

No. 824,325.

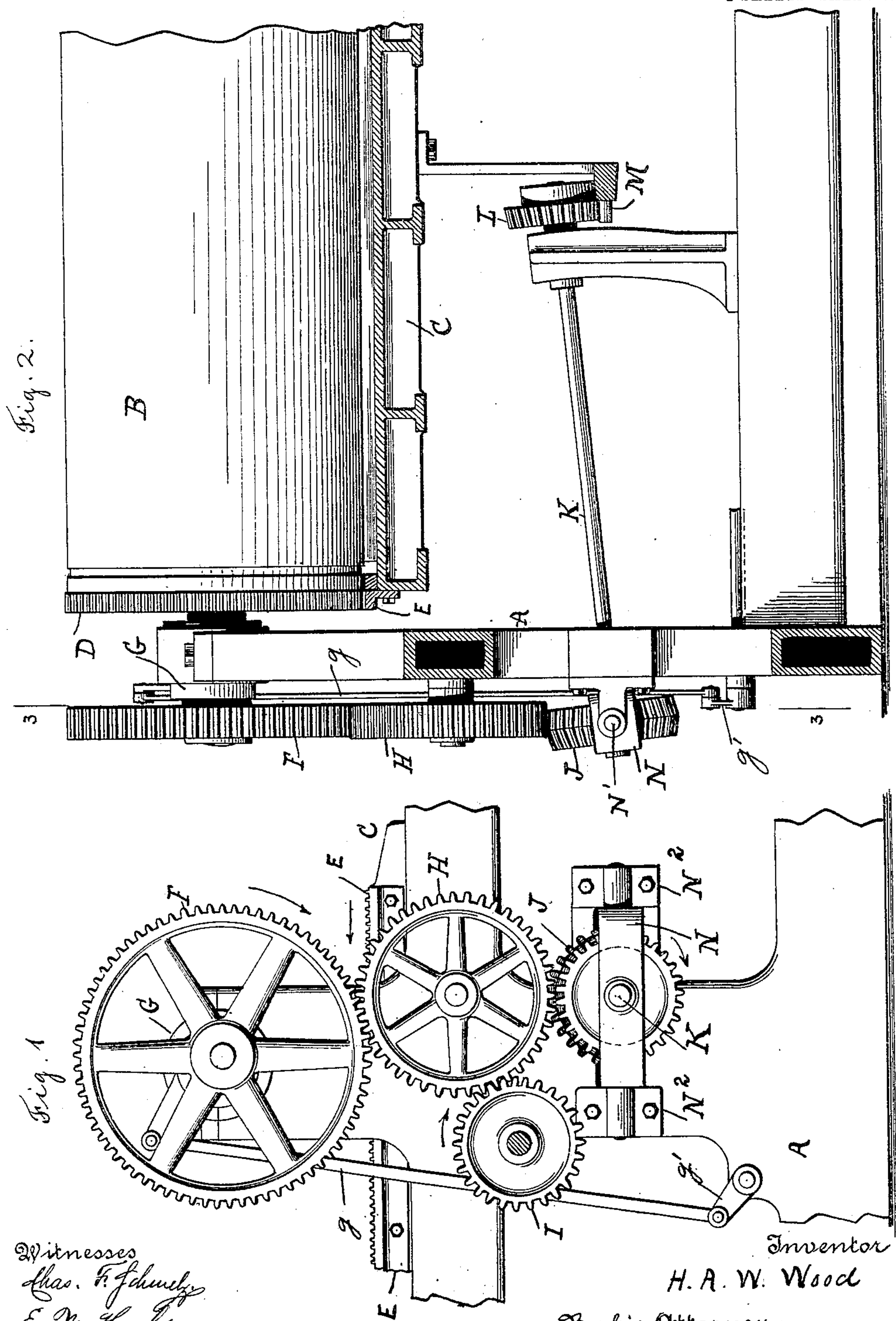
PATENTED JUNE 26, 1906.

H. A. W. WOOD.

REGISTERING MECHANISM FOR PRINTING PRESSES.

APPLICATION FILED OCT. 19, 1892. RENEWED AUG. 30, 1905.

