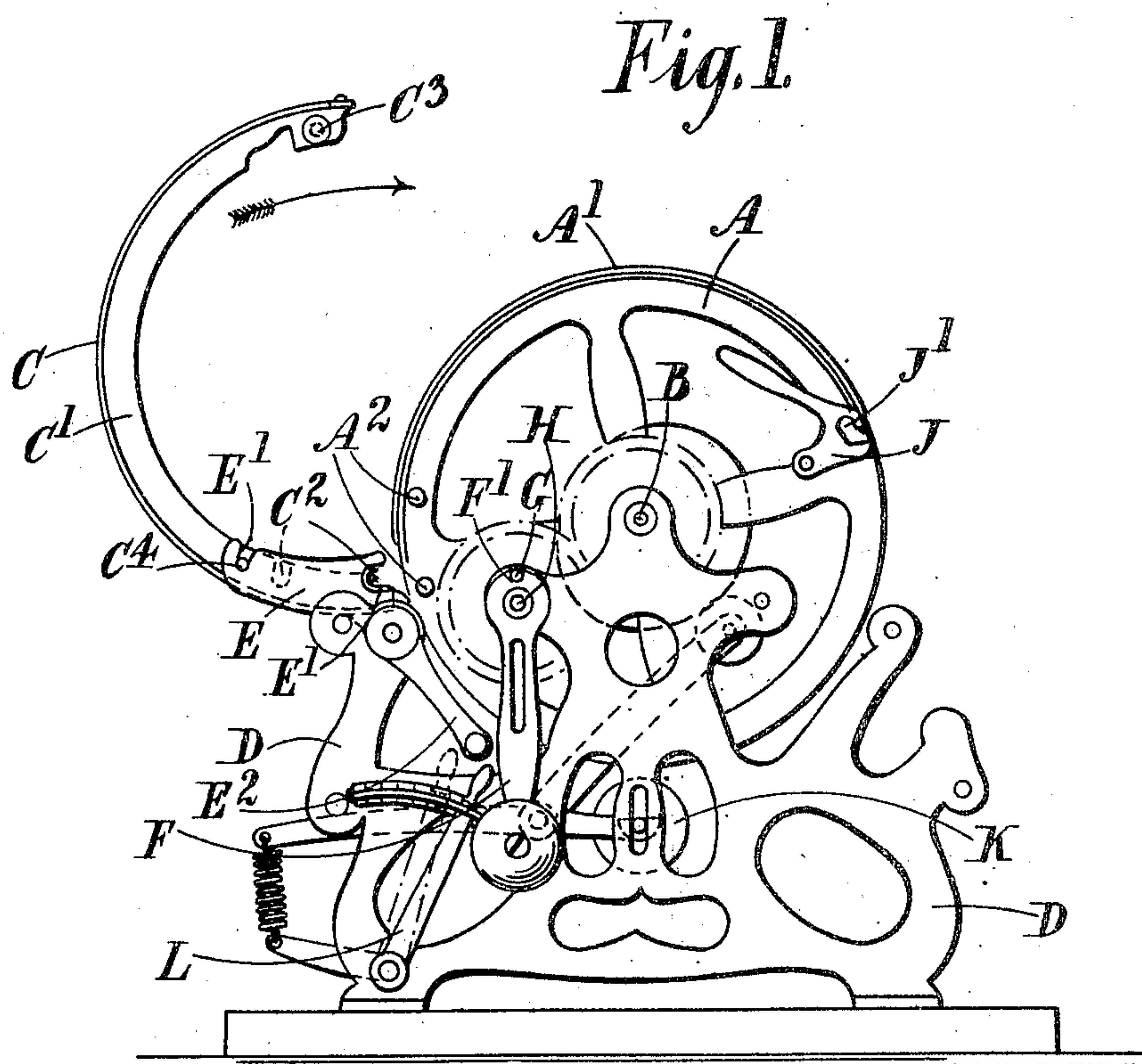


No. 887,063.

PATENTED MAY 12, 1908.

MELODION J. D. CARTER.
ROTARY DUPLICATOR.
APPLICATION FILED DEC. 23, 1907.

3 SHEETS—SHEET 1.



Witnesses.
W. A. Shepard
C. Warriner

Inventor:
Melodion J. D. Carter
by *Bakewell, Byrnes & Warriner*
his attys.

