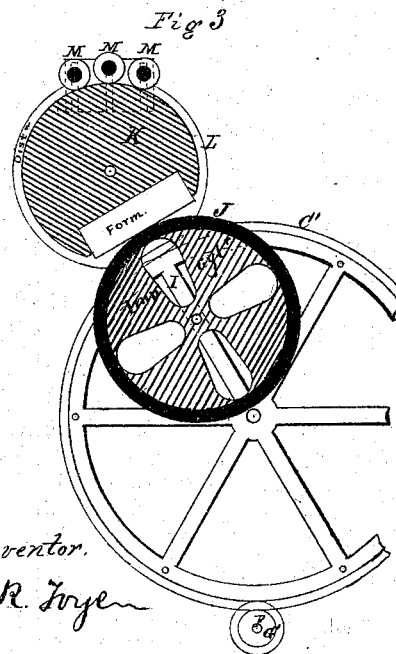
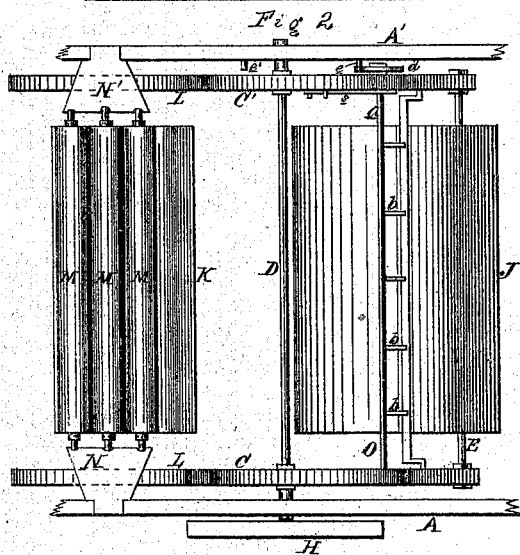
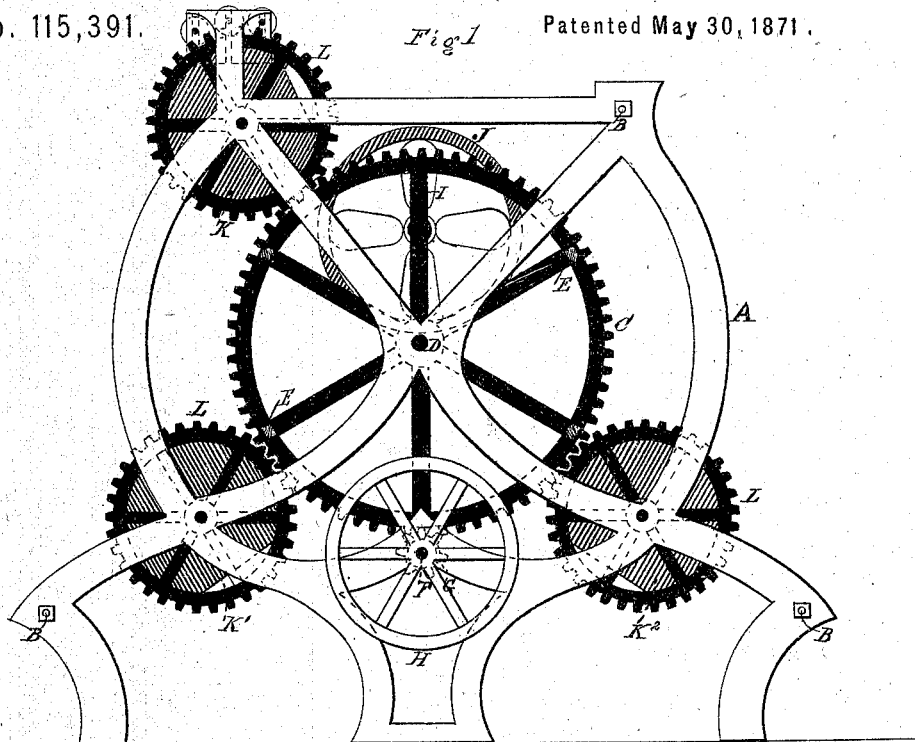


WILLIAM H. R. TOYE.

Improvement in Printing-Presses.

No. 115,391.

Patented May 30, 1871.



