

G. P. FENNER.
MECHANISM FOR DRIVING INK ROLLERS.
APPLICATION FILED AUG. 14, 1912.

1,052,047.

Patented Feb. 4, 1913.

3 SHEETS—SHEET 1.

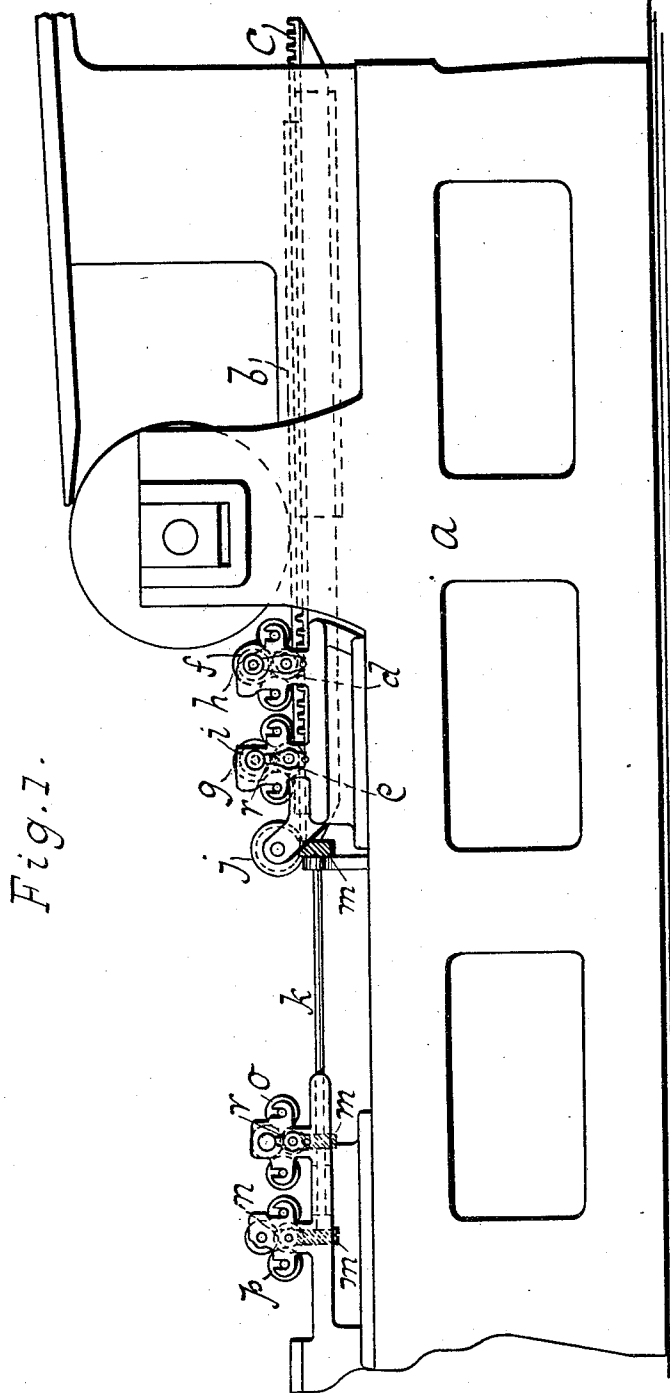


Fig. 1.

Witnesses
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John Bergstrom

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3 SHEETS—SHEET 2.

Fig. 2.

