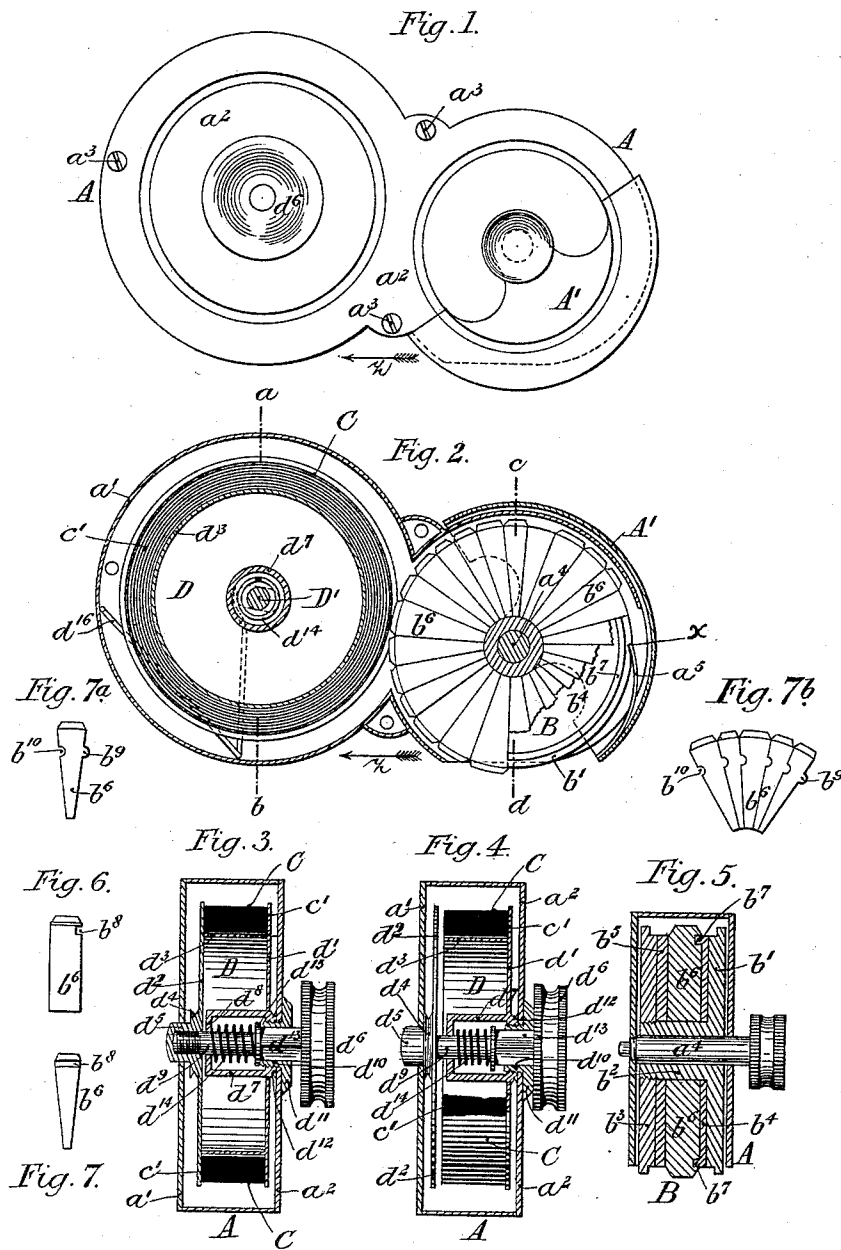


J. S. FOLEY.
PRINTING DEVICE.

No. 448,219.

Patented Mar. 17, 1891.



