2 Sheets—Sheet 1.

C. POTTER, Jr.

PRINTING-PRESS.

No. 191,289. Patented May 29, 1877.

Fig: 1

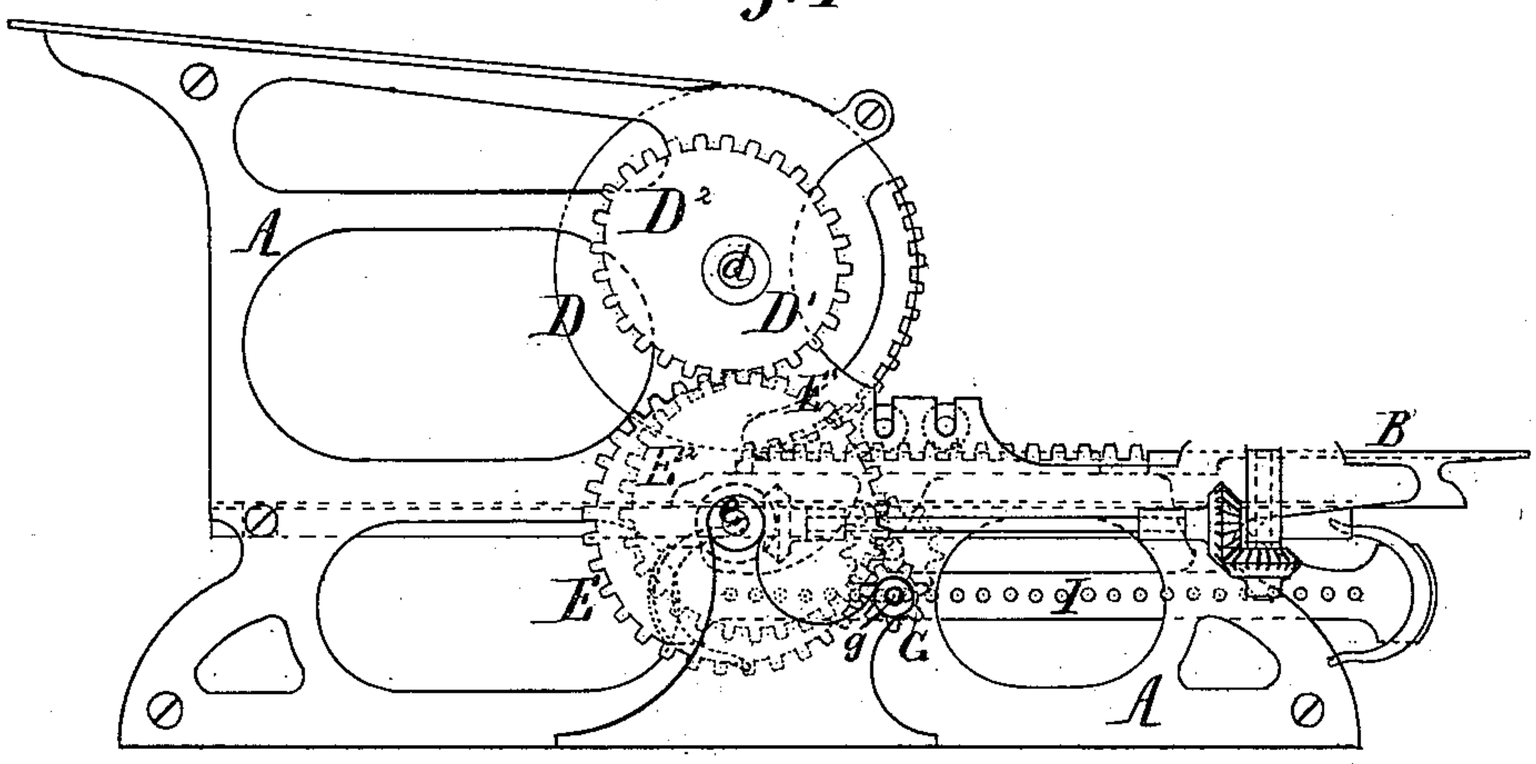
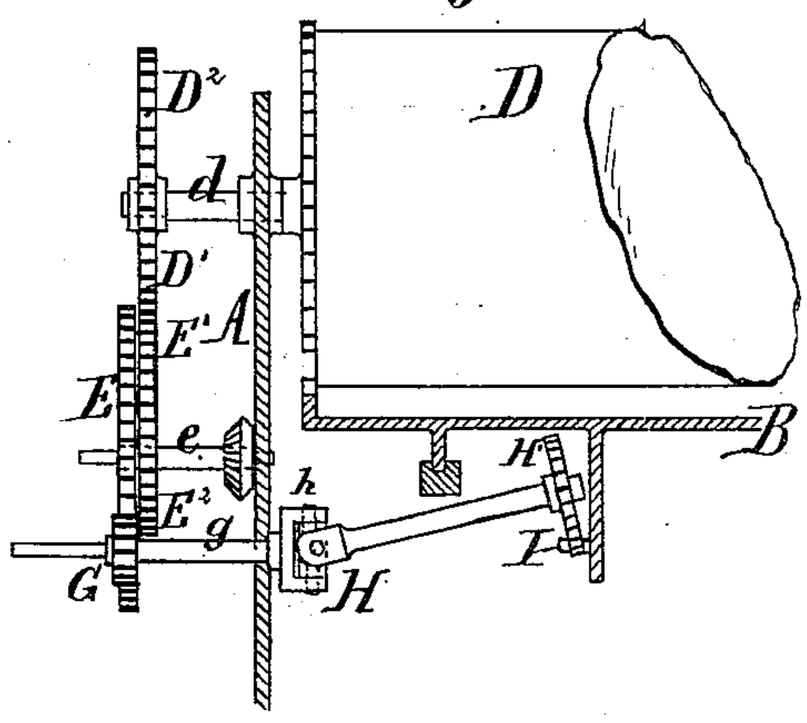