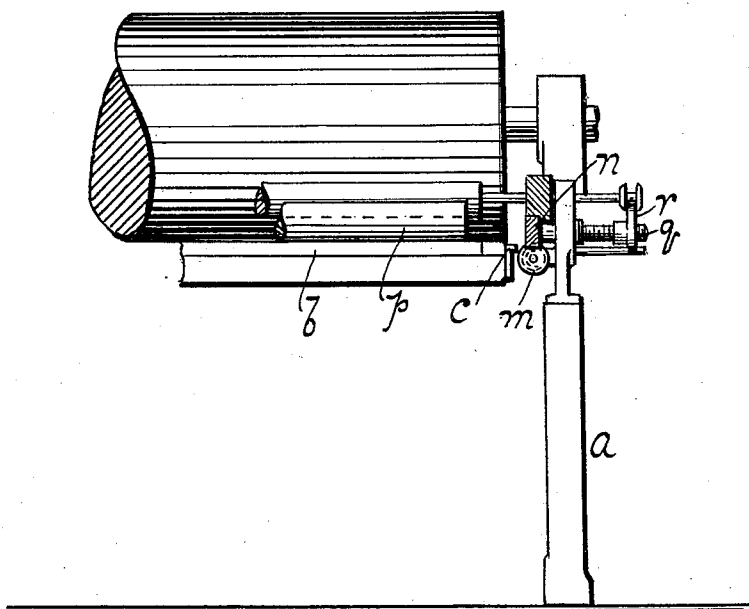
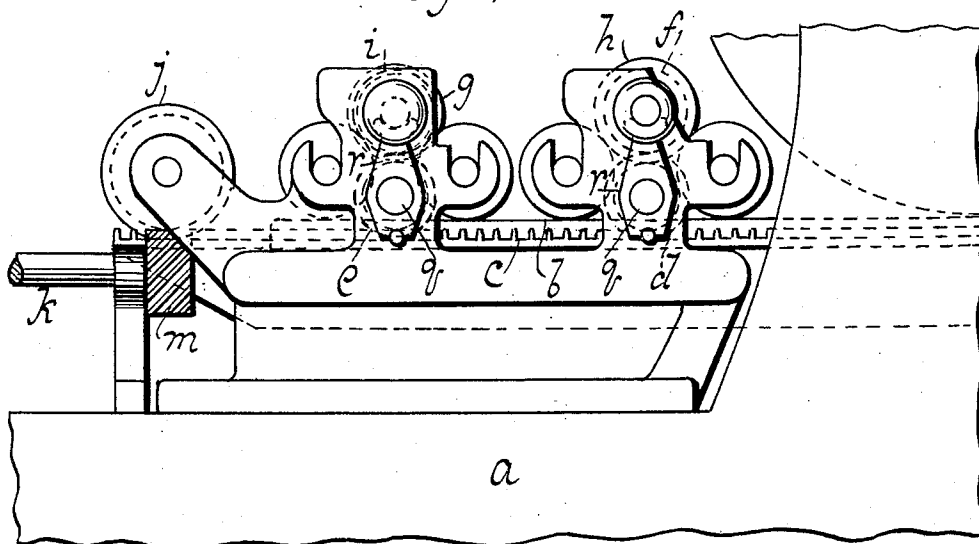


