No. 676,760. Patented June 18, 1901.

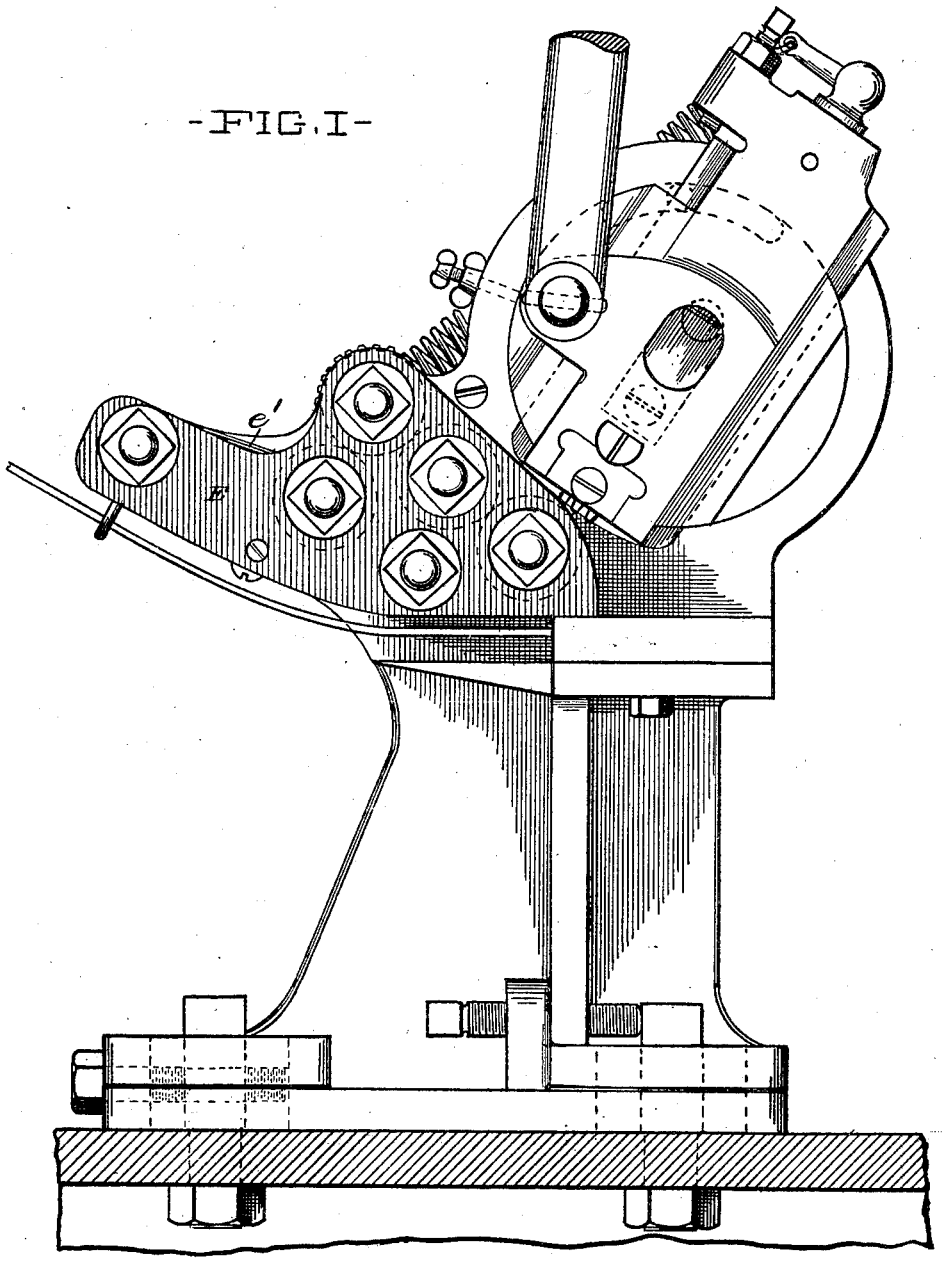
W. L. MORRIS.

INKING DEVICE.

(Application filed Dec. 9, 1899.)

(No Model.) 3 Sheets—Sheet 1.

-FIG. I-



Witnesses,
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A. E. Merkel.

