

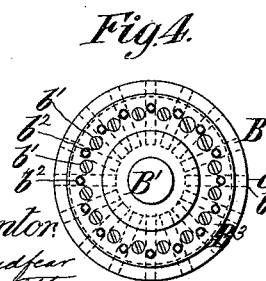
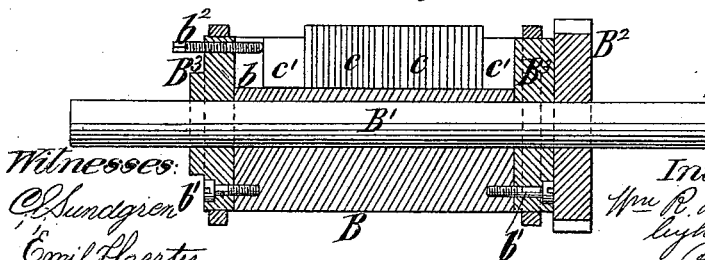
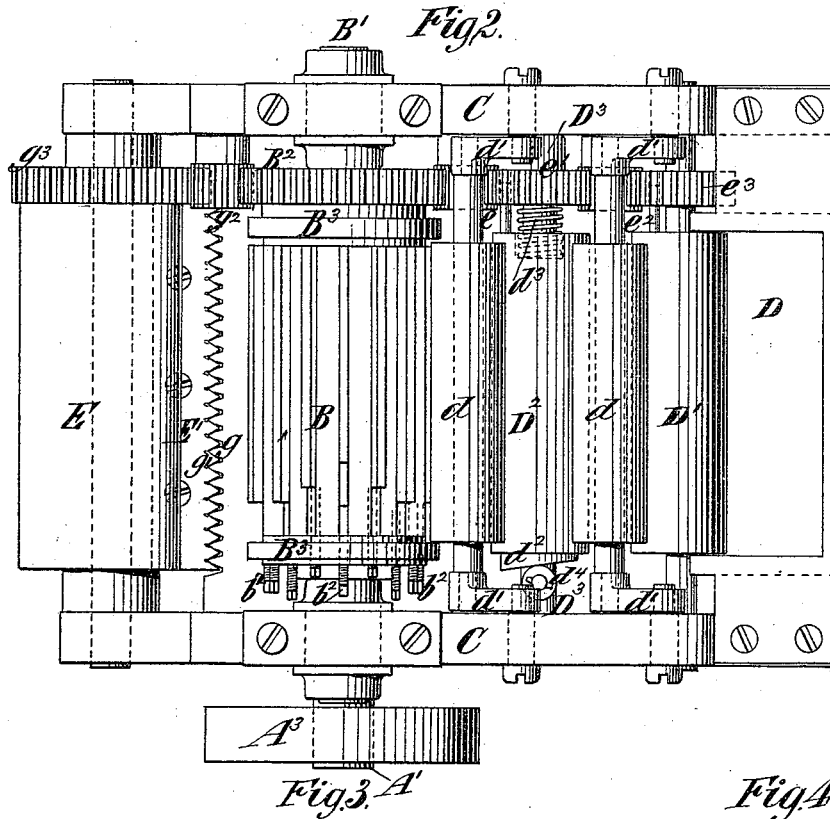
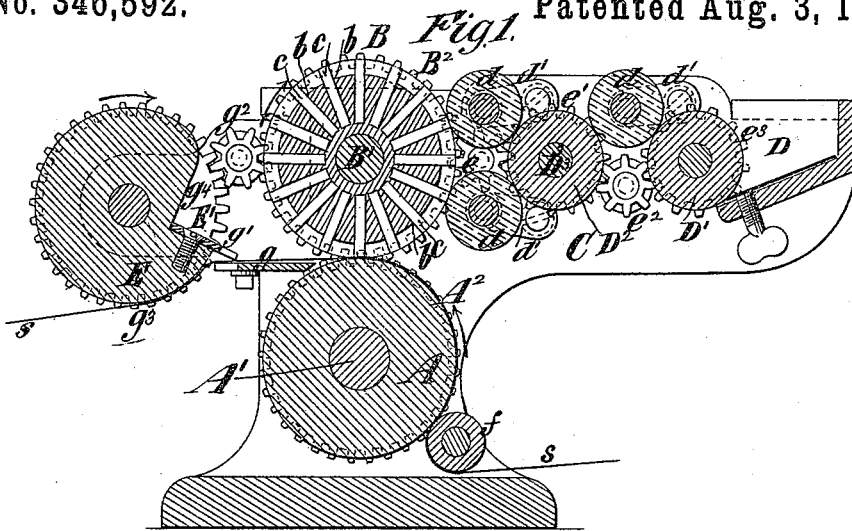
(No Model.)