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3 SHEETS—SHEET 2.

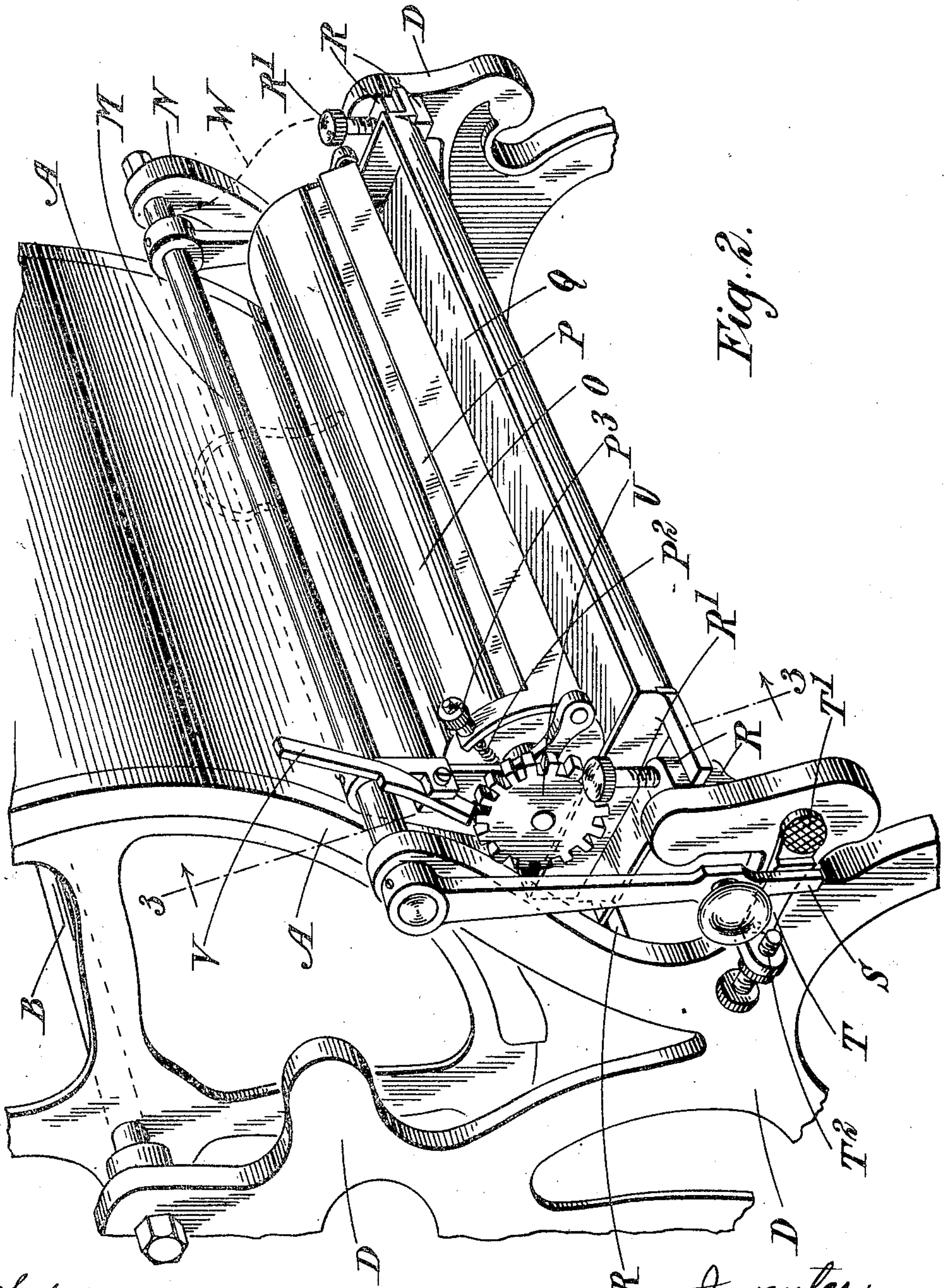


Fig. 2.