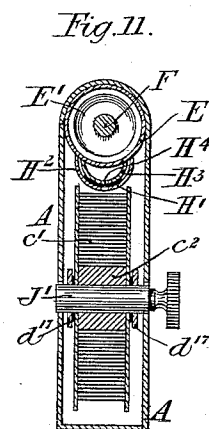
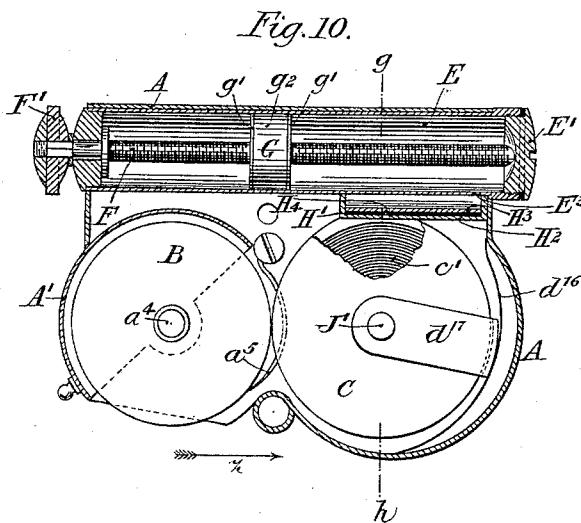
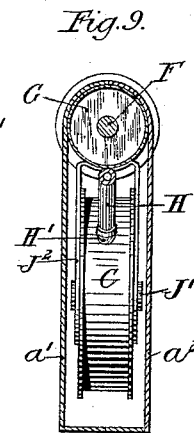
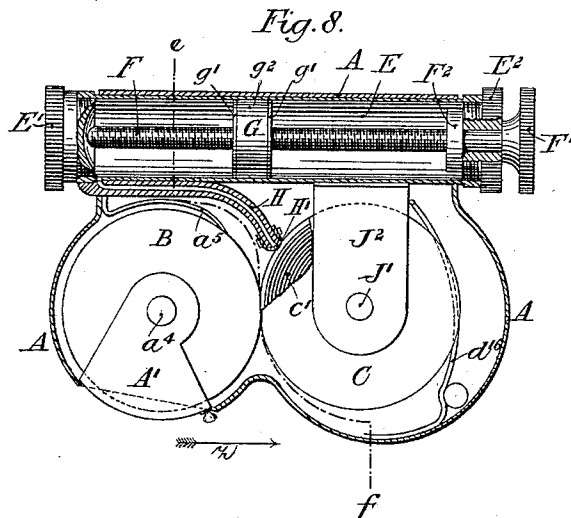
Witnesses:
Kernan Bormann.
Richard C. Maxwell.

Inventor:
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UNITED STATES PATENT OFFICE.

JAMES SAMUEL FOLEY, OF LONDON, ENGLAND.

PRINTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 448,219, dated March 17, 1891.

Application filed February 3, 1890. Serial No. 339,092. (No model.) Patented in England December 6, 1889, No. 19,635, and January 15, 1890, No. 793.

To all whom it may concern:

Be it known that I, JAMES SAMUEL FOLEY, a citizen of the United States, at present residing at London, in England, have invented certain new and useful Improvements in Printing Devices, (for which I have obtained Letters Patent of Great Britain, No. 19,635, dated December 6, 1889, and No. 793, dated January 15, 1890,) of which the following is a specification.

This invention is intended to take the place of the usual rubber and other stamps of printing devices or instruments, and may be made portable and so compact that it may easily be carried in the pocket, notwithstanding that in addition to the stamp or types and the inking pad or roller it also contains a reservoir of ink. Certain of the parts, however, may be applied to printing devices other than portable.

The shape and general design may naturally be considerably varied without departing from the spirit of the invention, which will be best understood by reference to the accompanying drawings, in which the instruments are represented about twice the usual pocket-size, and of which—

Figure 1 is an elevation of one form of the printing-instrument in an inoperative or closed condition—that is to say, as when ready for carrying in the pocket. Fig. 2 is a longitudinal section of Fig. 1 with the cover turned back as when ready for use. Fig. 3 is a transverse section on the line *a b* of Fig. 2, representing the combined inking-roller and ink-reservoir in its closed condition; and Fig. 4 is a similar view, but partly in elevation, showing in an exaggerated manner the ink-reservoir open for supplying ink to the inking-roller. Fig. 5 is a transverse section on the line *c d* of Fig. 2, through the type-wheel or printing-roller. Figs. 6 and 7 are views of one of the types detached from the printing-roller. Fig. 7^a is a view of an alternative form of type, and Fig. 7^b is a view showing a number of such types fitted together. Fig. 8 is a view, partly in elevation and partly in longitudinal section, of an alternative form of the apparatus; and Fig. 9 is a transverse section of the same on the crooked line *e f* of Fig. 8. Fig. 10 is a view, similar to Fig. 8, of

another form of the apparatus; and Fig. 11 is a transverse section on the line *g h* of Fig. 10.

Like letters indicate like parts throughout the drawings.

Referring to Figs. 1 to 7, A is the case, which, as shown in Figs. 3, 4, and 5, may consist of two parts *a' a''*, the latter constituting a removable cover-plate secured to *a'* by screws *a'''* or equivalent means.

