

G. P. FENNER.
PRINTING PRESS.

(Application filed Aug. 20, 1901.)

(No Model.)

4 Sheets—Sheet I.

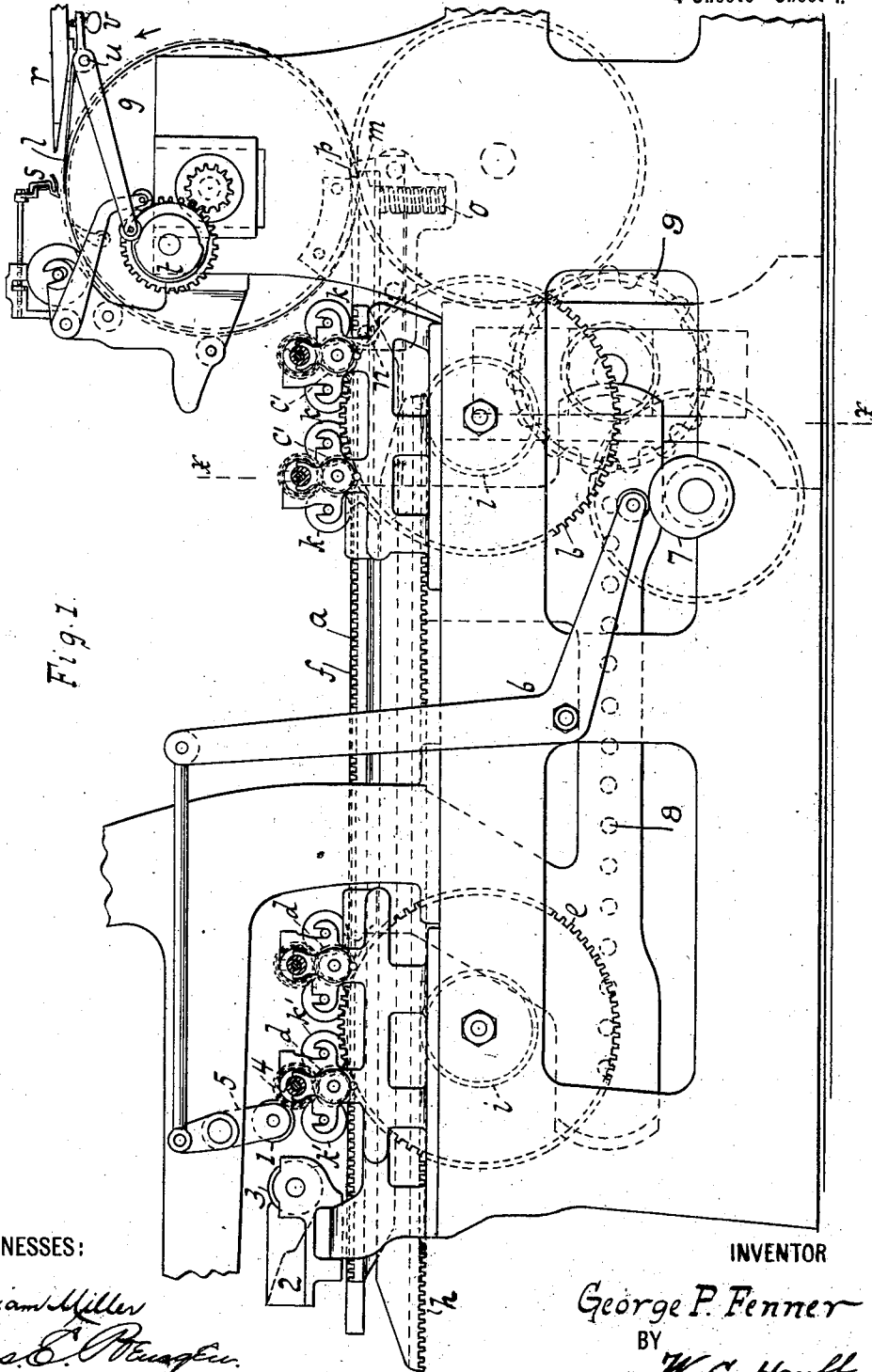


Fig. 1.