Witnesses:
H. A. Shepard
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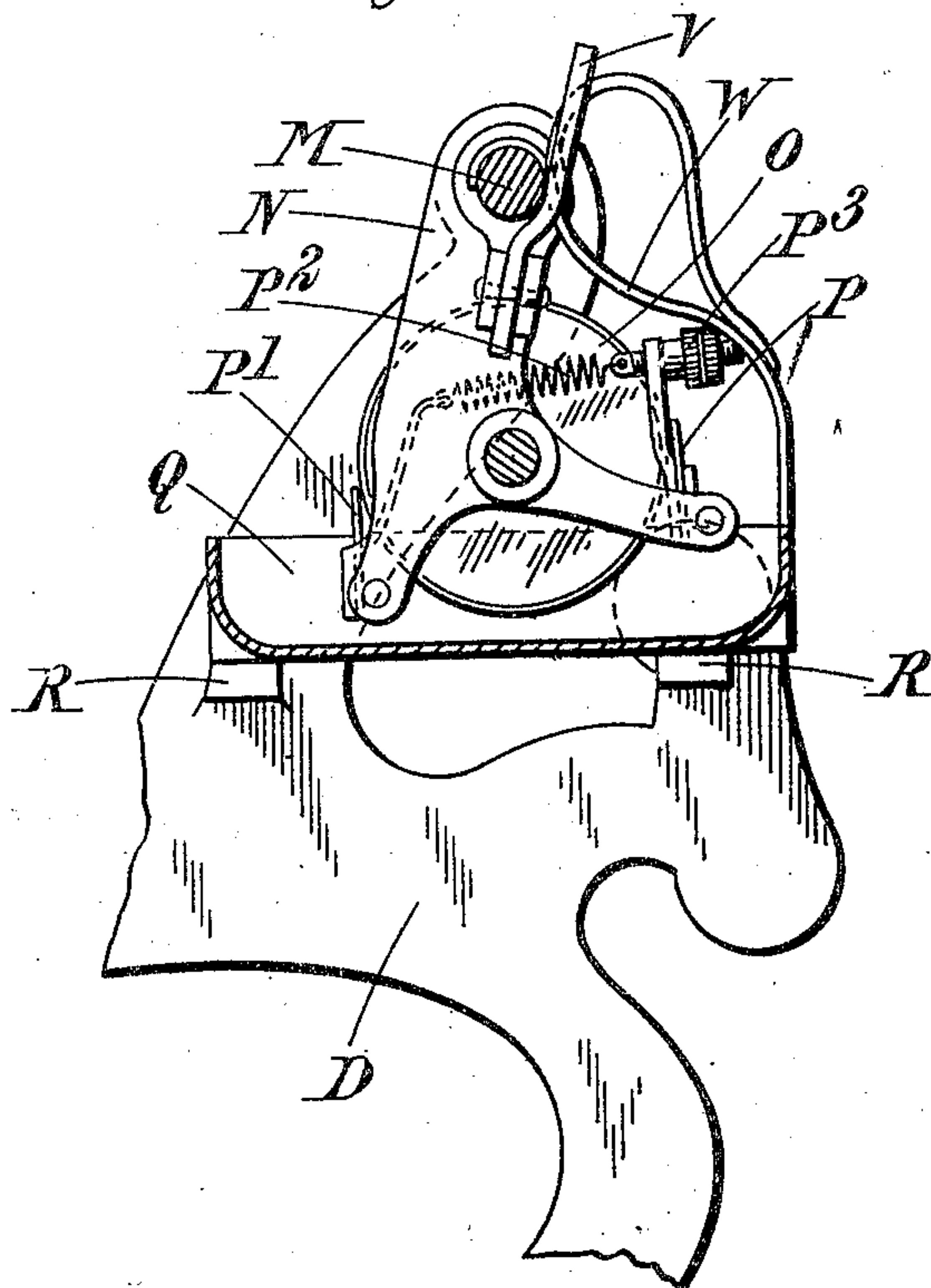
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3 SHEETS—SHEET 3.

Fig. 3.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

McION JAMES DOUGLAS CARTER, OF LONDON, ENGLAND.

ROTARY DUPLICATOR.

No. 887,083.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed December 22, 1907. Serial No. 497,849.

To all whom it may concern:

Be it known that I, McION JAMES DOUGLAS CARTER, a subject of the King of England, residing at Manor Park, London, England, have invented certain new and useful Improvements in Rotary Duplicators, of which the following is a specification.