A' is the adjustable cap, which in Figs. 1 and 8 is shown closed and in Figs. 2, 5, and 10 open, and which is pivoted on the arbor *a''*, passing transversely through the case, into one side of which it may be screwed and on which rotates the printing-roller B, as shown clearly in Fig. 5. This roller B may be solid and carry the type upon its periphery; but it is preferred to construct it so that the type may be "set up," so as to provide for the making of any changes or alterations that may be required. One way of constructing the roller with this provision is shown as an example in Figs. 2, 5, 6, and 7, in Fig. 5 of which *b'* is a disk provided with a sleeve *b''*, through which passes the before-mentioned arbor *a''*. *b'''* is a corresponding disk on the opposite end of the sleeve *b''*, and *b'''' b'''''* are other disks, which slip easily over the sleeve *b''*, and between which are gripped the type *b''''''*. The disk *b''''* may be formed with an annular projecting rim *b''''''* for fitting into a notch or recess *b'''''''*, formed in each of the types *b''''''*. These types, as shown most clearly in Fig. 7, are tapered from their printing end down the shank, so that when placed together in the manner shown in Fig. 2 they will fit properly into the printing-roller.

When it is desired to alter the type in the roller B, all that is necessary is to unscrew the disk *b''* and take it and the disk *b'''* off the sleeve *b''*, remove the type then in the roller, and rearrange it or substitute for it other desired type, and then again replace the disks *b'' b'''*.

The disks *b''''* and *b'''''* may be dispensed with and the types firmly held between the disks *b' b'''*, one of which may be formed with the annular rim *b''''*, to secure the types against longitudinal displacement, or, instead of this arrangement, each of the types may, as shown in Fig. 7^a, be formed with a projection *b''''* and

a recess b^{10} , so that, as shown in Fig. 7^b, the projection of one type may fit into the recess of the contiguous face of the next type, in order that when arranged around the circle they would hold each other in. Other means may, however, be employed for securing the types in the wheel B. The types may be arranged in the wheel B in one or more rows, according to requirements, and may be made of any suitable material, preferably metal or rubber.

The lower part of the case A, where it surrounds the printing wheel or roller B, is cut away so as to allow the type-faces to project beyond it, and in the edge of the disk b' is formed a recess or notch a , Fig. 2, into which takes a spring a^5 , which may be secured to the cap A' , as in Fig. 2, or to the case A, as in Figs. 8 and 10. The types are arranged in the wheel B, so that when the line of printing to be effected by it is completed the spring a^5 will enter the notch with a click, and thereby sensibly indicate to the user the completion of such line. This spring a^5 and notch b^8 , moreover, prevent the type-wheel B from being rotated in the wrong direction.

C is the inking-roller, which in the device shown in Figs. 1 to 4 is combined with the ink-reservoir D, but which in each of the instruments shown in Figs. 8 to 11 is independent of such reservoir.

In Figs. 1 to 4 the combined inking-roller and reservoir is constructed of two disks d' d^2 , the former of which has secured to it the metal cylinder or drum d^3 , around which is absorbent material c' , which may be of felt, with an outer covering of calico or other suitable material.

D' is a spindle, one end of which is threaded for screwing into the hollow trunnion d^5 , secured to the disk d^2 , and whose other end terminates in a milled head d^6 . The disk d' has also secured to it an inner cylindrical casing d^7 , one end d^8 of which is perforated to allow the cylindrical part d^9 of the spindle D' to slide freely through it, and the other end of which is internally threaded to receive the screwed gland d^{10} , whose flange d^{11} at the outside of the case A prevents lateral displacement of the inking-roller in one direction, while the boss d^{12} or end of casing d^7 , by abutting against the inner side of the case A, prevents the roller moving laterally in the opposite direction. The gland d^{10} is formed with a central square opening, through which can freely slide the square part d^{13} of the spindle D' . Within the casing d^7 is a helical spring d^{14} , whose pressure is exerted between the end d^8 and the washer d^{15} , seated against the end of the square part d^{13} of the spindle in such manner as to tend always to force the said part outward farther through the gland d^{10} , and thus through the screwed end of the spindle D' and its connection with the disk d^2 to draw the said disk tightly against the edge of d^3 , as in Fig. 3. In consequence of this arrangement the ink which is contained

in the reservoir D is prevented from escaping until the disk d^2 is moved away from its seat or edge of drum d^3 , which may be done by pressing the head d^6 closer to the case A, as shown in Fig. 4, where, however, such displacement is represented as exaggerated, as but very little movement of the disk d^2 away from d^3 is required to enable ink to pass sufficiently to replenish the absorbent material c' . Immediately the pressure against the head d^6 is removed the spring d^{14} again draws the disk d^2 tightly against the seat d^3 , and thus prevents any further escape of the ink. The gland d^{10} and trunnion d^5 are supported in slotted bearings, one of which is represented in dotted lines in Fig. 2, and which admit of the inking-roller C being moved nearer to or farther from the type-wheel B.

d^{16} , Fig. 2, is a spring or pair of springs which act against the case A and bosses d^4 d^{12} , so as constantly to press the inking-roller C into peripheral contact with the type-wheel B, which roller and wheel are preferably at different diameters, so that the same portion of the roller C will not always come into contact with the same type.

