal of the tension-roller E, in the lower end of its slotted bearing, as shown in Figs. 1 and 3. Normally the spring i rests in contact with a pin i^4 of the spring i', thus maintaining a closed circuit. When, however, the tension-roller E is released by the breaking or tearing of the paper F, it rolls down its inclined bearings, and its journal, engaging with the push-pin i^3, thrusts the spring i out of contact with the pin i^4, thus breaking the circuit at that point.

J designates an electric motor by which the press is driven.

K is a rheostat or starting box of the usual or any suitable construction for bringing more or less resistance into the motor-circuit in starting the motor and regulating its speed.

L is a switch-arm in the motor-circuit in series with the rheostat. It is held normally closed in engagement with the contacts $l\,l'$ by a detent l^2, and a spring l^3 constantly tends to open it.

M is a magnet, which in the arrangement shown has a winding of high resistance in a shunt m of the main or armature circuit of

the motor. A loop n n, tapping the shunt m on opposite sides of the magnet M and attached to the contact-springs i i' of the circuit-breaker I, normally short-circuits said magnet M.

In addition to or in place of the tension-roller E, with which printing-presses of the class herein referred to are provided, the press or other machine may be furnished with one or more yielding or movable bearing devices constructed and arranged to press upon or against the paper or other material at any desired point or points in its course to, through, or from the machine. We have shown as illustrative of such additional or special bearing devices a shoe G, which is pivoted or hinged to the frame of the machine, so as to ride upon or press against the paper after it leaves the printing and impression cylinders B' and C'. It is provided with an arm g, which is adapted to pass between and momentarily separate the contact-springs h h of a circuit-breaker H whenever said shoe is released by the breaking or tearing of the paper F. The contact-springs h h are connected by the loop or short circuit n in series with the contacts of circuit-breaker I. They are suitably insulated, and that part of the arm g which passes between them is made of or provided with insulating material, as shown in Fig. 2. In place of the shoe G a roller similarly mounted may be employed.

The apparatus as hereinbefore described operates as follows: Whenever the paper F is severed, broken, or torn, so as to release the tension-roller E, the spring i of the circuit-breaker I will be forced by the push-pin i^3 out of contact with the pin i^4, thus breaking the short circuit n and compelling current to pass through the coil of magnet M. Said magnet being thus energized will disengage the detent l^2 from the switch-lever L, which will thereupon be instantly opened by the spring l^3, breaking the main circuit and stopping the motor. Whenever the paper breaks or is torn so as to release the yielding or movable bearing G, the motor will be stopped in like manner, the arm g passing between the springs h of the circuit-breaker H and opening the short circuit n n at that point.

For the purpose of illustration we have shown and explained our improved stop mechanism as applied to a cylinder printing-press in which the paper is fed to the machine in a continuous web; but we do not wish to be understood as limiting ourselves to this particular application of the device, as it may be applied to other machines which are designed to operate upon other material in a continuous strip or web. Neither do we wish to be understood as limiting ourselves to the particular construction or details of the apparatus shown and described, as they may be variously modified within the spirit and intended scope of our invention.

The electrical connections hereinbefore described for opening or releasing the switch may be applied to other kinds of stopping devices for other than electric motors.

We claim—

1. The combination with a machine for operating upon material fed thereto and an electric motor for driving said machine, of a movable device arranged to bear or press against the material upon which the machine operates, a switch in the motor-circuit having a tendency to open, a detent for holding said switch normally closed, a magnet arranged when energized to disengage said detent and having its winding in a shunt of the motor-circuit, and a circuit-breaker normally short-circuiting said shunt around the magnet and arranged to be opened by said movable bearing device whenever the material on which it bears is withdrawn, substantially as and for the purposes set forth.

2. The combination with a yielding paper-guide or tension device of a web-printing press and an electric motor for driving the press, of a switch in the motor-circuit having a constant tendency to open, a detent for holding said switch normally closed, a magnet for disengaging said detent and releasing said switch, having its winding in a shunt of the motor-circuit, a short circuit tapping said shunt on opposite sides of said magnet, and a circuit-breaker in said short circuit arranged to be opened by said tension device or guide whenever it is released by the breaking or tearing of the paper, substantially as and for the purposes set forth.

3. The combination with a machine adapted to operate upon a continuous web or strip of material, and a motor for driving said machine, of a motor-stopping device, a magnet for operating said stopping device, having its winding connected with a source of current, a circuit-controller normally closed and short-circuiting said magnet, and a movable device normally supported by said web or strip and arranged whenever the web or strip is severed or slackened to open said circuit-controller and thus cause the magnet to be energized, substantially as and for the purposes set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

GEORGE GIBBS.
IRVING STONE.

Witnesses:
GEORGE T. BRIGGS,
SAMUEL BRAIN.