Inventor,
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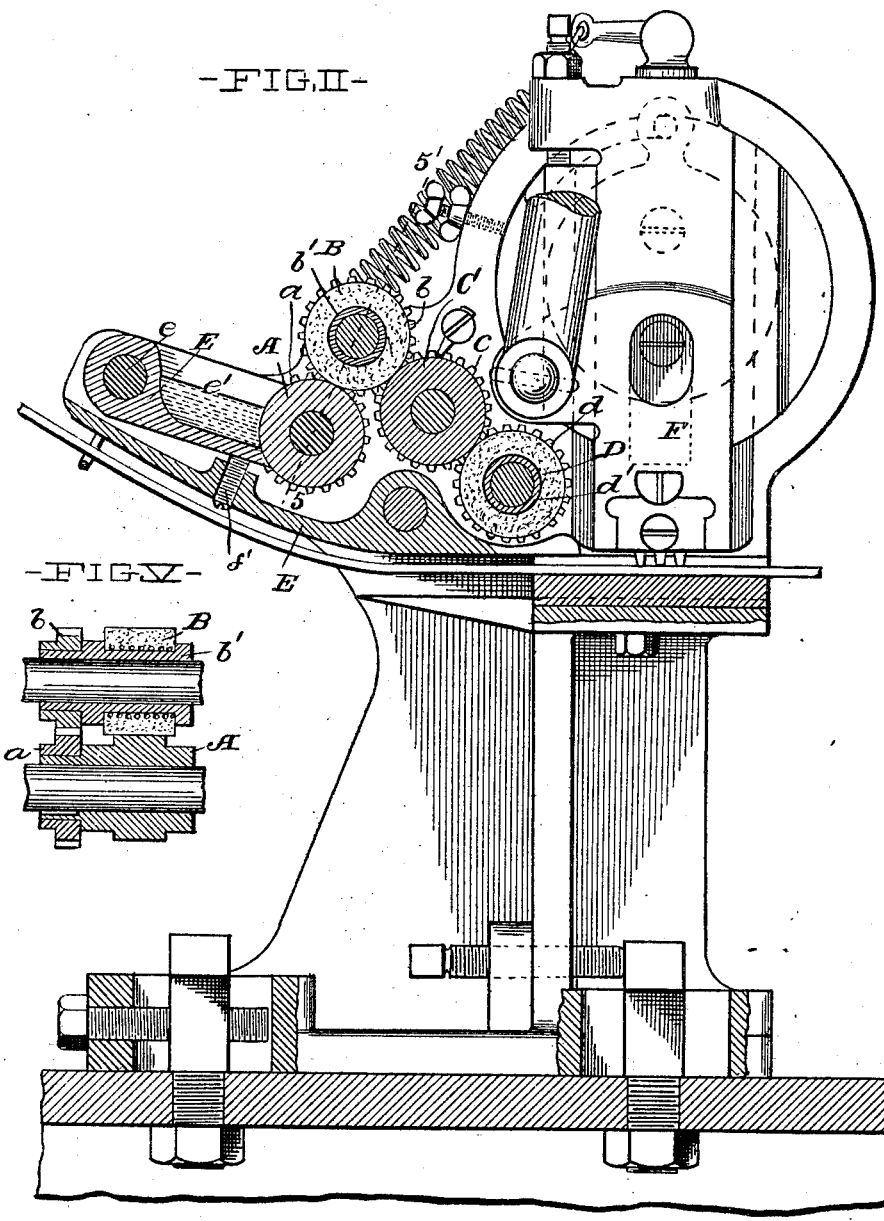
-FIG. II-



-FIG. V-

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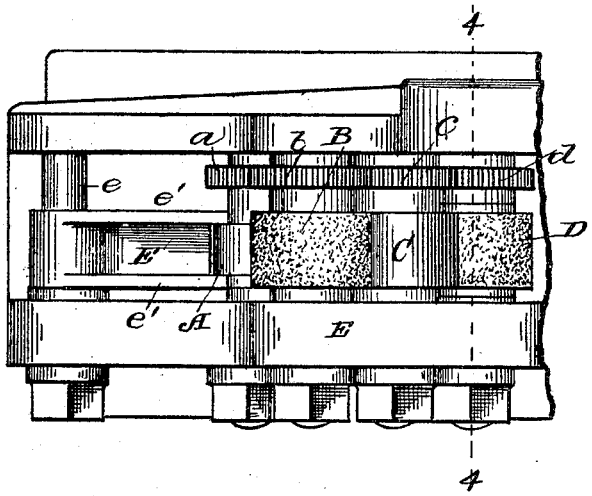
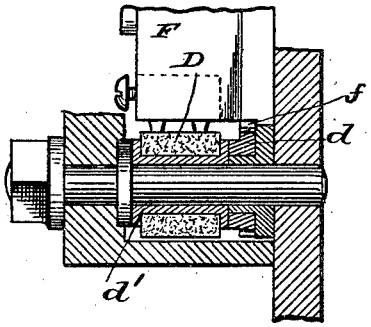
(Application filed Dec. 9, 1899.)

(No Model.) 3 Sheets—Sheet 3.

-FIG. III-



-FIG. IV-



Witnesses,
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UNITED STATES PATENT OFFICE.

WILLIAM L. MORRIS, OF CLEVELAND, OHIO, ASSIGNOR TO THE AUSTIN CARTRIDGE COMPANY, OF SAME PLACE.

INKING DEVICE.

SPECIFICATION forming part of Letters Patent No. 676,760, dated June 18, 1901.

Application filed December 9, 1899. Serial No. 739,738. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. MORRIS, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Inking Devices, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to that class of devices utilized for inking type in printing-machines; and it consists in means hereinafter described.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a side elevation of a printing device to which my invention has been applied. Fig. II represents a central transverse cross-section of the inking device, showing the printing mechanism with which it coöperates in elevation. Fig. III represents a top plan of said inking device broken away from the printing device. Fig. IV represents a section of the said inking device, taken upon the plane indicated by line 4 4, Fig. III; and Fig. V represents a section of said inking device, taken upon the plane indicated by line 5 5, Fig. II, with portions removed.

