No. 658,037. Patented Sept. 18, 1900.

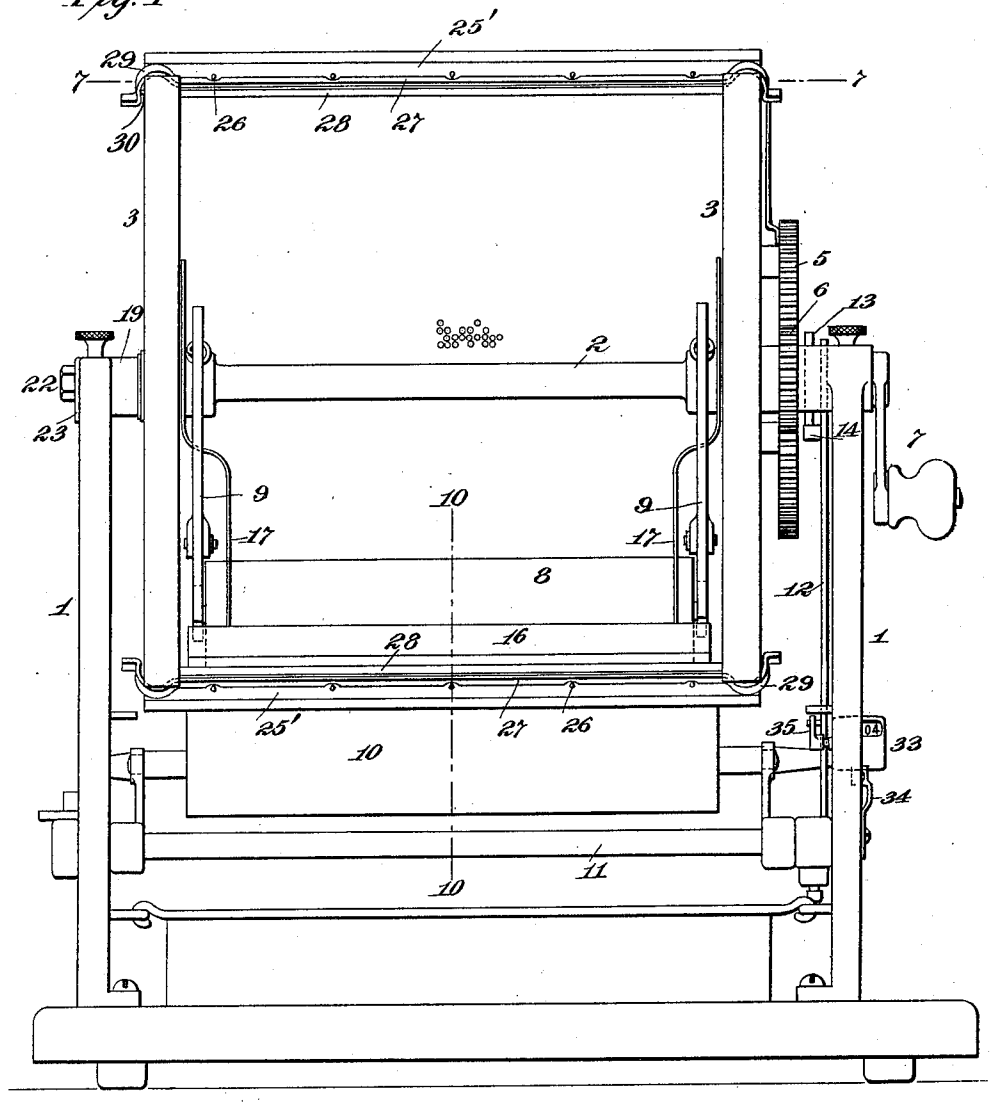
A. B. DICK.

DUPLICATING APPARATUS.