2 Sheets—Sheet 1.

W. R. LANDFEAR.
ROTARY PRINTING MACHINE.

No. 346,592.

Patented Aug. 3, 1886.



Witnesses:
C. Sundgren
Emil Hertel.

Inventor:
Wm. R. Landfear
by his atty
Brown & Hall

(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

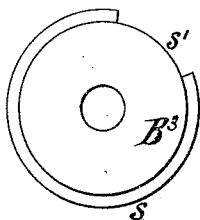


Fig. 6.

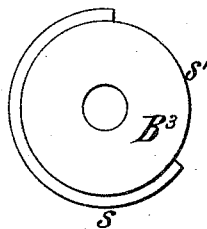


Fig. 7.

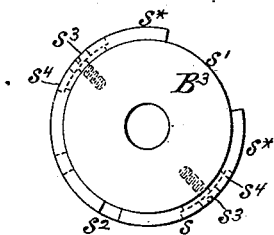
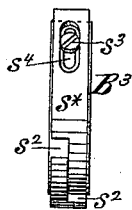


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM R. LANDFEAR, OF BROOKLYN, NEW YORK.

ROTARY PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 346,592, dated August 3, 1886.

Application filed February 4, 1886. Serial No. 190,773. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. LANDFEAR, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Rotary Printing-Machines, of which the following is a specification.

My invention is more particularly intended for that class of rotary printing-machines which are designed to print a small amount of matter at intervals in a continuous web, which is cut up or separated transversely to form separate labels or pieces, each having printed upon it one or more lines of matter.

The invention relates to machines in which are employed an impression-cylinder and a type-cylinder consisting of a body provided with longitudinal grooves or type-seats and heads or disks which are made separate from and secured to the body to close the ends of the grooves, and which are provided with circular bearers acting in conjunction with the impression-cylinder to feed the web of paper.

The invention consists in the combination, with an impression-cylinder, of a type-cylinder provided at the ends with circular bearers, which act in conjunction with the impression-cylinder to feed the web of paper, and which have gaps in their circumference to limit the length of paper fed at each revolution. In the above combination the circular bearers may be adjustable on or removable from the cylinder to vary the length of said gap, and such a construction is also included in my invention, as well as the construction of the bearer with arc-shaped sections which overlap circumferentially and are adjustable circumferentially to vary the gap between them.

The invention also consists in the combination, with an impression-cylinder, of a type-cylinder consisting of a body grooved from end to end to form type-seats, and disks or heads made separate from and secured to the body and provided with circular bearers, which act in conjunction with the impression-cylinder to feed the web of paper, and binding-screws in the disk or head at the end of the grooves for clamping the type in said grooves or seats.

The invention also consists in the novel combination of mechanism for printing a continu-

ous web and cutting labels or portions therefrom after printing, as particularly herein-after described, and pointed out in the claims.