When it is desired to use the before-described instrument, the cap A' , then in the position shown in Fig. 1, is moved into the position shown in Fig. 2. The projecting portion of the type-wheel B is then pressed onto the surface to be printed on and the instrument is drawn in the direction indicated by the arrows z in Figs. 1 and 2 and by the friction first upon the edges of the disks b' b^3 between the commencement and end of the line of type, at which part there are no type-faces, and then afterward, as the wheel is turned farther round upon the type-faces, the type-wheel B will be rotated and printing thereby effected. As soon as the spring a^5 enters the notch b^8 the line of printing is completed.

When it is desired to distribute ink over the type-faces before using it, it may be effected by giving one or more turns to the head d^6 and thus to the inking-roller C.

In the alternative arrangement (shown in Figs. 8 and 9) E is a cylindrical ink-reservoir, which is closed in at its ends by the screwed caps E' and E^2 , the former being that which is removed when it is desired to fill the reservoir with ink. F is a screwed rod which passes through the cap E^2 , outside which it is provided with the milled head F' . At the inner side of the cap E^2 the screwed rod F has fixed upon it a collar F^2 , by means of which and the head F' the rod F is prevented from moving longitudinally in the cap E^2 , although it may be rotated therein. The head F' and collar F^2 work sufficiently close against the cap E^2 to prevent any escape of the ink between the working-faces; but, if desired, india-rubber or equivalent washers or other packing may be provided to insure a tight-working joint and for making tight joints between the caps E' and E^2 and the ends of the reservoir E.

G is a piston on the rod F, which may be composed of two metal disks g' and a central india-rubber portion g^2 , the disks g' being screw-threaded to fit the rod F.

5 H is a pipe suitably secured to the reservoir, into which one of its ends opens, as shown in Fig. 8. The other end has fitted over it a preferably india-rubber perforated discharging nozzle or cap H' , which automatically closes, except when forced open
10 by the ink as it passes. This cap or nozzle H' , if made of india-rubber, may be perforated with one or more holes by a needle or similar sharp instrument. These holes remain closed against the passage of the ink,
15 except when the latter is forced through them. Instead of india-rubber perforated, this cap or nozzle may be made of any porous material, which, while capable of resisting the
20 chemical action of the ink and of preventing its passage normally, will nevertheless allow it to pass when sufficient pressure is applied. These conditions being fulfilled, it is immaterial whether the cap or nozzle be made of
25 metal, or of animal, vegetable, or mineral substance.

The inking-roller C is free to rotate on a spindle J' , supported in bracket-bearings J^2 , which may be secured to the reservoir E in
30 any convenient manner. The roller C may be formed with a central cylindrical metal core c^2 , as shown in Fig. 11, around which is the absorbing material c' . The roller C is so situated that its inking-surface rotates in
35 close proximity to or in contact with the before-mentioned cap H' on the pipe H. It is also in peripheral contact with the type of the printing-roller B, which may be constructed in any of the manners before described.

40 When it is desired to fill the reservoir E with ink, the piston G is screwed back against the collar F^2 by means of the screwed rod F, which may be turned by means of the head F' —that is to say, the piston is moved from
45 the position in which it is shown in Fig. 8 toward the right. The cap E' is then removed and the ink poured into the reservoir through the then open end, after which the cap E' is replaced. When it is desired to supply ink
50 from the reservoir E to the roller C, it is only necessary, by means of the head F' , to turn the screwed rod F so as to move the piston G toward the cap E' , which action will force
55 some of the ink through the pipe H onto the roller C, the quantity so discharged depending on the extent to which the piston G is moved.