(Application filed Feb. 15, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1



Witnesses:

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Att'ys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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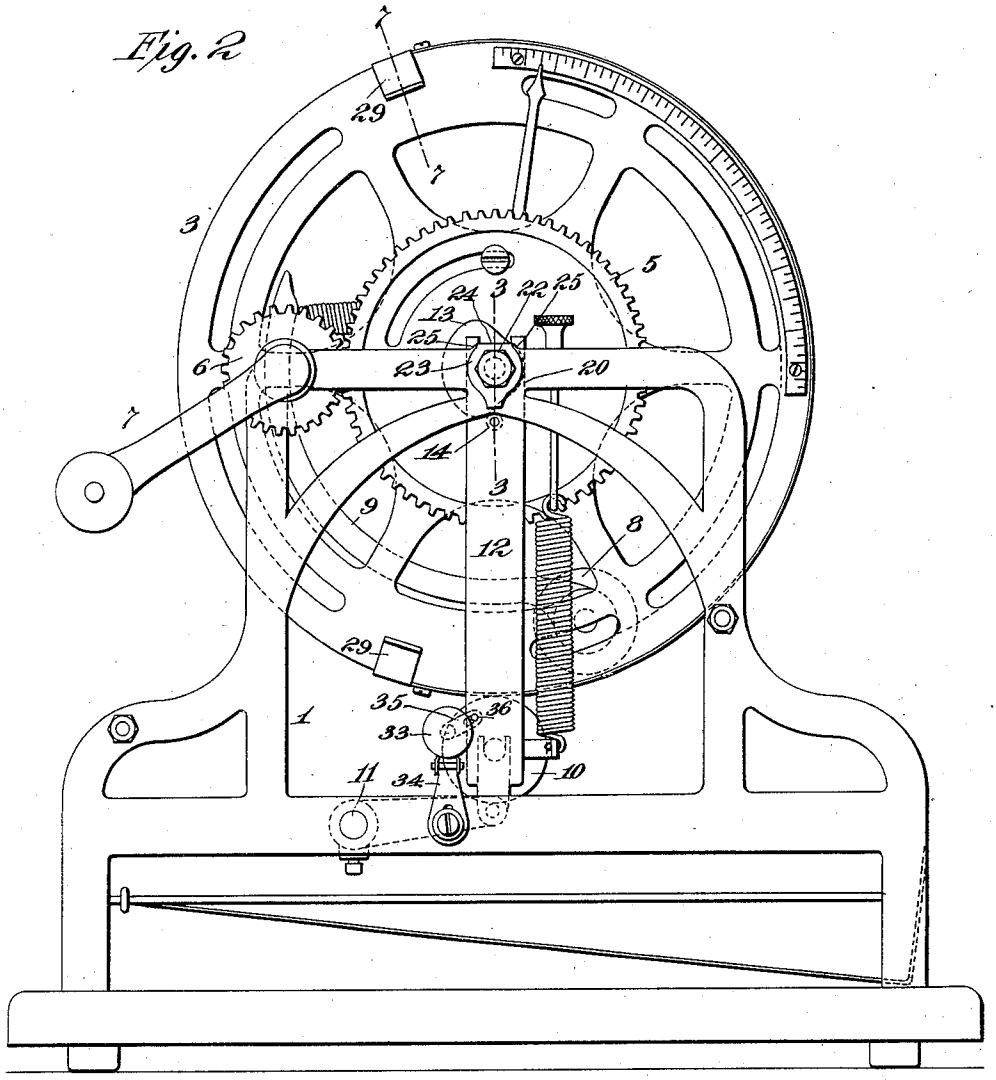
(No Model.) 3 Sheets—Sheet 2.

Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

Fig. 3

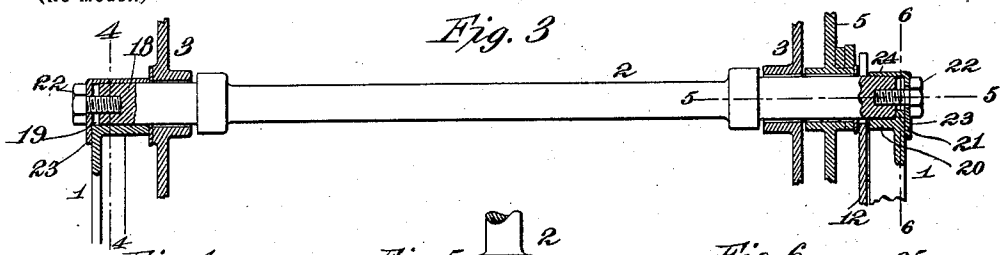


Fig. 4

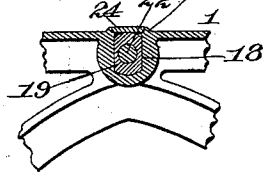


Fig. 5

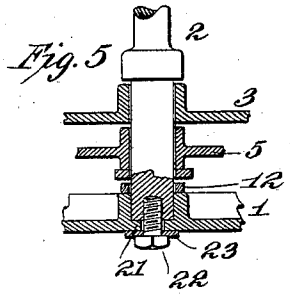
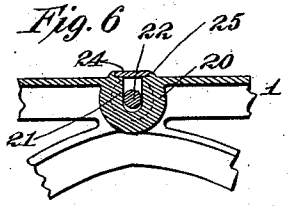