Fig: 2.



Witnesses:

Jno L Dibble

A Henry Gentner

Inventor:

C Potter Jr

by his attorney

T. D. Stetson

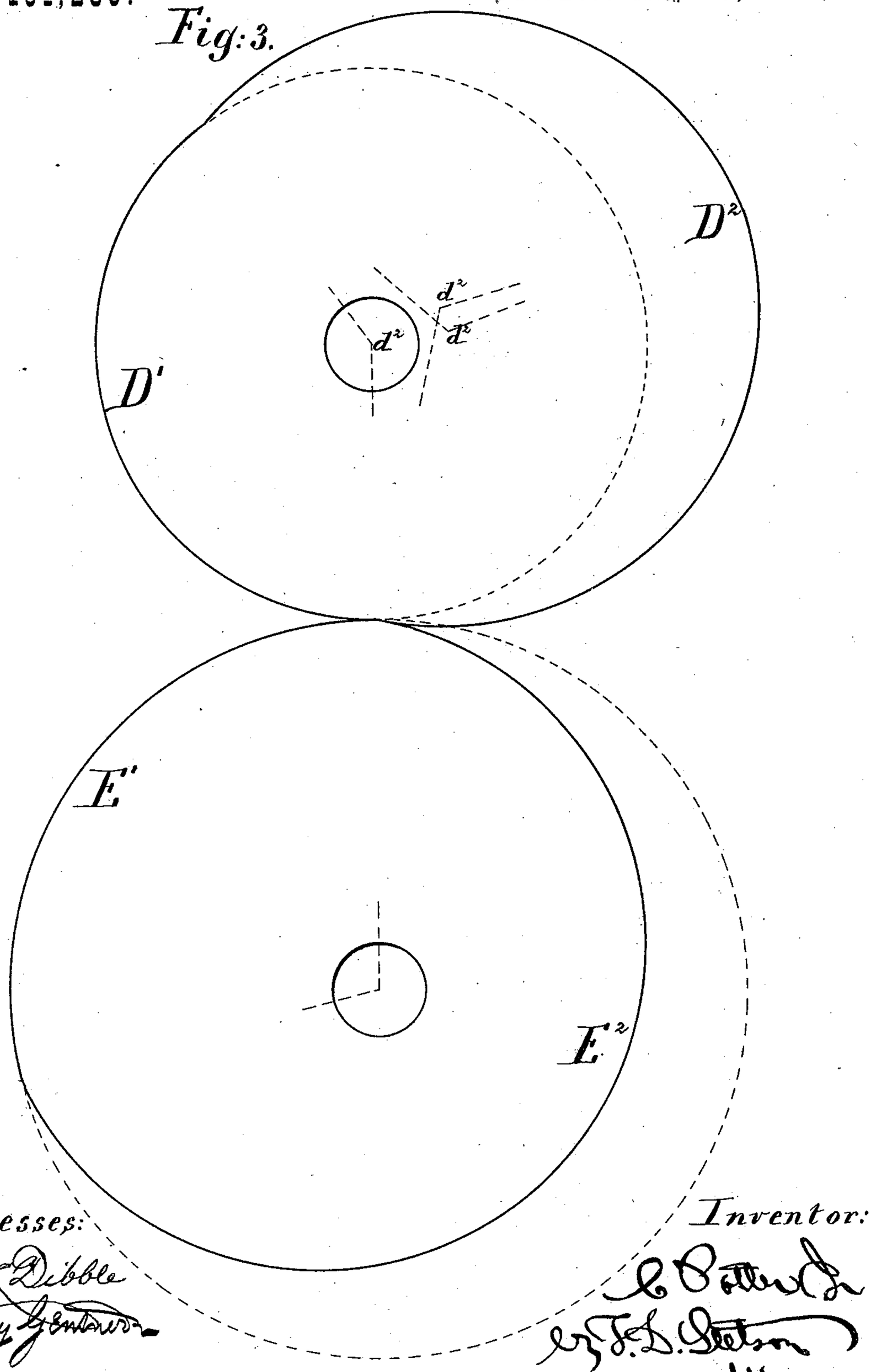
2 Sheets—Sheet 2.

C. POTTER, Jr.

PRINTING-PRESS.

No. 191,289. Patented May 29, 1877.

Fig. 3.



Witnesses:

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Attorney

UNITED STATES PATENT OFFICE.

CHARLES POTTER, JR., OF PLAINFIELD, NEW JERSEY.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **191,289**, dated May 29, 1877; application filed May 27, 1876.

To all whom it may concern:

Be it known that I, CHARLES POTTER, Jr., of Plainfield, Union county, New Jersey, have invented certain Improvements in Printing-Presses, of which the following is a specification:

The improvements apply to that large class of cylinder-presses in which a flat form reciprocates under a cylinder which gives a single revolution to each impression, and which cylinder does not stop during the return motion of the form. I give a uniform motion to the bed during the period of receiving the impression by employing the well-known double rack, sometimes known as the "mangle motion." I give a corresponding motion to the drum during the period of making the impression.

A patent issued to me dated September 24, 1872, describes a means of giving a uniform slow motion to the cylinder while the cylinder is out of gear with the bed. A patent issued the same year to Wm. Johnson described a mode of giving a constantly variable motion to the cylinder.

My present invention, unlike either of those, gives a constant motion to the cylinder and bed during the time while they are geared together, and a variable slower motion to the cylinder during the time while they are out of gear.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation of the press, showing all the parts which involve the novelty. Fig. 2 is a vertical section of a portion. Fig. 1ª is a plan view of a portion. It represents the parts which communicate the traversing motion to the distributing-roller. Fig. 3 is a diagram, showing in outline the two gear-wheels by which motion is imparted to the impression-cylinder.