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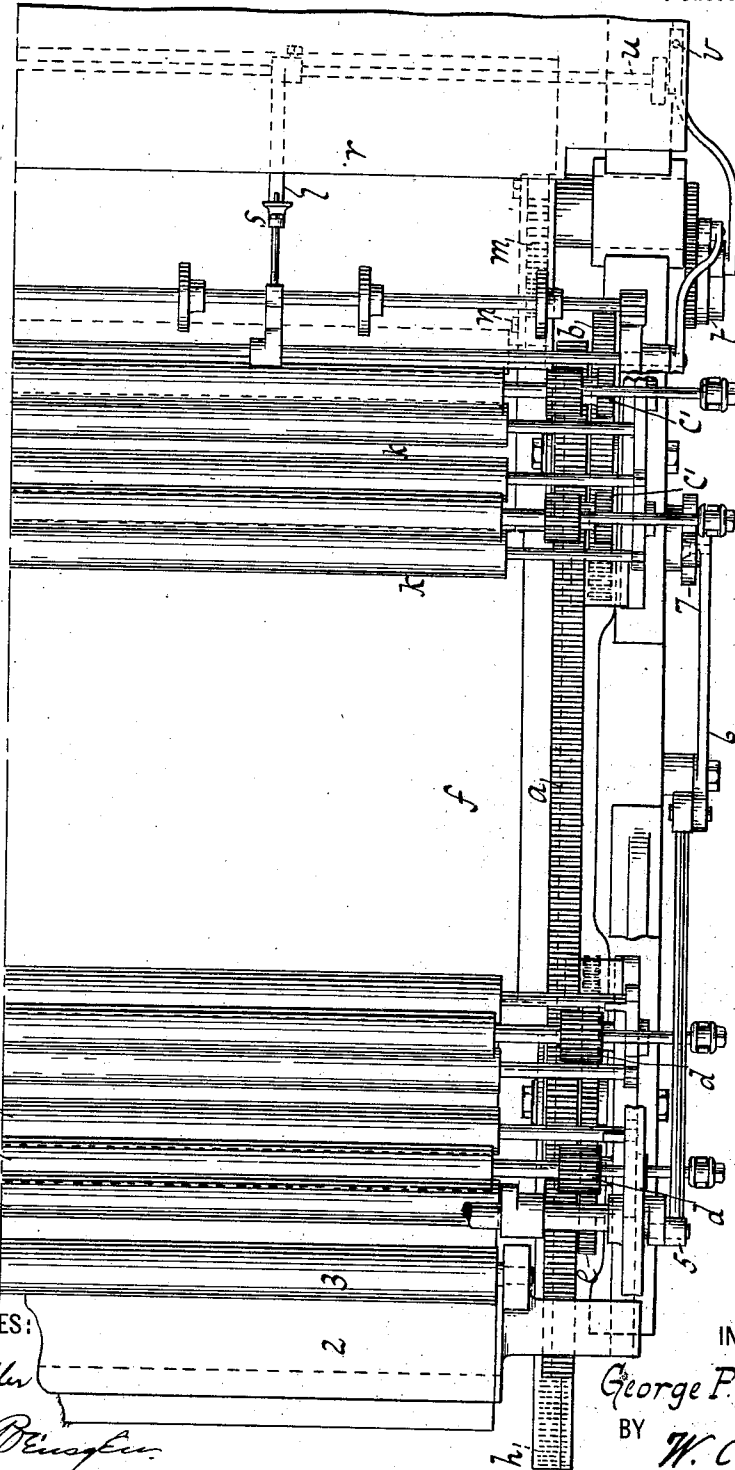
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4 Sheets—Sheet 2.

Fig. 2.



