

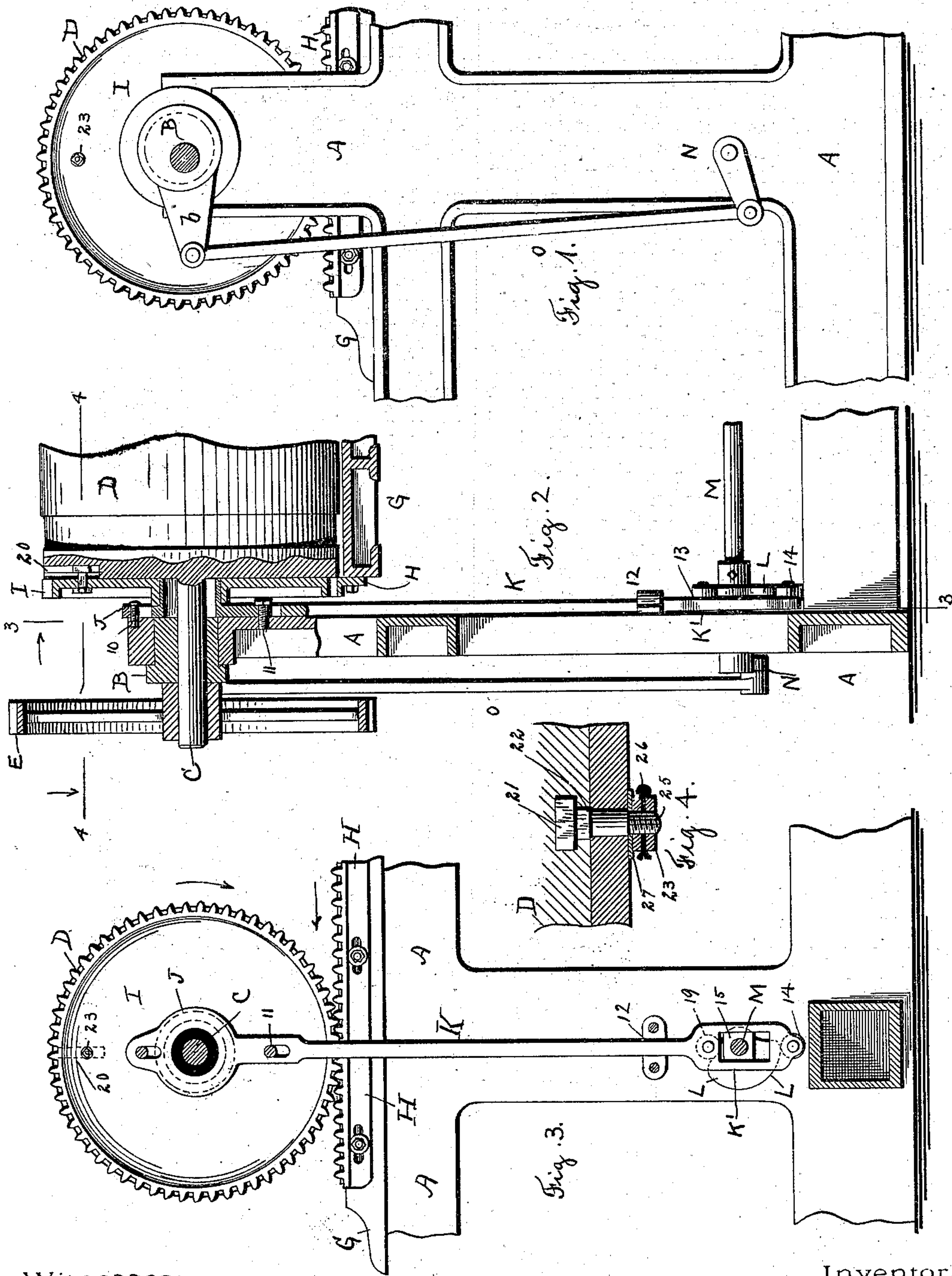
(No Model.)

H. A. W. WOOD.

REGISTERING MECHANISM FOR PRINTING PRESSES.

No. 560,881.

Patented May 26, 1896.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## REGISTERING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 560,881, dated May 26, 1896.

Application filed May 28, 1892. Serial No. 434,803. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in Registering Mechanisms for Printing-Presses, of which the following is a specification.

