

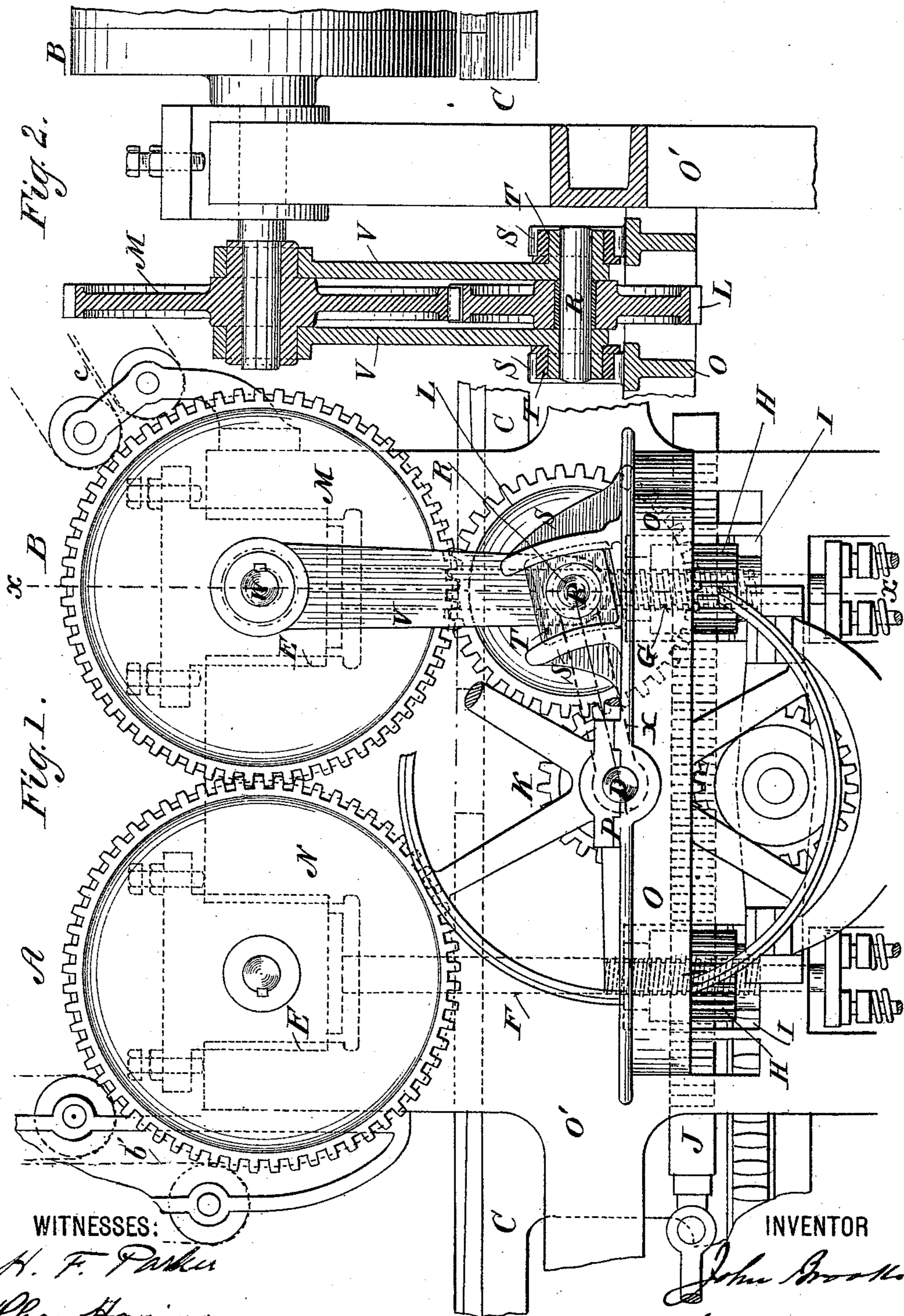
(No Model.)

J. BROOKS.

GEARING FOR CONTINUOUS MOTION IMPRESSION CYLINDERS.

No. 437,418.

Patented Sept. 30, 1890.



WITNESSES:

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JOHN BROOKS, OF PLAINFIELD, NEW JERSEY.

GEARING FOR CONTINUOUS-MOTION IMPRESSION-CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 437,418, dated September 30, 1890.

Application filed April 19, 1890. Serial No. 348,714. (No model.)

To all whom it may concern:

Be it known that I, JOHN BROOKS, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Gearing for Continuous-Motion Impression-Cylinders, of which the following is a specification.

My invention relates to form-bed printing-presses in which the impression-cylinders have continuous rotation and are driven by gearing from the driving-shaft of the machine, independent of the form-bed gearing. My invention more especially relates to a perfecting-press in which the cylinders are alternately elevated from the form-bed when the latter takes its return-motion under them in each direction.