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No. 701,698.

Patented June 3, 1902.

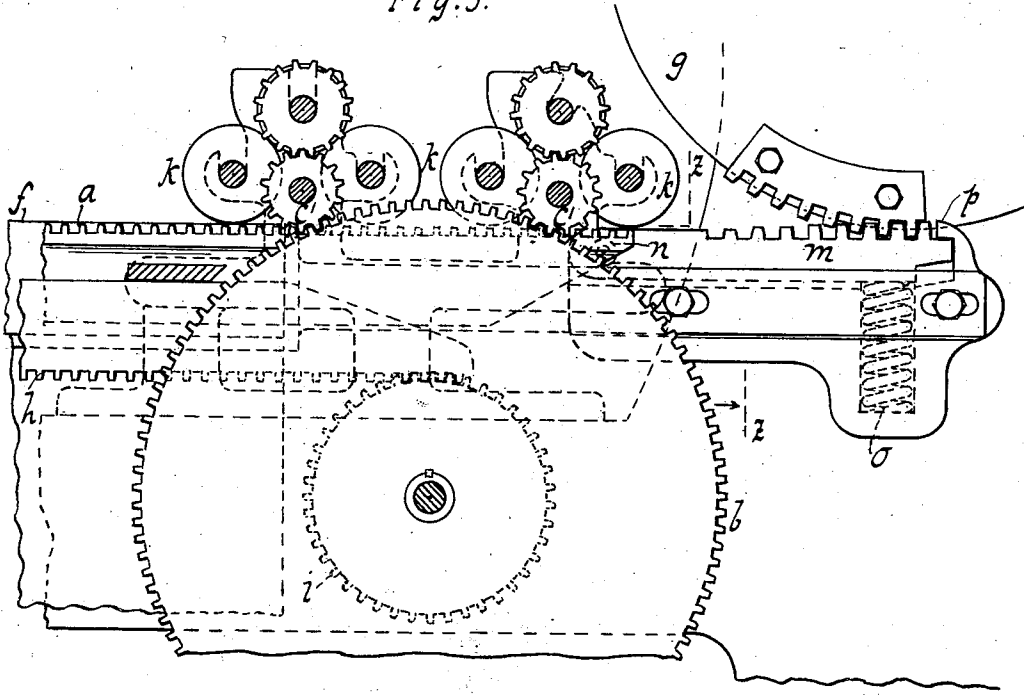
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4 Sheets—Sheet 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE P. FENNER, OF NEW LONDON, CONNECTICUT.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 701,698, dated June 3, 1902.

Application filed August 20, 1901. Serial No. 72,679. (No model.)

To all whom it may concern:

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

By means of this invention such operations as inking and feeding can be satisfactorily effected; and the invention resides in certain novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of a press containing the invention. Fig. 2 is a plan view of Fig. 1. Fig. 3 is an end elevation of Fig. 1, with parts broken. Fig. 4 is a section along *x x*, Fig. 1. Fig. 5 is a section along *y y*, Fig. 4.

In the drawings is shown a type-bed *f* and impression-cylinder *g*, the operation of which is known in the art. In Fig. 1 is indicated a rack *8*, secured to the type-bed *f*, and the gear *9*, alternately engaging the rack on opposite sides, causes this rack and bed to reciprocate. Traveling or reciprocating with this bed is a rack *a*, into which mesh the gears *c*, driving the ink-rollers *k* nearest the cylinder. Said gears *c* also engage the gear-wheel *b*, or, rather, said gears being made in two sections *c* and *c'* the sections *c'* engage such wheel *b*. This is so arranged as it has been found impossible or impractical to have the gears or gear-sections solid or integral and at the same time mesh into both rack and gear, the rack cutting or forming a sort of chord along a side or face of the gear, so that the distance between the gears measured along the rack varies or is shorter than the distance between said points measured on an arc or on the circumference of the gear. Hence it is necessary to turn or arrange the section *c'*, which meshes into the gear *b*, a certain extent or fraction of a tooth out of register with gear part *c*, which meshes into the rack. After these two sections are turned a trifle in relation to each other they are fastened together, or they could be cast in the desired relationship. On the hub of this wheel *b* or turning therewith is a smaller gear *i*, a similar gear being shown at the gear-wheel *e*, and these gears *i* carry or engage rack *h*. As such rack *h*