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

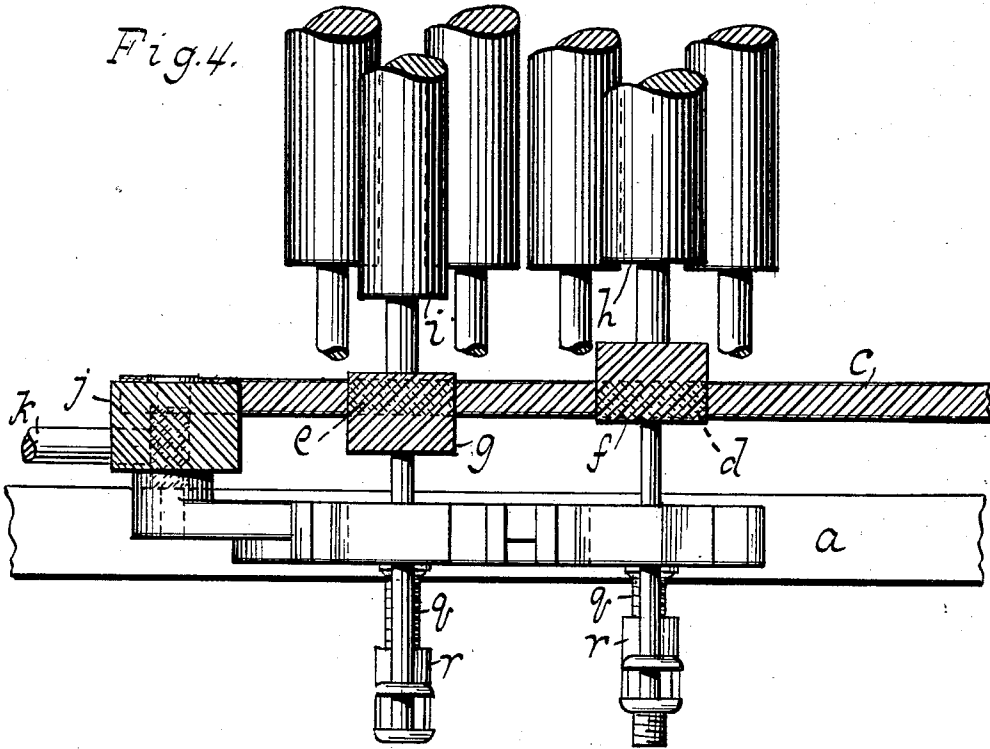
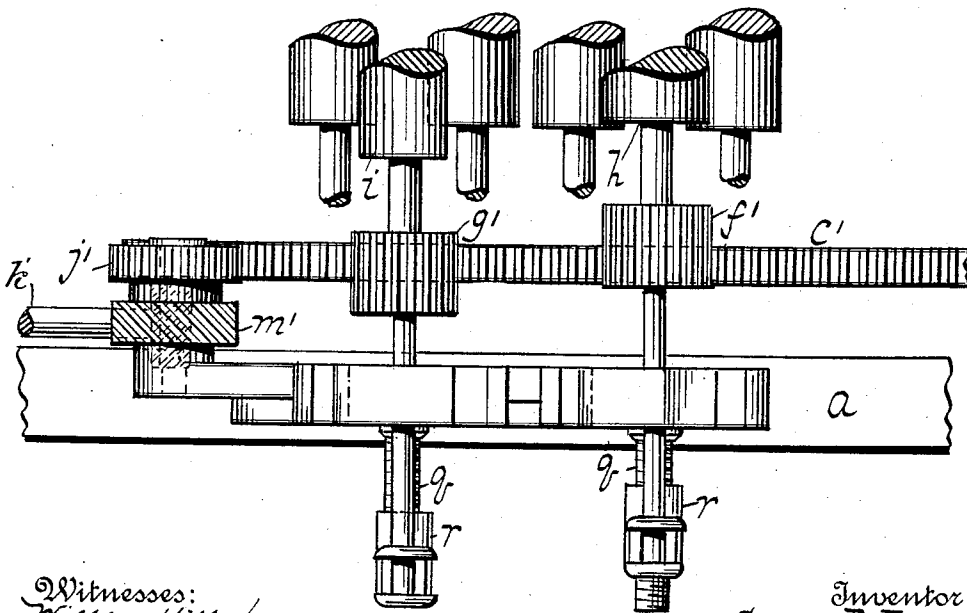


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE P. FENNER, OF NEW LONDON, CONNECTICUT.

MECHANISM FOR DRIVING INK-ROLLERS.

1,052,047.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed August 14, 1912. Serial No. 715,019.

To all whom it may concern:

Be it known that I, GEORGE P. FENNER, a citizen of the United States, residing at New London, county of New London, State of Connecticut, have invented new and useful Improvements in Mechanism for Driving Ink-Rollers, of which the following is a specification.

This invention relates to a method of driving the ink rollers of a printing press by the employment of spiral gearing the object being to simplify the construction and to diminish the noise of the gearing while in action.

The reciprocating bed of the printing press is provided with a rack for rotating the spiral gearing of the ink rollers. One of the ink rollers of each series is given endwise or lateral movement by the actuation of the bed. The rotary surface speed of the roller is increased or decreased by the screw action of the spiral gears when moved endwise. Inasmuch as these ink rollers or vibrators are moved in opposite directions by means of a right or left hand screw, it will be apparent that if the diameters of these rolls are the same as the pitch diameters of the gears mounted on their shafts and which drive the rolls, that the surface of one of these rollers rotates too fast while the other revolves too slow to run in exact unison with the bed. To overcome this tendency in these form roller vibrators, that is, those nearest to the cylinder, the diameter of one roller is larger than the pitch diameter of the gear that drives it and the diameter of the other roller is smaller than the pitch diameter of the gear that drives it, because these rollers must impart to the surface of each form roller a speed in exact unison with the surface of the type. But the table or ink distributing rollers are a different proposition, it having been found by experiment that it is desirable not to have these rollers run in exact uniformity with the ink table as the slight difference in the rotation of these rollers tends rather to improve the distribution. In other words by causing a slight drag or acceleration as the case may be, between the surfaces of the rollers the ink will be more evenly distributed over the table. This is accomplished by having the rack engage a supplemental gear mounted on the frame which imparts motion to a transmission shaft with spiral gears for op-

erating the said ink distributing or table rollers.