Heretofore, in many cases, the two cylinders have been driven from the driving-shaft, the one through a single intermediate gear, and the other through two intermediate gears from a common driving-pinion, the two intermediate gears being essential to the proper direction of rotation. Such a construction is illustrated in my Letters Patent, No. 413,491, issued October 22, 1889.

The object of my present improvement is to overcome the excess of lost motion of both cylinders when the one having the single intermediate transmitting-gear is raised, necessitating the only positive motion to be derived through the double intermediate-gear transmission.

To this end my invention dispenses with the double transmitting-gearing; and it consists in placing the single intermediate gear upon a movable axis, and so connecting it with the adjacent impression-cylinder gear and in conjunction with the driving-pinion that the teeth of all said gears shall be maintained at uniform relation while the cylinder rises. The two impression-cylinders (in a perfecting-press) being positively geared together thereby maintain the register of the sheets in correct relation to the forms.

Referring to the accompanying drawings, Figure 1 is a side elevation of a part of a cylinder-press, showing the application of my invention; and Fig. 2, a vertical section of

one side of the machine, taken on the line x , Fig. 1.

A represents the first impression-cylinder, and B the second impression-cylinder.

C represents the form-bed driven from the driving-shaft D by suitable gearing, such as that illustrated in the aforesaid patent. The form-bed bears two forms, one pertaining to each cylinder, and as the bed is reciprocated to and fro the cylinders continuously rotate and are vertically moved into or out of printing-contact with the respective forms at the proper times.

The cylinders are elevated in their movable journal-boxes E by means of the vertical elevating-shafts F G, (indicated by dotted lines,) and these shafts bear left and right screw-threads a b , respectively, upon which the pinion-nuts H in the mortises I of the frame engage. The said pinion-nuts are rotated by engagement therewith of rack J at either side of the machine. Such mechanism corresponds to that heretofore described by me in Letters Patent No. 274,558, and is therefore not new, and, moreover, any other well-known or suitable form of elevating mechanism may be employed in connection with my invention.

b' represents conveying-belts for feeding the sheets of paper, and c the conveying-belts for delivering the printed sheets.

K is the driving-pinion on the driving-shaft D. L is the intermediate transmitting-gear; M, the spur-gear of the impression-cylinder B, and N the spur-gear of the remaining impression-cylinder A.

O is a bracket on the frame O' of the machine supporting the outboard bearing P of the driving-shaft D.

R is the movable axis of the intermediate transmitting-gear L, consisting of a pin which is supported in the ends of the connecting-arms V in the arc blocks T, movable in the guides S. The guides S are curved concentrically with the axis of the shaft D, so that when the blocks T are raised or lowered the axis-pin R is always maintained at a uniform distance D R from the center of the said shaft, keeping the pitch-circles of the gears K L in proper coincidence at the point of contact. The connecting-arms V are pivoted at one

end in the blocks T, and at the other end upon the shaft W, or, more specifically, upon the hub of the gear M on the shaft, maintaining the pitch-circles of the gears M L also in proper coincidence at the point of contact.

In the drawings the second impression-cylinder B is shown in an elevated position, the first impression-cylinder A being depressed in printing-contact with the form-bed. The elevating motion is in practice very slight, but sufficient, however, to an extent which would cause lost motion between the teeth of the gears M and L and affect the register of the sheets should the gear L be rotated upon a stationary axis.

In operating the machine the line of centers D R being at or nearly at a right angle to the line of centers R W the pivot R is caused to move vertically by means of the connecting-arms V through substantially the same distance as the shaft W of the impression-cylinder B, the distance between centers being fixed. A positive relation is therefore maintained throughout the train of gearing K L M N, as aforesaid, irrespective of the specified movements.

In lieu of employing the concentric guides S for the pivot R of the transmitting-gear, I may employ connecting-arms (see dotted lines X, Fig. 1) between the pivot R and shaft D, similar to the connecting-arms V, and such construction is to be considered as the equivalent of the mechanism herein shown.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a cylinder printing-press in which vertical motion is applied to the cylinders, as described, the combination, with the spur-gear, of one of the cylinders, and the driving-pinion of a transmitting-gear between the said cylinder-gear and driving-pinion on a movable axis maintained at a fixed distance from the centers of said adjacent gears irrespective of the vertical motion.

2. In a cylinder printing-press in which vertical motion is applied to the cylinders, as described, the combination of a cylinder spur-gear, a driving-pinion, a transmitting-gear on a movable axis, connecting-arms between said movable axis and the shaft of the cylinder spur-gear, and stationary guides concentric with the axis of the driving-pinion for guiding the ends of the arms bearing the axis of the transmitting-gear.

3. In a printing-press, the combination, with an impression-cylinder, its tight gear, and means for moving the cylinder and gear vertically, of a transmitting-gear movable with the cylinder and its gear, and a driving-pinion, substantially as described.

JOHN BROOKS.

Witnesses:

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