reciprocates the gears *b* and *e* rotate or oscillate in unison. The gears *c* are driven by the rack *a*, the gears *b* by the gears *c'*, while the gear *i* imparts motion to the rack *h*, which in turn drives the gear *e* and the second gear *i*, which operates the fountain ink-rolls. The rack *h* is free to oscillate independently of the bed. The gear *e* engages the gears *d*, driving the ink-rolls, which are over the table or located some distance away from cylinder *g*. These gears *d* are short or narrow—that is, so arranged as to only mesh into gear *e* and allow rack *h* and vibrator-rack *a* to pass the face or sides of the gears without touching the same.

In speaking of the gears *c d* as driving the ink-rollers it may be noted that such gears really mesh into the gears which drive or are mounted on the ink-distributing rollers, which latter contact with the ink-rollers proper, and such ink-distributing rollers, in addition to rotary motion, are also normally given a transverse or axial motion.

The gears *i* are shown smaller than gears *b e*, so that the rack *h* runs at a different speed or more slowly than the bed.

Attached to the bed is shown what may be termed a "register-rack," *m*, having a joint or pivot connection *n* with the bed and held by spring *o* up against stop *p*. A gear-segment is shown at *q* on cylinder *g*. When the cylinder comes to the bed or these two parts come together, the yield or elasticity of spring *o* will allow the rack to give or move so that the parts come together without so severe a shock as would otherwise occur if the parts were rigid or no provision made for yielding, especially when running at high speed. The spring is made stiff enough to bring the cylinder and bed together in perfect register but flexible enough to reduce the severity of the blow.

In the drawings is also shown an arrangement by which the tongues *l* are moved without moving the feed-board *r*. The feed-guides *s* are also movable. These parts are shown moved up and down by cams *t*, and the feed-guides are constructed in such manner that the register of the sheet is not affected by the operation. This construction is adapted for a two-revolution press, so that the tongues *l* will be up when the cylinder

comes around the second time to deliver the sheet. The raising of the tongues also raises the loose end of the feed-guide, and the sheet is allowed to pass out or to the delivery with-
 5 out being touched or disturbed by the feed-guide apparatus. On the second time around when the grippers take a sheet the tongues are close down or to the surface of the cylinder, so that the sheet can be taken perfectly
 10 smooth by the grippers without wrinkling. The tongues *l* can be suitably supported or jointed at *u* to the board, and a screw or stop arrangement *v* can be provided or adjusted to limit the drop or swing of the tongues.
 15 This tongue *l* is shown in Fig. 1 as part of a complete machine, but no claim thereto is herein made.