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

A is the fixed frame-work. B is the reciprocating bed, the elevated portion B′ serving as a distributing-table in the well-known manner. The bed B traverses on ways, and will be understood as equipped with springs, to aid in arresting and reversing the motion at the end of each reciprocation. So of all the parts of the press the ordinary necessary portions not represented will be understood as employed in the ordinary manner. C C are ink-rollers, which perform their ordinary function. D is a drum or cylinder. It will be understood that it is formed as usual, with the portion which is effective of larger diameter than the remaining portion of its periphery. The effective portion—by which I mean the part which acts in pressing the sheet upon the type—may extend around a third, or form a third to a half of the entire circumference. D^1 D^2 are two portions of a single gear-wheel, of peculiar form, firmly keyed on the shaft *d* of the drum. The portion D^1 is concentric. The portion D^2 is non-concentric. This portion D^2 is of a larger mean diameter than the concentric portion. For brevity, its form will be denominated eccentric, although not strictly of that form. Instead of being struck from a single center more or less removed from the center of the shaft *d*, its periphery is divided into three parts, struck successively from three centers, d^2 d^2 d^2. The wheel below, which gives motion to it, is fixed on the shaft *e*. One part is concentric, marked E^1; the other part is eccentric, marked E^2. The shaft *e*, and the attached gear-wheel E^1 E^2, receive a uniform rotatory velocity through the larger and ordinary gear-wheel E from a small pinion, G, on the driving-shaft *g*. The latter is driven by a belt and pulley, (not represented,) actuated by a steam-engine, or other convenient power, and is formed with a universal joint, *h*, and with an extension, H, carrying a pinion, H′, which meshes into the double rack I, equipped in the manner shown, and firmly connected to the bed B, to constitute what I have termed the "mangle motion."

On starting the press the shaft *g* turns uniformly, reciprocating the bed B with a steady motion in opposite directions, which is due to the double rack and its operating means. The shaft *e* also revolves uniformly, and the concentro-eccentric wheel E^1 E^2 revolves uniformly. The motion imparted by this peculiar gear to the drum D through this reversely-corresponding concentro-eccentric gear-wheel D^1 D^2

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is uniform during the periods while the impressions are made, but is irregular, and averages considerably slower, during the remainder of the revolution.

This method of construction gives a smooth and quiet working, and at the same time admits of largely increasing the size of the bed and its length of travel without the usual necessary increase in diameter of the cylinder, and consequent inconvenient height, and increased cost, of the press, and is much more compact and conveniently manipulated, while at the same time it retains all the valuable features of the usual style of construction.

By referring to the forms of the gear-wheels it will be seen that immediately after the impression the cylinder commences to revolve slower and slower. Having reached its slowest motion it again gradually increases, making the change without concussion or noise.

The fact that the motion is received through concentric gearing during the period of the impression in connection with the fact that the bed is driven by a correspondingly uniform motion due to the rack, makes the mechanism easy to construct with a certainty of a uniformity of motion of the cylinder and bed during the whole period of the impression. I employ a segment and rack to connect the bed and cylinder during the period in addition to the other mechanism, as will be understood.

The concentric portions of the gearing D^1 E^1 harmonize with the uniform motion of the bed during the period while they are in action. As there is an independent means for driving the cylinder from the bed by the direct gearing of these parts together these concentric parts of the gearing may be dispensed with without serious injury. I prefer in many cases to simply use the eccentric parts D^2 E^2 of these gear-wheels, and to dispense with the other parts D^1 E^1.

I claim as my improvement in continuously-revolving cylinder-presses—

The bed B, reciprocated with a uniform movement, in combination with gear-wheels, having concentric portions D^1 E^1 for communicating a corresponding motion to the drum D during the time while the impression is being taken, and eccentric portions D^2 E^2 for communicating a variable slower motion to the cylinder during the time they are out of gear, substantially as herein specified.

In testimony whereof I have hereunto set my hand this 22d day of May, 1876, in the presence of two subscribing witnesses.

CHARLES POTTER, JR.

Witnesses:
CHARLES TAPPAN,
S. CHASE.