Fig. 6



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALBERT B. DICK, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE A. B. DICK COMPANY, OF SAME PLACE.

DUPLICATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 658,037, dated September 18, 1900.

Application filed February 15, 1900. Serial No. 5,254. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, (having my post-office address at No. 154 Lake street, in the said city of Chicago,) have invented certain new and useful Improvements in Duplicating Apparatus, of which the following is a specification.

My invention relates to certain improvements in duplicating apparatus of the type known to the trade as the "rotary neostyle" made in accordance with the Lowe patent, No. 584,787, dated June 22, 1897, but differing in specific details from the device of that patent. In the rotary neostyle as now used a rotary carrier or frame is employed which is covered for a part of its periphery by a sheet of foraminous material, so that the said sheet constitutes practically a part of a cylinder. The stencil-sheet is carried on the exterior of this foraminous curved plate. An inking-roller located within the carrier is arranged to be forced in position as the carrier rotates, so as to ink the inner surface of the stencil-carrying plate, whereby the ink will be forced through the stencil, said roller being withdrawn from engagement with the plate by cam devices and being held out of that engagement during the passage of the uncovered part of the carrier with respect to the inking-roller. Mounted outside of the carrier is an impression-roller which presses the sheet to be printed into contact with the stencil, the feed of the paper being effected by the movement of the carrier under the pressure of the impression-roller, which turns by friction. A cam is employed movable with the carrier for allowing the impression-roller to force the sheet into contact with the stencil as the latter moves above the impression-roller, but to be held down out of engagement with the carrier during the completion of its movement. The carrier rotates upon and with respect to a stationary shaft carried in the supporting-frame, and from which shaft are carried the supporting devices for the inking-roller. The carrier is provided with a cam which engages a reciprocating rod at each rotation to effect the desired movements of the impression-roller toward and away from the stencil. In order to register the number of copies which are being printed, the rotary neostyle employs a counter.

With the rotary neostyle it has been desirable to remove from the machine the rotary carrier and also the inking-roller and the paper-gage, which are removed with it, in order that the stencil-carrying plate may be properly cleaned or for any other purpose; but this has been possible with the machine in question only by practically dismantling it.

My present invention is designed to improve the rotary neostyle in certain respects to fit it more conveniently to commercial use, and the improvements relate particularly to means by which the stationary shaft which carries the rotating carrier may be so mounted as to be readily removable, with the carrier and the contained elements, from the side frames without interfering with the latter.

In order that my improvements may be better understood, attention is directed to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a front view of a rotary neostyle equipped with my present improvements; Fig. 2, a side elevation thereof, viewing the machine from the side from which it is operated; Fig. 3, a section on the line 3 3, showing particularly the improved means for mounting the stationary carrier-shaft in the said frames; Fig. 4, a section on the line 4 4 of Fig. 3; Fig. 5, a section on the line 5 5 of Fig. 3, and Fig. 6 a section on the line 6 6 of Fig. 3.

In all of the above views corresponding parts are represented by the same numerals of reference.

The side frames 1 1 carry at their top the stationary shaft 2, on which is rotatably mounted a carrier comprising, essentially, the disks or spiders 3 3 and the connecting-sheet of foraminous material which supports the usual stencil. One of the spiders or disks 3 carries a gear 5, with which meshes a pinion 6, rotated by a handle 7.

8 is an inking-roller carried on arms 9 9 from the central shaft 2 and combined with the well-known cams for permitting the inking-roller to be moved down into engagement

with the inner side of the stencil-supporting sheet 4, to be maintained in engagement with said sheet and to be moved out of engagement with the sheet as the latter leaves the inking-roller.