2 SHEETS—SHEET 1.



Witnesses
Chas. F. Schuchz
E. M. Healy

Inventor
H. A. W. Wood
By his Attorney
Louis W. Southgate

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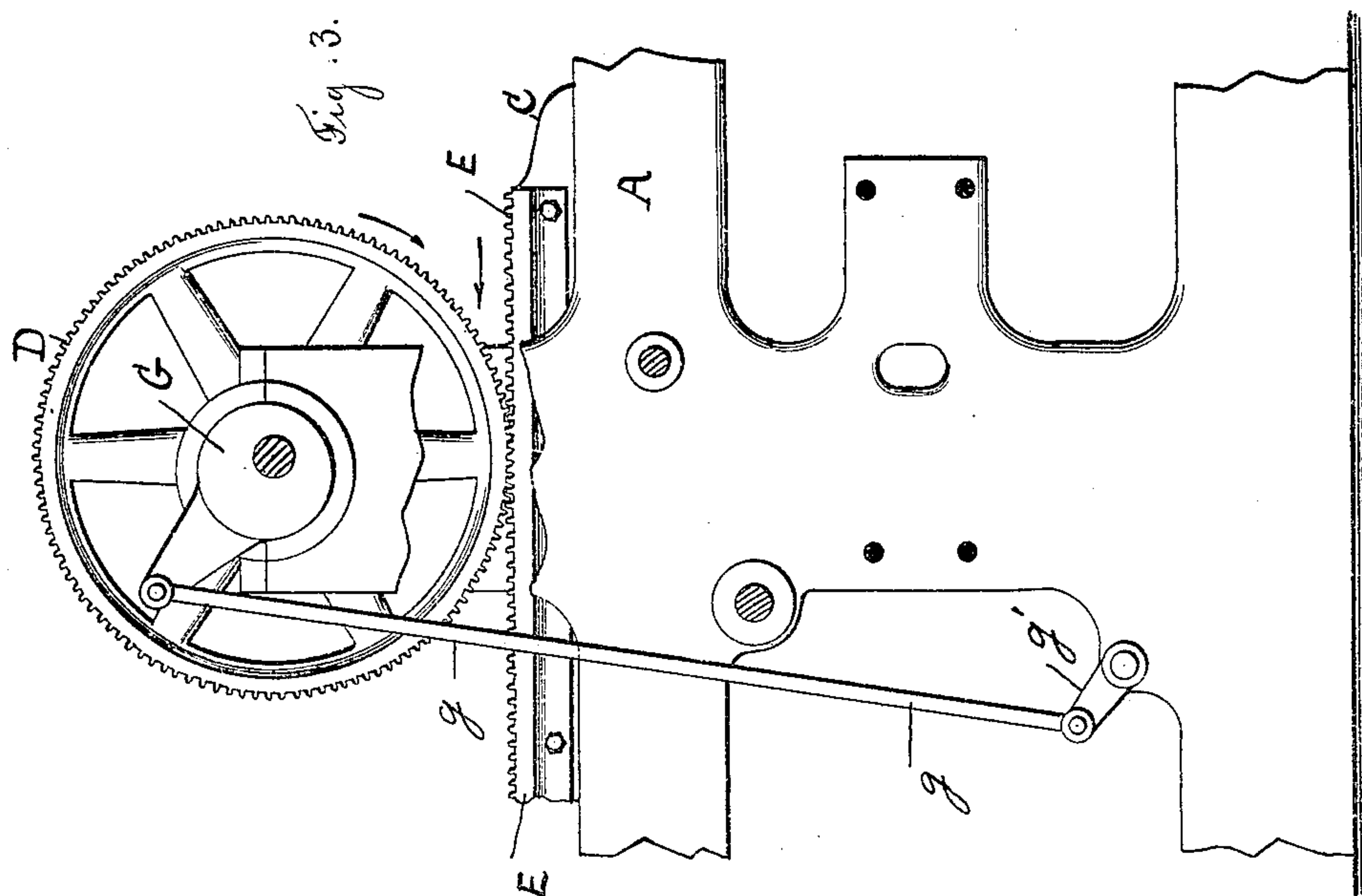
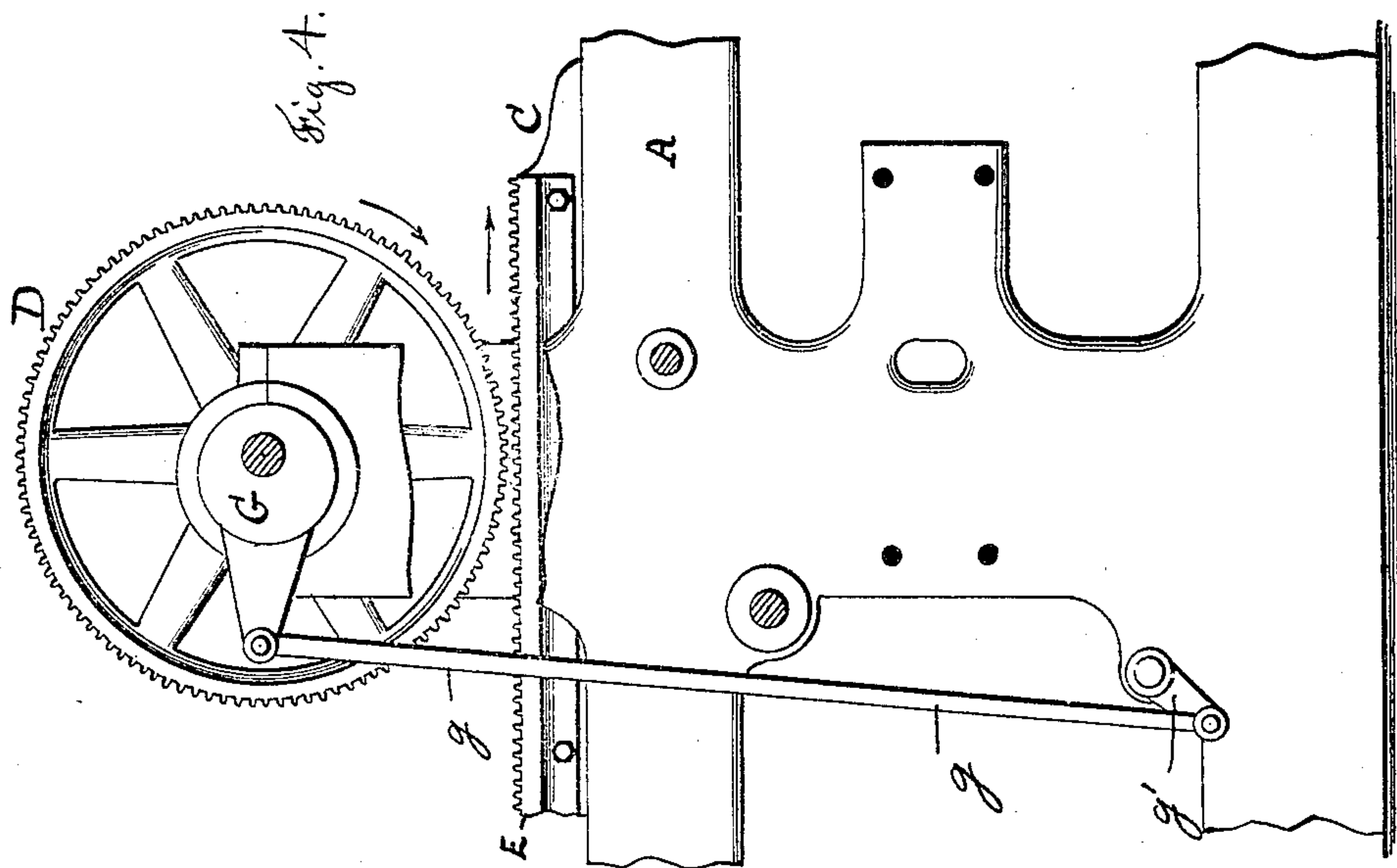
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Chas. F. Johnson
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UNITED STATES PATENT OFFICE.

HENRY A. WISE WOOD, OF NEW YORK, N. Y., ASSIGNOR TO THE
CAMPBELL PRINTING PRESS & MANUFACTURING COMPANY,
OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

REGISTERING MECHANISM FOR PRINTING-PRESSES.