A series of alternately-occurring non-compressible and compressible rollers A B C D are mounted upon and transversely of the rear portion of the frame E of the machine. The non-compressible rollers A and C each have secured to one lateral face or upon a reduced portion by means of a key a gear-wheel *a* and *c*, respectively, such gears meshing with an intermediate gear *b* and gear *c* meshing with a fourth gear *d*, as shown in Figs. II, III, and V. Gears *b* and *d* are each loosely mounted upon an extension or journal formed upon a thimble *b'* and *d'*, respectively, which carries a compressible, preferably gelatin, hollow cylinder, which constitutes the compressible portion of the compressible rollers A and B, respectively, each such compressible cylinder being in frictional contact with the adjacent non-compressible roller or rollers, as shown in Fig. II, according to its location—that is, whether it be an intermediate or a terminal roller.

In view of the fact that the gears *a*, *b*, *c*, and *d* are mounted in train having a coöperating relationship it will be understood that the compressible and non-compressible rollers being located centrally of the gears have the same relative position, or, in other words, are mounted or positioned within the train of gearing, although, as before explained, there is no positive driving connection between the compressible and non-compressible rollers, and it is to be understood that the statement of the compressible rollers being positioned within the gearing refers solely to the location of the supported ends thereof within the gears without regard to any positive connection between the gears and rollers.

There is a distinct advantage resulting from the mounting of the gears *b* and *d* on the shafts of the rolls B and D. The rolls B and D, being composition, are built up on the thimbles *b* and *d*, the latter forming the core therefor. As said rolls are driven by friction from the non-compressible rollers, should there be any tendency of the thimbles "sticking" on the shafts on which they are mounted there would be a tendency to destroy the connection between the rolls and thimbles. By mounting the gears *b* and *d* on such thimbles such sticking would be overcome by the frictional action of the gear on the thimble, although there is but a loose connection between them. As said gears are driven positively, while the rolls B and D have simply a frictional engagement, thus allowing a relative "slip" between the compressible and non-compressible rolls, there is present a construction which will insure a proper distribution of the ink through the series of rolls.

The gear *d* is located so that its teeth are in the path of the teeth of a segment *f*, Fig. IV, secured to an oscillatory type-carrier F, the oscillation of which is effected by any suitable means—such, for instance, as that described in my application, Serial No. 708,802, filed March 13, 1899. Such oscillation is such as to cause the segment-teeth and

gear-teeth to escape engagement during one stroke of the oscillatory movement of the type-carrier and such as to effect such engagement during the other stroke of such movement, as is explained in said application. Such engagement effects an intermittent movement of each of the gears in the same direction, such movement causing the non-compressible rollers to have positive rotation, such rotation effecting the rotation of the compressible rollers as a result of the frictional contact before mentioned.

An ink-well E′ is hung at one end upon a rod *e* and is sustained at the other end by an adjusting-screw *f*′, having threaded engagement with the stationary frame below. Said well is formed with upright lateral walls *e*′ and extends toward the train of inker-rollers. The end adjacent to said rolls is open and of dimension between the lateral walls such as to permit the terminal non-compressible roller A to fit snugly in such opening, as shown in Fig. III. The end of the bottom of the well is curved to conform to the periphery of said roller, such periphery resting against said curved end, whereby said roller is made to form a rotating end wall for the ink capable of retaining the latter in the well, as shown in Fig. II.

In operation the gears and rollers are rotated as previously described and the ink carried progressively from roller A to the roller D over the roller-surfaces, thus permitting the type on the type-carrier to be successively inked by contact with a freshly-inked surface after each oscillation of said carrier.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means covered by any one of the following claims be employed.

I therefore particularly point out and distinctly claim as my invention—

1. In an inking device, the combination of a series of compressible and non-compressible rollers located in train and arranged alternately, a train of gearing corresponding in position with said series of rollers for positively driving said non-compressible rollers, the compressible rollers being mounted within the train of gearing and driven solely by friction, and means for imparting movement to the gearing.

2. In an inking device, the combination with a series of alternately-occurring compressible and non-compressible rollers, of means for positively driving the non-compressible rollers, said compressible rollers being positioned within said means but driven solely by contact engagement with said means and said non-compressible rollers, substantially as set forth.

3. In an inking device, the combination of a series of compressible and non-compressible rollers located in train and arranged alternately, said non-compressible rollers having a supporting-thimble mounted on a central shaft or support, a train of gearing corresponding in position with said series of rollers for positively driving said non-compressible rollers, each of said thimbles loosely supporting a gear, said compressible rollers being driven by frictional contact with said gears and said non-compressible rollers, and means for imparting movement to the gearing.

Signed by me this 23d day of October, 1899.

WM. L. MORRIS.

Attest:

D. T. DAVIES,

A. E. MERKEL.