

(No Model.)

W. J. SHEA.
PRINTING PRESS.

No. 464,110.

Patented Dec. 1, 1891.

Fig. 1

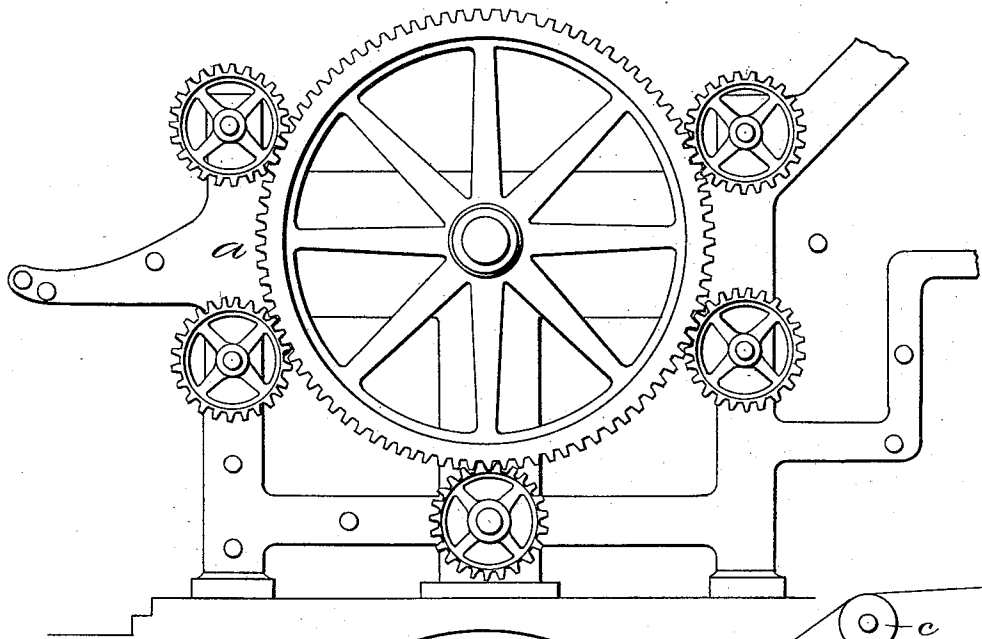
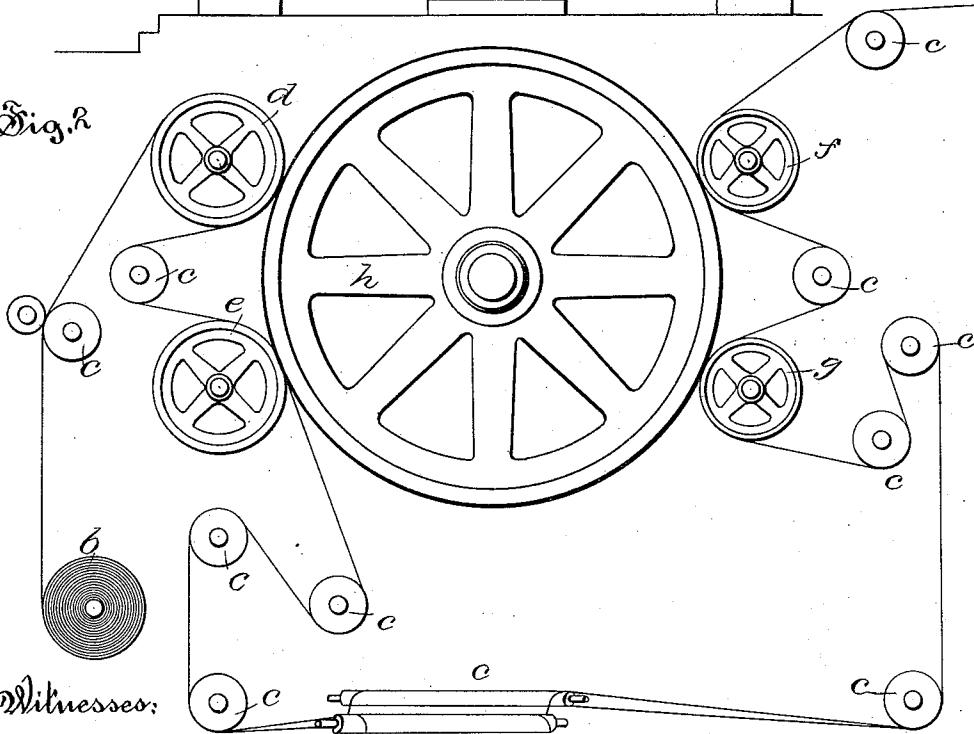


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM J. SHEA, OF HARTFORD, CONNECTICUT.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 464,110, dated December 1, 1891.