No. 824,325.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed October 19, 1892. Renewed August 30, 1905. Serial No. 276,480.

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 Mechanism for Printing-Presses, of which the following is a specification.

The aim of this invention is to provide a device for securing absolute register between the impression-cylinder and reciprocating bed of a multirevolution cylinder printing-press; and to this end the invention consists of the mechanism described and claimed in this specification and illustrated in the accompanying two sheets of drawings, in which—

Figure 1 is a side elevation of part of a press with my improvement applied thereto. Fig. 2 is a sectional elevation at right angles to Fig. 1; and Figs. 3 and 4 are sectional elevations taken on line 3 3, illustrating the bed on its different movements.

I will further describe my invention as applied to the well-known two-revolution single-cylinder printing-press, but with the understanding that the same may be applied to any multirevolution press, whether the same is a single or multicylinder. In presses of this character the cylinder is continuously rotated in the same direction and the bed is reciprocated back and forth under the cylinder by any one of the common mechanisms for this purpose, and it is usual from the bed-driving mechanism to use gearing whereby the cylinder will be positively turned, and my improvement constitutes an addition to these old parts. When the bed is making its printing or forward stroke, the cylinder, with the sheet thereon, is brought with pressure against the form, so as to make the impression, and when the bed is making its backward or return stroke the cylinder is raised so as to clear the form, and the sheet is delivered from the cylinder. In this type of presses great difficulty has been experienced in securing an absolute register of the bed and cylinder during the printing stroke, because necessarily so much gearing and so many connections are required between the bed-driving mechanism and the cylinder that

connections renders it practically impossible for the cylinder and the bed to come into operation twice absolutely in the same relation. To remedy this evil, I place a rack on the bed and a corresponding gear or segment on the cylinder, and I make the depth of the teeth or the mesh of this gearing very shallow, so that the same will be thrown out of mesh during the return stroke of the bed simply by virtue of the vertical lifting movement of the impression-cylinder. Thus, for example, if the vertical movement of the cylinder is four-sixteenths of an inch I may make the gearing mesh three-sixteenths of an inch, so that the same will clear one-sixteenth of an inch when the cylinder is raised and the bed upon its return stroke. As this registering-gearing, as before described, is preferably of very fine mesh, it would not do to place entire dependence upon the same for the purpose of turning the cylinder in unison with the forward movement of the bed. Therefore I use in connection with this registering-gearing any of the usual gearings by which the cylinder will be constantly rotated in one direction, and thus when the bed makes its forward movement the cylinder is turned primarily by this driving-gearing and is simply kept in absolute register by the registering mechanism before described. This is an important improvement, because if nothing was used to help the registering mechanism the same would rapidly wear and would be very apt to break, because, as before stated, on account of the fine mesh of the teeth the strength of the registering-gearing is very slight.

Referring now to the drawings and in detail, A represents the usual framing of the press, and in this framing is mounted the impression-cylinder B and the reciprocating bed C. On the side of the impression-cylinder B, or fixed in any suitable way to turn with the impression-cylinder B, is the registering-gear D, and a cooperating registering-rack E is secured to the bed.

The shaft of the impression-cylinder may be mounted in eccentric bushings G, which have extending arms, and to which arms are connected the links *g*, which links are connected to arms or levers *g'*, which are mounted on a shaft, as shown, and this shaft is oscillated by any of the well-known mechan-

isms to alternately raise and lower the impression-cylinder at the proper time. Any other of the well-known mechanisms for raising and lowering the impression-cylinder
5 may be used.