10 is an impression-roller carried from a rock-shaft 11, which shaft connects with a reciprocating slide 12, operated from a cam 13, which engages a pin 14 on the slide, said cam turning with the carrier so as to depress the impression-roller as the stencil passes away from it and to permit the impression-roller to be forced upward by the spring 15 when the stencil again comes around into position above it.

16 is a paper-gage carried on arms 17, supported from the shaft 2 and coöperating with the usual cams to move the paper-gage upwardly as the front end of the stencil approaches it, the paper-gage being moved downward after the stencil leaves it, so as to engage the impression-roller 10, whereby the new sheet may be brought into proper position by being lined up against said gage. As is well known, the turning of the handle 7 rotates the stencil-carrier and the stencil which is supported therefrom and effects the printing successively of sheets introduced into the machine between the impression-roller 10 and the stencil.

Referring now to my improvements on this machine, and particularly to Figs. 3 to 6, inclusive, the shaft 2, which is essentially a cylindrical rod, is at one end reduced to form a flattened portion 18. This reduced end of the shaft is let down into the recess 19, formed in the corresponding side frame 1, whereby the shaft 2 will be held from rotation. At the other end the shaft is not reduced, but is let down into a bearing 20, circular at its bottom, and its end is engaged by shoulders 21, (see Figs. 5 and 6,) which are cast integrally with the corresponding side frame 1. Screw-bolts 22 22 are engaged with the ends of the shaft, as shown, and their heads bear against washers 23, which effectively conceal the bearings. Preferably the washers 23 are bent over at right angles to form top plates 24, let down into recesses formed by lugs 25 25, which plates cover the open bearings 19 and 20, respectively. By tightening the bolts or screws 22 the shaft 2 would be very firmly secured in place to the side frames, since at one side the shoulders 21 will be forced into engagement with the corresponding end of said shaft and at the other side the edges of the corresponding side frame 1 would be forced tightly into engagement with the shoulders 18 of the shaft. This construction thus permits the shaft to be very firmly retained in place, but does not in any way interfere with or bind the rotating carrier or other elements which turn or move with respect to the shaft—as, for instance, the reciprocating slide 12. By loosening or removing the bolts or screws 22 the shaft 2 may be readily lifted out of the open bearings 19 and 20, respectively, whereby the carrier may be removed.

Referring now to the register, which I use for the purpose of indicating the number of sheets which are being printed in the machine and which is illustrated partly in Figs. 1 and 2, 33 represents a well-known form of counter comprising a generally cylindrical barrel supported on a standard 34 and operating by means of a small lever 35. Each oscillation of the lever 35 effects a single feed movement of the counter. The lever 35 is provided with a slotted bearing which engages a pin 36, carried by the reciprocating slide 12, wherefore each movement of the said slide, which is effected by a single rotation of the carrier, will effect a feed movement of the counter, and therefore indicate the printing of the successive sheets.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a machine of the type described, the combination with the side frames, of a rotary carrier-supporting shaft mounted in open bearings in said frames, and means for securing said shaft in the side frames, one end of said shaft being flattened, whereby a shoulder will be formed which bears against the corresponding side frame and whereby also rotation will be prevented, and the other end of the said shaft being borne upon by shoulders which are carried by the other side frame, substantially as set forth.

2. In a machine of the type described, the combination with the side frames, of a rotary carrier-supporting shaft carried in open bearings in said frames, one end of the shaft being reduced to form shoulders which engage with the corresponding side frame, and the other end of the shaft abutting against the shoulders which are carried by the other side frame, screw-bolts engaging the ends of said shafts and washers between the head of each of said bolts and the adjacent side frame, substantially as set forth.

3. In a machine of the type described, the combination with the side frames, of a rotary carrier-supporting shaft carried in open bearings in said frames, one end of the shaft being reduced to form shoulders which engage with the corresponding side frame, and the other end of the shaft abutting against shoulders which are carried by the other side frame, screw-bolts engaging the ends of said shafts and washers between the head of each of said bolts and the adjacent side frame, and top plates carried by said washers which cover the open bearings, substantially as set forth.

This specification signed and witnessed this 13th day of February, 1900.

ALBERT B. DICK.

Witnesses:
JNO. R. TAYLOR,
FRANK L. DYER.