The aim of this invention is to provide a new and improved registering mechanism for cylinder printing-presses whereby the cylinder and bed will be locked or geared together on the forward or printing stroke of the bed and whereby the cylinder and bed will be independent of each other on the retrograde stroke of the bed.

My invention is especially designed and applied to the well-known two-revolution or multirevolution single or multi cylinder printing-press, in which the impression-cylinder revolves continuously in one direction and the bed reciprocates back and forth beneath the same, and while my invention may be applied to other forms of printing-presses I will further describe the same in connection with a multirevolution cylinder-press, whether single or double cylinder.

In my application filed February 8, 1892, Serial No. 420,782, Patent No. 492,505, issued February 28, 1893, I have shown a registering mechanism in which the mesh of the teeth between the registering gear or segment and rack was less than the vertical rising-and-falling movement of the impression-cylinder, whereby the gear and rack would be thrown out of mesh simply by virtue of the vertical movement of the cylinder. In this present application, as distinguished from that, I describe and claim a device wherein the mesh of the teeth between the registering gear or segment and rack is more than the vertical movement of the cylinder and a device wherein the registering gear has a rising-and-falling movement independent of the impression-cylinder, so that the said gear may be lifted out of mesh with the registering rack on the retrograde stroke of the bed.

This invention is especially designed for heavy and large printing-presses, where a strong gearing is necessary in the registering mechanism.

My invention therefore consists of the device described and claimed in this specification and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of part of a printing-press from the gear side, showing my invention applied thereto. Fig. 2 is an end elevation, partly in section, through the center of the impression-cylinder. Fig. 3 is a sectional elevation on line 3 3 of Fig. 2, looking to the right, as indicated by the arrow; and Fig. 4 is a section, on a large scale, on line 4 4 of Fig. 2, showing the connection between the registering gear and impression-cylinder.

Referring to the drawings and in detail, A represents the usual framing of the press, in which may be mounted the usual eccentric bushings B, and in these eccentric bushings B is journaled the shaft C of the impression-cylinder D. On one end of the shaft C is mounted the usual driving-gear E, by which the impression-cylinder D is driven continuously in one direction.

The usual reciprocating bed is indicated by G, and on the side of the bed G or at any convenient point on the same is attached the registering rack H. The cooperating registering gear or segment I for this rack H may be mounted between the end of the impression-cylinder and the framing, as shown. This registering gear I is preferably mounted on a bearing formed on the yoke J, which is mounted on the framing A, so as to be capable of a vertical rising-and-falling movement, and the yoke J is held to the framing, as shown, by the bolts 10 and 11, which pass through slots in said yoke. The yoke J has an extending arm K, which extends downwardly, and the end of this arm K is formed into a yoke K', that embraces block 15, mounted upon the shaft M, and rigidly fastened to the shaft is cam L, and on the yoke K' are fastened rollers 13 and 14, that bear on the opposite sides of the cam L. On the outside ends of this shaft M are fastened the levers or arms N, which connect by rods or links O to the arms b of the eccentric bushings B. This shaft M is oscillated by any of the well-known mechanisms and serves by means of these connections and eccentric bushings to raise and lower the impression-cylinder in the well-known



manner; also it will be seen that as the shaft M is oscillated at the end of the stroke of the bed in either direction it will raise or lower the yoke J, and therefore the registering gear I. The mesh or the depth of the teeth between the registering gear I and rack H may be made as large and as deep as desired, and preferably the same is made larger than the vertical rising-and-falling movement of the impression-cylinder, whereby a strong gearing may be obtained between the reciprocating bed and revolving impression-cylinder.

Formed or planed in one of the side faces of the impression-cylinder D is a slot 20, with a narrow mouth, as shown in Fig. 4. Fitting into this slot is the square head 21 of a bolt 22, which connects the impression-cylinder D to the registering gear I. The portion 22 of the bolt is also preferably made square, and the same fits into the narrow mouth of the slot. The outside end of the bolt is turned down and screw-threaded, as at 25, and fitted onto this screw-threaded portion 25 is a nut 23, which may be held in place by a suitable pin 26, and I preferably arrange under the nut a large washer 27. It will be seen that by this connection, even if the gear I is moved considerably out of center with the impression-cylinder D, the cylinder D will still act to revolve the gear I, though not exactly in unison. It will also be seen that the arrangement of slot and bolt will form a firm and rigid connection between the impression-cylinder and registering gear, but a connection that will allow the gear I to be raised out of center with the impression-cylinder. The parts are so proportioned that when the impression-cylinder is lowered to coact with the bed on its forward or printing stroke the gear I and impression-cylinder D will be exactly in line.