In the drawings is shown a ductor-roller 1, Fig. 1, for taking ink from the fountain 2 or
 20 its roller 3 and applying the same to the ink-distributing roller 4, which in turn applies the same to the inking-rollers *k'* away from cylinder *g*. These rolls *k'* apply the ink to the table or ink-slab, which forms, as it were, the
 25 rearward extension of the type-bed *f*, and as this bed runs toward cylinder *g*, so that the ink-slab portion contacts with ink-rollers *k* near cylinder *g*, these latter rollers are inked, so as in turn to apply the ink to the type
 30 portion of the bed or table *f*. This ductor-roller 1 is applied above the ink table or bed *f* and is kept permanently out of contact therewith and is timed to swing to or contact with the
 35 vibrating or ink-distributing roller 4, while the latter is practically at rest or has temporarily stopped rotating or moving. By this arrangement the backlash or rattle at the gears of the ink-distributing roller, caused by
 40 a ductor-roller contacting with an ink-distributing roller while in motion, is avoided, thus preventing not only noise, which is objectionable, but also preventing the rollers or their
 45 bearings from working loose. This ductor-roller can be mounted in a suitable way for vibrating or contacting with the ink-font
 50 roller and the ink-distributing roller. A swinging arm or lever 5 is shown supporting the ductor-roller, which arm 5 is linked to or
 55 actuated by lever 6 and cam 7. This ductor-roller being brought into contact with the ink-distributing roller 4 when practically at rest
 60 or at the beginning of a series of revolutions in one direction of said roller 4, the ink will be thoroughly or uniformly distributed about the entire circumference of the ductor-roller
 65 and of the rollers 4 and *k'* and also of the ink-bed, so that when the latter moves to contact with rollers *k* the ink is uniformly distributed to insure satisfactory inking of all the
 70 type. The ductor-roller 1 or its shaft or mounting being applied above the ink table or bed *f* allows ready mounting and dismounting of and access to the ductor-roller and leaves a clearance or space between the ink-fountain, the inking-rollers, and the ink table
 75 or slab.

In stating that the ductor-roller is made to

contact with the ink-distributing roller when practically at rest it is understood that the vibrator-roll need not be absolutely still, but
 70 practically at the point to where it comes to rest. As the vibrating roll reverses almost instantly, it might be a little difficult to bring these two rolls together exactly at this point
 75 of absolute rest.

As to the purpose and advantage of this construction and of the function secured by
 this invention it may be stated that the gear-
 80 ing for driving the table ink-rollers is simple, noiseless in its action, that there are few working joints between bed and table ink-rollers, and that there is no liability to get out of order. The ink-carrying roll, which swings between the fountain and the first vibrating roll,
 85 is brought into contact with roller 4 when at rest. This prevents noise which would be caused by starting the carrying-roll quickly at high speed.

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

1. A type-bed having a rack, a set of ink-rollers having gears made to engage the rack, a second set of gears engaged by the ink-roller
 90 gears, a second rack engaged by the second set of gears, a third set of gears engaged by the second rack, and a second set of ink-rollers engaged by the third set of gears.

2. A reciprocating type-bed and ink-rollers driven by the bed, combined with a rack geared to the ink-rollers, and a second set of
 100 ink-rollers geared to the rack and disconnected from the bed, said rack being made to move at a different rate of speed from the bed substantially as described.

3. A type-bed having a rack, two sets of ink-rollers actuated by the rack, two sets of gears
 105 made to engage the ink-rollers, and a rack connected to said sets of gears substantially as described.

4. A type-bed and fountain and form-inking rollers, combined with a plurality of sets
 110 of gears, each set being mounted on a common shaft and made of varying sizes, and a rack, the fountain and form-inking rollers being engaged by the gears of the larger size,
 115 and the rack being engaged by the gears of the smaller size.

5. A type-bed having a rack and inking-rollers, combined with a plurality of sets of
 120 gears of different sizes, and a second rack free from the type-bed, one set of inking-rollers being engaged by the bed-rack, and a gear of large size, and the other set of inking-rollers being engaged by another gear of large size
 125 and being free from the bed-rack, and the second rack being made to transmit motion between the smaller gears, substantially as described.

6. A type-bed having a rack, ink-rollers geared to the rack, gears engaged by the ink-
 130 roller gears, a second set of ink-rollers, a second set of gears engaged to said second set of rollers, and a rack made to engage the two sets of gears substantially as described.

7. A type-bed having a rack, two sets of ink-
rollers each provided with a set of gears one
of which is engaged by the rack, gears en-
gaged by the two sets of gears of the ink-roll-
5 ers and provided with gears of smaller size,
and a rack made to engage the smaller gears
substantially as described.

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

GEO. P. FENNER.

Witnesses:

W. C. HAUFF,

E. F. KASTENHUBER.