Witnesses.
Lease P. Oakford,
W. Woodcock,

Inventor.
William H. R. Toyer

UNITED STATES PATENT OFFICE.

WILLIAM H. R. TOYE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. 115,391, dated May 30, 1871.

To all whom it may concern:

Be it known that I, WILLIAM H. R. TOYE, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Printing-Presses; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The object of my invention is to construct a press that will print in one or an indefinite number of colors at one revolution of the machine, and will be capable of printing one or more distinct or separate jobs in the same or different colors.

Figure 1 is an end elevation of my improvement in printing-presses. Fig. 2 is a plan view of a portion of the same. Fig. 3 is a transverse section through a portion of the press.

To enable those skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

The standard-frames A and A' are made in the shape as shown in Fig. 1 of the drawing, or of any other suitable form, and are held at the proper distance apart by means of the rods B B, which are secured to and brace them in a vertical position. Two spur-wheels, C and C', are mounted on a shaft, D, with appropriate bearings formed in the central portion of the frames. The said wheels are connected at a certain distance apart by horizontal rods E E, the ends of which are secured to the outer rim of the wheels. Placed at the lower part of the frames is a shaft, F, on which are secured two pinions, G and G', which gear with and transmit a rotary motion to the spur-wheels when power is applied to the pulley H. Between the wheels C and C', and fixed to the arms I I of the same, is a platen-drum, J, a certain portion of the circumference of which is brought alternately in contact with (while being carried around with the wheels) a flat surface formed on the bed-cylinders K, K¹, and K². A portion of the periphery of each of the bed-cylinders K, K¹, and K² is made flat, and is adapted to receive the form of types, and they are each centered on a shaft placed in suitable bearings at the lower and upper part of the frames, their exact position being de-

termined according to the circle described by the outer periphery of the drum J. A rotary motion is also communicated to these cylinders through the gear-wheels L L L, which are mounted on the shafts and geared with the spur-wheels C and C', the speed being about two revolutions of the cylinder to one of the drum. Each bed-cylinder is provided with a series of ink-rollers M M M, the journals of which are arranged to rise and fall in guides N and N', secured to the frames, and the distributing surface of each cylinder is enameled with porcelain, so as to protect the finer colors from the injurious effects of oxidation of iron or other metallic surfaces. The platen-drum J is provided with one set of nippers, O, which consist of a horizontal shaft, a, on which the fingers or nippers b b are secured, these being operated from a cam, d, (secured to the outer end of the shaft,) which is brought alternately in contact with the projections e and e', and caused to make a partial rotation in one direction, so as to raise the nippers to receive the sheet to be printed, and in an opposite direction to close them. A spring, s, attached to the inside of one of the spur-wheels and resting on a projection on the shaft, holds the nippers with a firm gripe down on the sheet.

The motion of the platen-drum J carrying the sheet or material to be printed, and the motion of the bed-cylinders carrying the types on a flat surface, being rotary, admit of printing with one set of nippers three distinct colors on the same surface at one revolution of the press, inks of the colors desired being supplied to the types from the distributing surface of each cylinder by the rollers M M M. The ink-rollers are so arranged that any number of them can be used to each bed-cylinder, and their own gravity causes them to adhere closely to the form and to the distributing surface of the cylinders while passing over them, thus effectually laying and rolling the ink on the surface to be printed from. The various parts of the machine are directly under the eye of the operator, and easy access can be had to any particular part while the press is stationary or in motion, and the speed of it can be regulated to feed fast or slow, as desired. The bed-cylinders for the reception of the types may consist of one or an indefinite

number, so as to produce, at one revolution of the press, a printed surface of the same or of various colors.

One or more distinct or separate jobs can be printed at the same time by arranging the types on different parts of the flat surface of the bed-cylinders. The flat surface on the bed-cylinders represents the faces of the types, a recess or depression being formed in each cylinder for the reception of the type, as shown in Fig. 3 of the drawing.

Having thus described my invention, its construction and operation, what I claim, and desire to secure by Letters Patent, is—

The arrangement of the shafts D and F, spur-wheels C and C', pinions G and G', platen-drum J, gear-wheels L L L, bed-cylinders K, K¹, and K², ink-rollers M M M, and guides N and N', all combined and operating as and for the purpose herein specified.

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

WILLIAM H. R. TOYE.

Witnesses:

ISAAC R. OAKFORD,
W. WOODCOCK.