In the accompanying drawings; Figure 1 is a sectional elevation of a machine embodying my invention in a plane transverse to the impression and type cylinders. Fig. 2 is a plan of the machine. Fig. 3 is a longitudinal section of the type-cylinder, showing more clearly its construction and the means employed for retaining the type in place therein. Fig. 4 is an end view of the type-cylinder. Figs. 5, 6, and 7 are end views of type-cylinder heads, having circular bearers with gaps of different lengths, and Fig. 8 is a side or edge view of the bearer shown in Fig. 7.

Similar letters of reference designate corresponding parts in all the figures.

The machine comprises an impression-cylinder, A, which is mounted upon a shaft, A', and a type-cylinder, B, mounted upon a shaft, B'. These shafts are afforded proper bearings in the side frames, C, of the machine, and the two cylinders A B are, as here shown, geared together by spur-wheels A² B², and rotary motion is imparted to them by means of a pulley, A³, upon the shaft A' of the impression-cylinder, as best shown in Fig. 2.

The construction of the type-cylinder which I prefer to employ is best shown in Figs. 3 and 4, but also in Fig. 1. In the cylinder are formed numerous radial grooves or type-seats b, in which are secured types c. The grooving of the cylinder would be a work of considerable difficulty if the grooves did not extend the entire length of the cylindric body, and to cheapen the construction of the cylinder I form it of a cylindric body, as shown in Fig. 3, having at opposite ends heads or disks B³. These heads or disks B³ are made separate from the body of the cylinder, and are or may be secured thereto by screws b'. In one of the heads or disks B³, and opposite the grooves b on the type-cylinder body, are inserted set-screws b'', and by tightening up these screws the type c may be held in proper position within the grooves or type-seats, suitable plugs or filling-pieces, c', being employed to fill such portions of the type-seats as are not occupied by the type, and as shown in Fig. 3.

The machine is organized so as to cut off a piece from the web at each revolution of the type-cylinder, and frequently each piece will only have one or a very few lines of printing upon it, and the greater portion of the circumference of the cylinder will be blank, or will have its type grooves or seats empty.

In order to provide for properly feeding the web when the cylinder has type throughout a small portion of its circumference only, I have provided the heads or disks B³ with circular bearers *s*, for bearing against the surface of the impression-cylinder at the ends thereof, and these bearers will, in connection with the impression-cylinder, feed the web forward. The bearers *s* may be formed integral with the heads B³; but as the bearers will usually have a circumferential gap, in order to limit the length of paper fed forward at each revolution, and as such gap may with advantage be adjustable in length, I have shown the bearers *s* as made separate from and fitted to the heads B³, or, if desired, to the ends of the cylinder B itself.

In Figs. 5 and 6 I have shown the cylinder-head B³ as having bearers *s* with gaps *s'* of different lengths. A number of rings *s*, having gaps *s'* of different lengths, may be provided and interchangeably fitted to the cylinder.

In Figs. 7 and 8 I have shown a bearer composed of sections *s*^{*} *s*^{*}, having their adjacent ends halved together, or one overlapping the other, as shown at *s*^{*}. One or each section is adjustably secured to the cylinder or its head B³ by a screw, *s*¹, passing through a slot, *s*², and the sections may then be adjusted to vary the length of the gap *s'*.

I have here shown an ink-fountain, D, and a fountain-roller, D', employed in connection with a roller, D², and inking-rollers *d*, having their journals supported in swinging arms *d'* in a well-known manner, so that they may be adjusted into proper working relation to the rollers D' D² and the type-cylinder B.

I have represented the rollers D' D² as connected by wheels and pinions *e* *e'* *e*² *e*³ with the wheel B² upon the shaft of the type-cylinder B, and through this system of gearing the motion is imparted to the said rollers.

The distributing-roller D² is here shown as mounted loosely upon its stationary or fixed shaft D³, and has at one end a cam-shaped surface, *d*², as best shown in Fig. 2, and also has at the opposite end a spring, *d*³.