The novel features of the invention are more fully described in the following specification and claims and illustrated in the accompanying drawings in which:

Figure 1 represents a side elevation of a printing press embodying this invention. Fig. 2 is an end view of the same. Fig. 3 is a side elevation of the form rollers on a larger scale. Fig. 4 is a plan view of the same. Fig. 5 is a plan view of a modification.

Referring to the drawings, the letter *a* designates a frame and *b* is the bed to which can be imparted rectilinear reciprocating motion in any well known manner. To this bed is bolted a rack *c* preferably with oblique teeth. This rack engages intermediate spiral gears *d* and *e* respectively and these gears drive the spiral gears *f* and *g* mounted on the shafts of the form roller vibrators *h* and *i*. The rack *c* also engages a supplemental gear *j* mounted on the frame which drives a transmission shaft *k*. By means of spiral gears *m* carried by the shaft motion is transmitted to the spiral gears *n* and thus to the ink distributing or table rollers *o* and *p*.

The gears *d* and *e* are each provided with a screw *q* for operating a nut *r*. This nut when moved by the rotation of the screw will move one of the rollers laterally, or endwise for evenly distributing the ink. One of the screws is right handed while the other is left handed thereby moving the rollers *h* and *i* in opposite directions. By reason of the screw action these rollers in combination with the spiral gears have different speeds and it is to overcome this condition that the rollers *h* and *i* are respectively larger and smaller than the pitch diameter of the gears that drive them, *f* and *g*. It will be seen that the form roller vibrator *h* is larger than the pitch diameter of the spiral gear, *f*, and the roller *i* is smaller than the pitch diameter of the gear *g* thus compensating for the variation in speed caused by the endwise motion.

The table distributing roller vibrators *o* and *p* are approximately of the same diameter and are driven to rotate at different speed in conjunction with the ink table thus covering the table with a uniform coat of ink.

As shown in Fig. 5, the rack *c* is provided with spur teeth which operate the gears *f'* and *g'* to actuate the form roll vibrators *h* and *i*. In this construction the gear *j'* has spur teeth to engage the rack while the gears *m'* for actuating the shaft *h'* and the ink rollers *o* and *p* would be in the form of spiral gears as indicated in the drawing and would be practically noiseless.

I claim:

1. In a printing press the combination with a reciprocating bed provided with a rack, a plurality of series of ink rollers operated thereby, devices for giving endwise movement to one of each series of the ink rollers, intermediate gears for driving the ink rollers, said rollers and gears being of different diameters to compensate for the variation in speed caused by the endwise movement.

2. In a printing press the combination with a reciprocating bed provided with a rack, a plurality of series of ink rollers operated thereby, devices for giving endwise movement to one of each series of ink rollers, intermediate gears for driving the ink rollers, said rollers and the gears carried by the rollers being of different diameters to compensate for the variation in speed caused by the endwise movement.

3. In a printing press the combination with a reciprocating bed provided with a rack, a plurality of series of ink rollers operated thereby, devices for giving endwise movement to one of each series of the rollers, intermediate gears for driving the ink rollers, one of the said rollers being larger than the pitch diameter of the driv-

ing gear while the other roller is smaller than the pitch diameter of its gear to compensate for the variation in speed caused by the endwise movement.

4. In a printing press the combination with a reciprocating bed having an oblique toothed rack, ink rollers operated thereby, spiral gears carried by the ink rollers, devices for giving lateral movement to one or more of the rollers, intermediate gears engaged by the rack for driving the spiral gears of the ink rollers, one of the said rollers being larger than the pitch diameter of its driving gear while the other roller is smaller than the pitch diameter of its gear to compensate for the variation in speed of the rollers caused by the lateral movement.

5. In a printing press the combination with a reciprocating bed having a rack, a plurality of series of ink rollers and table distributing rollers operated thereby, a supplemental gear engaged by the rack, a transmission shaft driven by the gear, spiral gears mounted on the shaft, and intermediate gears engaged by the gears of the shaft for imparting motion to the table distributing rollers at different speed than the surface movement of the ink table, while the form rollers are driven in unison with the bed.

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

GEORGE P. FENNER.

Witnesses:

W. D. WELLS,
GEO. H. SISTARE.