The operation of my device is therefore apparent and is as follows: As the bed makes its forward stroke the parts will assume the position shown in the figures—that is, the gear I will be in mesh with the rack H—and, as the gear I is then concentric with impression-cylinder D, the impression-cylinder D and bed G are positively geared together to secure absolute register. As the bed commences its retrograde stroke the shaft M is oscillated, and thus the impression-cylinder D is raised to clear the bed on its retrograde stroke, and also the gear I is raised to clear the rack H. If, as before described, the mesh of the teeth between gear I and rack H is made more than the vertical movement of the impression-cylinder, the gear I must be raised more than the impression-cylinder. This can be easily done by proportioning the cam L to get the desired result. Now as the bed makes its retrograde stroke the gear I will be driven from cylinder D, but with a variable motion; but this will have no effect on the correct action of the machine, as the gear and rack are then not in mesh. When the bed has

completed its retrograde stroke, the impression-cylinder D and gear I are lowered to operate as before described. While, as before stated, the preferable arrangement is to move the gear I more than the impression-cylinder, still it is within the scope of some of my detail claims to move the gear I less than the impression-cylinder and to proportion the teeth to correspond.

The arrangement of parts and details of construction shown and described may be greatly varied by a skilled mechanic without departing from the scope of my invention as expressed in the claims.

Thus, having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination in a cylinder printing-press of the impression-cylinder, a registering gear driven from the impression-cylinder, and mounted so as to be capable of a vertical movement independently of the impression-cylinder, a reciprocating bed having a registering rack with which the registering gear engages, and means independent of the impression-cylinder for moving the registering gear out of and into mesh with the registering rack, substantially as described.

2. The combination in a cylinder printing-press of the impression-cylinder, means for raising and lowering the same, a registering gear mounted so as to be capable of a vertical movement independently of the impression-cylinder, a connection between the impression-cylinder and registering gear, whereby the impression-cylinder will drive the registering gear, the reciprocating bed having a registering rack, the mesh or depth of the teeth between the registering gear and the registering rack being more than the vertical rising-and-falling movement of the impression-cylinder, and means for raising and lowering the registering gear, substantially as described.

3. The combination in a cylinder printing-press of the impression-cylinder, means for raising and lowering the same, the registering gear connected to turn with said impression-cylinder but so as to be capable of a vertical movement independently of the impression-cylinder, a yoke or framing on which said registering gear is journaled, means for raising and lowering said yoke, and the reciprocating bed having a cooperating registering rack secured to the same, substantially as described.

4. The combination in a cylinder printing-press of the impression-cylinder, the independently-mounted registering gear I, a bolt secured to said registering gear I and fitted into a slot cut in the impression-cylinder whereby the registering gear will turn with the cylinder, but whereby the registering gear is capable of a vertical movement independently of the impression-cylinder, means for raising and lowering said registering gear, and the reciprocating bed having a register-



ing rack secured to the same, substantially as described.

5 The combination in a cylinder printing-press of the impression-cylinder D, the registering gear I connected to turn with the impression-cylinder D, the yoke J carrying the registering gear I, the reciprocating bed carrying a cooperating registering rack, the shaft N, and connections from said shaft N to raise and lower the impression-cylinder, and to raise and lower the registering gear I, substantially as described.

15 6. The combination in a cylinder printing-press of the impression-cylinder, the registering gear connected to turn with the same but being capable of a rising-and-falling movement independently of the impression-cyl-

der, means for raising and lowering the impression-cylinder, means for synchronously raising and lowering the registering gear, so 20 arranged that the registering gear will have a larger vertical movement than the impression-cylinder, and so that the impression-cylinder and registering gear will be concentric when they are in their lowest position, and the 25 reciprocating bed carrying the cooperating registering rack, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

H. A. WISE WOOD.

Witnesses:

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E. M. HEALY.