Upon the shaft D³ of the roller D², I have represented a bowl or roller, *d*⁴, and it will be understood that as the roller D² is turned the cam-surface *d*², by acting upon the bowl or roller *d*⁴, will force the roller D² in one direction lengthwise, and as the cam recedes from the roller *d*⁴ the spring *d*³ will force the roller in the opposite direction, or return it to its former position.

The web of paper, S, to be printed is here represented as passing under a guide-roller, *f*,

thence around the impression-cylinder A, in the direction of the arrow shown thereon in Fig. 1, and between the impression and type cylinders, and after being printed the web passes horizontally outward over a blade, *g*, which is secured in fixed position to the side frames, C, or other stationary support, and which forms the stationary blade or cutter of the pair. The other blade or cutter, *g'*, is secured to a rotary carrier or roller, E, which, as here represented, is geared, by a pinion, *g*¹, and wheel *g*², with a wheel, B², upon the shaft of the type-cylinder.

The blade or cutter *g'* may be attached by screws to the roller or cylinder E, and I have here represented the roller or cylinder E as provided immediately back of the blade or cutter with a deep gap or recess, E', as shown in Fig. 1. The roller or cylinder E turns in the direction indicated by the arrow in Fig. 1, and as the edge of its cutter *g'* passes the edge of the stationary cutter *g* a portion of the printed paper is separated from the web and is thrown downward. The gap E' affords behind the blade or cutter *g'* a sufficient amount of clearance to enable the web to be fed forward into the gap or recess after a portion has been removed from the web by the movable blade or cutter *g'*, and as the roller E continues its rotation the wall *g*⁴ of the gap or recess E' strikes upon the paper which projects beyond the stationary blade *g* and into the recess E', and deflects it downward beyond the plane of the blade or cutter *g*, preparatory to the movable blade or cutter coming down upon it to cut such projecting portions from the web.

I have here represented the operating edges of the two blades or cutters *g* *g'* as notched or serrated, as best shown in Fig. 2, in order that the web of paper may be cut more readily than it would be cut by a straight-edged blade or cutter secured to the roller or cylinder E, and operating in connection with a straight-edged blade or cutter secured to a stationary support.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with an impression-cylinder, of a type-cylinder provided at the ends with circular bearers, which act in conjunction with the impression-cylinder to feed the web of paper, and which have gaps in their circumference to limit the length of paper fed at each revolution, substantially as herein described.

2. The combination, with an impression-cylinder, of a type-cylinder provided at the ends with circular bearers, which act in conjunction with the impression-cylinder to feed the web of paper, and have gaps in their circumference to limit the length of paper fed at each revolution, and which are adjustable on or removable from the cylinder to vary the length of said gap, substantially as herein described.

3. The combination, with the impression and type cylinders, of the circular bearers at

the ends of the type-cylinder, each bearer consisting of arc-shaped sections which overlap circumferentially, and which are adjustable circumferentially to vary the gap between them, substantially as herein described.

4. The combination, with an impression-cylinder, of a type-cylinder consisting of a body grooved from end to end to form type-seats, and disks or heads made separate from and secured to the body and provided with circular bearers, which act in conjunction with the impression-cylinder to feed the web of paper, and binding-screws in the disk or head at one end of the grooves, for clamping the type in said grooves or seats, substantially as herein described.

5. The combination, with impression and type cylinders for printing a web, of a sta-

tionary blade or cutter, *g*, arranged behind the cylinders, and over which the web passes after printing, a rotary cylinder arranged behind the impression and type cylinders and stationary blade *g*, carrying a movable blade or cutter, *g'*, and notched back of the blade or cutter *g'*, as at *E'*, so as to afford clearance for the forward movement of the web, but having its surface otherwise substantially cylindric, so as to deflect the web downward over the edge of the blade *g*, and to hold it down preparatory to the next action of the blade *g'*, substantially as herein described.

WILLIAM R. LANDFEAR.

Witnesses:

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HENRY MCBRIDE,