Rigidly secured on the outside of the shaft of the impression-cylinder is the cylinder-driving gear F, and meshing with this driving-gear is the intermediate H, into which
10 meshes the driving-pinion I, and to the shaft of this driving-pinion I power may be applied, if desired, to drive the machine. Meshing with the intermediate H is the double-faced pinion J, which is mounted on the
15 tumbling-shaft K, and on the other end of the shaft K is mounted the pinion L, which meshes with a rack M, secured to the bed. The pinion J is mounted in a suitable frame N, which has extending arms or studs N',
20 which are journaled in brackets N², secured to the frame A, as shown. The gear L will alternately engage the top and bottom of the rack M and will thus reciprocate the bed forward and backward, as is well understood.
25 This movement of the bed will be at a constant speed during the printing period, which period occurs after the movement of the bed has been reversed at the end of the backward stroke and the velocity of the same increased
30 from zero to maximum, while the pinion L works on the top of the rack M and until the reversal movement, when the bed is at its extreme forward position, commences. Any other well-known bed-driving mechanism
35 may be used, provided the same has gearing connected to continuously and positively rotate the impression-cylinder in the same direction.

In Fig. 3 the bed is shown on its forward or
40 printing movement and the gear D as in mesh with the rack E, whereby register is secured between the impression-cylinder and the form.

In Fig. 4 the impression-cylinder is shown
45 as raised, the gear D and the rack E out of mesh, and the bed on its return movement.

By driving the impression-cylinder continuously and positively at all times in the same direction by means of the driving mechanism before described it will be seen that when
50 the bed is on its forward movement the cylinder will be moved by two means—namely, by gear F and by the rack E, meshing with the registering-gear D. Thus wear
55 will be saved, as before described, on the registering mechanism, and the registering mechanism will simply act to take up the backlash that is necessarily inherent in the driving-gearing. Also it will be seen that by
60 this means when the impression-cylinder is lifted the same will be further rotated by the driving-gearing and that no jar or shock will occur, as the driving-gearing will simply continue in action.

65 Having thus fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

1. In a multirevolution cylinder-press, the combination of the impression-cylinder and the reciprocating bed, gearing for reciprocating said bed so that the same will have a
70 constant or even speed during the impression period, gearing for continuously and positively rotating the impression-cylinder in one direction at a constant speed, means for
75 raising and lowering the impression-cylinder, a registering-gear rigidly connected to turn with the impression-cylinder, and a cooperating registering-rack rigidly secured to the
80 bed, the mesh of the teeth of the registering-gear and the rack being less than the vertical movement of the impression-cylinder, whereby the said gear and rack will be thrown out
85 of mesh simply by virtue of the vertical movement of said impression-cylinder, and whereby when said impression-cylinder is
down, it will be driven both by means of its driving-gear and by means of the registering mechanism.

2. In a multirevolution printing-press, the
90 combination of the impression-cylinder and the reciprocating bed, mechanism for reciprocating said bed, gearing for continuously and positively rotating the impression-cylinder in one direction at a constant speed, consisting of a cylinder-gear rigidly secured to
95 turn with the impression-cylinder and a cooperating gear for driving the same, means for raising and lowering the impression-cylinder, a registering-gear connected to turn
100 with the impression-cylinder, and a cooperating registering-rack rigidly secured to the bed, the mesh of the teeth of the registering-gear and the registering-rack being less than
105 the mesh of the teeth of the cylinder-gear and its driving-gear, whereby when said cylinder is performing the printing operation, it will be positively turned both by said gears
and by the registering-gear and the rack, and when it is not performing the operation of
110 printing, it will be driven only by said gears, the mesh of the teeth of the registering-gear and the rack being less than the vertical movement of the impression-cylinder.

3. In a multirevolution cylinder-press, the
115 combination of the impression-cylinder and coacting bed, said bed carrying a rack, a driving-pinion engaging said rack, gearing positively connecting said pinion with the
120 impression-cylinder so arranged that the bed will be reciprocated forward and backward and at a constant or even speed during the printing period and the impression-cylinder
rotated continuously in one direction at a
125 constant speed, means for raising and lowering the impression-cylinder, a registering-gear rigidly connected to turn with the impression-cylinder, and a cooperating registering-rack rigidly secured to the bed, the
130 mesh of the teeth of these parts being less

than the vertical movement of the impression-cylinder, whereby the said gear and rack will be thrown out of mesh simply by the vertical movement of said impression-cylinder,
5 and whereby when said impression-cylinder is down it will be turned or rotated both by its gearing and by the registering mechanism.

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

H. A. WISE WOOD.

Witnesses:

JOHN J. MURRAY,
PHILIP STRAUB, Jr.