It will be observed that if the piston G were
60 to turn with the screwed rod F no discharge of ink would result, for the reason that the piston would not be advanced in the cylinder or reservoir E, and consequently no pressure would be put upon the ink. The prevention
65 of G from turning may be effected in various ways—as, for example, by a groove in the piston and a feather in the cylinder, or vice

versa, suitable means being employed to prevent the ink from passing; but I find that by using a packing of india-rubber g^2 between the disks g' the desired result is fully attained, as
70 the friction of the rubber against the disks prevents their turning without taking the rubber with them, and the friction of the rubber against the wall of the cylinder is greater than the friction of the disks upon
75 the screw F, so that the piston advances instead of turning round. In the piston above described one or both of the disks g' may be screwed up so as to squeeze out the packing g^2 to make a tight fit in the cylinder
80 and against the screw F. Other material which has the same holding effect to prevent turning, and the same expansible qualities so as to allow of its being squeezed out between the disks and thus making the piston a tight
85 fit in the cylinder E and upon the screwed rod F, may be employed, or a solid piston which cannot revolve in the cylinder. Other parts of the inking apparatus may also be modified without departing from the spirit of
90 this invention, and, as an example I have in Figs. 10 and 11 represented an arrangement in which the delivery-pipe H is replaced by a chamber H^2 , which is soldered or otherwise
95 suitably secured to the reservoir E, which has a small aperture E^3 for allowing the ink to pass to the chamber. Inside this chamber is placed a preferably india-rubber piece H' ,
100 represented in Figs. 10 and 11 by a comparatively thick line, and above this is placed a metal liner H^3 , so as to squeeze the said rubber between it and the wall H^2 . H' , H^2 , and H^3 are
105 coincidently perforated at H^4 , just above the inking-roller C. The perforation in the rubber H' by its elasticity remains normally closed, but will open as soon as sufficient
110 pressure is applied to the ink by moving the piston G.

It will be observed in this last-described arrangement, as distinguished from that shown
110 in Figs. 8 and 9, that the turning-head F' of the screw F is at the reverse end of the barrel, and that to render the head F' readily distinguishable from the cap E' the said cap
115 E' may be made in the form of a plug, with a groove or the equivalent in its head, so that it can only be removed by a screw-driver, key, or other instrument, and not by hand.

In Fig. 8 the spring d^{16} for maintaining the rollers B and C in peripheral contact presses
120 against the bracket J^2 , and so moves it, as also the inking-roller C and reservoir E, the latter of which is loose in the case A, according to requirements. In Fig. 10 the spring d^{16} is
125 secured to a yoke d^{17} , fitted onto the arbor J' , the ends of which, in the manner before described, are guided in slots in the walls of the case A, and the ends of the spring are free and bear against the case.

The case A is preferably so constructed that
130 to remove the type-wheel B it will only be necessary to withdraw its arbor a^4 and draw

out the said type-wheel without necessitating the opening of the case A. Such a construction is shown in Figs. 1, 2, and 10.

I claim—

- 5 1. The combination, in a pocket printing-instrument, of a type-wheel, an inking-roller, an ink-reservoir having an automatically-closed outlet for delivering ink to said inking-roller, a housing inclosing said members
10 and recessed to permit a portion of the periphery of said type-wheel to project beyond said housing, a cap for closing said recessed portion, and means accessible from the exterior of said housing to cause the ink to flow
15 intermittently through said outlet, substantially as and for the purposes set forth.
2. The combination, in a pocket printing-instrument, of a type-wheel, an inking-roller normally held in contact with said wheel, an
20 ink-reservoir having an automatically-closed outlet for permitting of the intermittent delivery of ink to said inking-roller, a housing inclosing said members and recessed to permit a portion of the periphery of the type-
25 wheel to project beyond said housing, and a cap for closing said recessed portion, substantially as and for the purposes set forth.
3. The combination, in a pocket printing-instrument, of a case or housing provided
30 with a cylindrical ink-reservoir and with two chambers, an inking-roller inclosed in one of

said chambers, a type-wheel inclosed in the other of said chambers and having a portion of the periphery thereof extending outside the said housing or case, an automatically-
35 closed outlet for permitting of the intermittent delivery of ink to said roller, a piston in said reservoir, and a threaded rod passing through said reservoir and engaging said piston, substantially as and for the purposes set
40 forth.

4. The combination, in a pocket printing-instrument, of a case or housing provided with two chambers and with a cylindrical ink-reservoir, a removable cap for filling said
45 reservoir, an automatically-closed outlet for permitting of the intermittent delivery of ink from said reservoir, an ink-roller in one of said chambers, a type-wheel in the other of said chambers, a piston in said reservoir, and
50 means for actuating said piston, substantially as and for the purposes set forth.

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

JAMES SAMUEL FOLEY.

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