Application filed February 4, 1888. Serial No. 263,059. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. SHEA, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Printing-Presses, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My improvement relates to the class of rotary printing-presses combining the features as in the Hoe newspaper perfecting - press; and the object of my improvement is to provide such a press with means whereby the breaking of the web of paper while it is passing through the machine and being printed upon is prevented.

To this end my improvement consists in the combination of the type-cylinder and a series of impression - cylinders, the first of which in the series—that is, the one nearest to the paper-roll—shall be larger in diameter than the last one of the cylinders, as more particularly hereinafter described, and pointed out in the claim.

Referring to the drawings, Figure 1 is a view in side elevation of a press, showing the driving mechanism of the type-cylinder and the several impression-cylinders. Fig. 2 is a diagram view illustrating the relative position of the paper-feed roll, the guide-rolls, the impression - cylinders, and the type-cylinder.

In a rotary press of the type referred to and as ordinarily constructed there is a great loss due to the breaking of the paper while it is being printed upon, and owing to this fact the work of the press requires constant watching by an attendant, and the press has to be stopped when the breaking occurs, in order to remove the waste paper from the machine. In the printing of newspapers this breaking of the paper has been a most serious detriment on account of the time lost owing to such breakage of the paper and the stopping of the press to clear away the waste and unite the severed ends.

In the accompanying drawings, the letter *a* denotes the frame of a printing-press; *b*, the paper-roll; *c*, the guide-rolls, and *d*, *e*, *f*, and *g* the several impression - cylinders that are mounted in the frame and are arranged around

the type-cylinder *h*, in which the type-beds are clamped and upon which the impression-cylinders force the paper that passes in a web between the impression - cylinders and the type - cylinder in printing. After being led around the rolls and printed upon, the web of paper is carried up over guide-rolls, is divided by a cutter, and the two sections are guided so as to overlie one another as they arrive at the folder, the paper being drawn through the press by the rotation of the several guide - rolls, impression - cylinders, and feed-rolls, that cause the paper to be stretched with a greater or less tension about and upon the several cylinders for a considerable portion of the periphery.

Prior to my invention a serious difficulty has been caused by the breaking of this web of paper during its passage through the press sometimes just as it leaves the cylinder, or between the cylinder and the guide-rolls, immediately after printing, wherever the strain came upon the paper web at a relatively weak part. In order to obviate this difficulty I have increased the diameter of the first impression-cylinder *d* of the series, which causes the paper to be fed between said roll and the printing-cylinder slightly faster than it is drawn between and delivered from the same while being printed upon, and the result is that the web of paper is held sufficiently taut and firm for receiving a perfect imprint and without wrinkling, while the draft upon the web of paper beyond the last impression-cylinder is not sufficient to break even a very tender grade of paper. This is of great importance, as much of the paper used for newspapers and the like is made of wood-pulp and is of short fiber and of slight tensile strength, or what is called "tender."

It is to be noticed that in the press described the printing-surface is not continuous; but the printing-forms alternate with spaces that do not make contact with the impression-cylinders. The increase in diameter of the impression-cylinder is in practice very slight, and is usually accomplished by using a thicker roll-cover or felt on the first impression-cylinder than on the others.

In the drawings the impression-cylinders *d* and *e* are both shown as larger in diameter

than the last impression-cylinder *f*, and in this instance the web is rendered slack enough in passing over the reversing-bars shown below the main roll of the press to prevent breaking there, and this feature of construction comes within the scope of my invention, although the greater benefit is gained when the first only of the entire series of impression-cylinders is made larger in diameter than the last one.

I claim as my improvement—

In combination with the type-cylinder of a printing-press, a series of impression-cylinders, the first of the series being larger in diameter than the last one of the series, all substantially as described.

WILLIAM J. SHEA.

Witnesses:

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