This invention relates to improvements in rotary duplicators, the object being to provide an apparatus in which the ink can be automatically applied to the ink-pad without removing the stencil from its seating.

This invention is particularly applicable to duplicators of the type described in my United States Patent No. 856444, that is to say, to those in which the stencil is carried upon a removable segment of permeable or porous material which affords access to the ink-pad behind the segment for inking purposes.

According to this invention the rotatable cylinder or support carries an ink-pad as before, an external inking roller is arranged to be applied thereto during rotation, and the stencil-carrying segment can be entirely detached from the cylinder to enable the pad to be inked by rotating the cylinder or support.

Any convenient form of inking roller which can be applied to the outside of the stencil-carrier or ink pad may be utilized in a device embodying this invention.

There are various methods by which the stencil-carrying segment may be either detached from the cylinder or support, or secured thereon for use.

In the accompanying drawings:—Figure 1 is a side elevation of one form of rotary duplicator embodying this invention; Fig. 2 is a perspective view of that portion of the rotary duplicator which contains the inking device, and Fig. 3 is a transverse section on line 3—3 of Fig. 2.

The support or cylinder A is arranged to turn on trunnions B in the usual way, and by any usual mechanism, and may be provided or combined with any suitable form of feeding, gripping and regulating devices. An ink pad A¹ is secured on the surface of this support. A segment C of perforated metal or the like is arranged to fit over the pad A¹ and may itself carry a pad on its outside surface (such, for example, as the usual double sheet of linen). The detachable segment C is provided with positioning devices

such as catches or slots to engage pins on the support, for example at one end of the detachable segment C, its side flanges C¹ may have little recesses C² adapted to engage pins A² on the sides of the support A and at the other end of the detachable segment C stops C³ may be arranged to engage with one or more catches on the support A. Pivoted on the framework D of the duplicator is a frame E having two end bars with slots E¹ adapted to engage with suitable projections C⁴ on the detachable segment C, and this frame E is so pivoted that when the detachable segment C is released from the support A, the frame E can be tilted to carry the detachable segment C clear of the support A and to retain it in that position, and the tilting frame E is for this purpose provided with a handle E². The support A and the pad A¹ thereon are then free to be rotated without the detachable segment C or the stencil thereon.

A very important feature of this invention resides in the fact that the segment or stencil carrier C is constructed to support the stencil throughout its extent, whereby injury to the stencil is effectually obviated when removing the same from the cylinder to permit inking of the pad.

An ink trough is arranged in proximity to the outside of the support A and the rotatable inking roller is arranged therein, and the spindle of the roller is secured to a bell-crank lever or the like, whereby the inking roller may be readily applied to the surface of the rotatable pad A¹. This inking device will be hereinafter described with reference to Figs. 2 and 3. When using the apparatus it is only necessary to detach the segment C carrying the stencil carrier to bring the inking roller into contact with the pad A¹ and to rotate the support A in the usual way by means of the handle F in order to obtain an efficient and uniform inking of the pad A¹. Of course the inking roller may also be applied to the outside of the stencil carrier before the stencil has been fixed thereon in order that the outer pad with which the stencil lies in contact may receive a preliminary supply of ink.

In order that the supporting cylinder A may be readily brought into proper position for removing or replacing the detachable stencil-carrier C by means of the tilting frame E, the support A or its rotating mechanism may be provided with a stop or catch which holds the support in such a position that the

tilting frame E will exactly engage with the abutments C⁴ or the like on the detachable segment C, and also so that when the detachable segment has to be replaced, it will come properly into position for engaging the positioning and retaining devices on the support. For example, a little pivoted catch G on the bearings of the driving shaft H may be arranged to engage with a slot F¹ on the driving handle F in a well known way.

The stencil-carrying segment C is apt to adhere with some tenacity to the pad A¹, and in order that the segment may be liberated from the pad when it is desired to remove the former from the drum A, the pins or stops C³ are arranged to engage with recesses J¹ in little levers J pivoted on the support or drum A. The arrangement is such that by depressing the other ends of the levers J, the stops C³ and the stencil-carrying segment C are forced out from the drum A and it is then an easy matter to bring up the tilting frame E and carry the detachable segment C clear of the support or drum A.

In my previous British application No. 5335/06 I have described a mechanism for controlling an impression roller on a rotary duplicator and a similar device is employed on the present machine. It will be obvious that it is undesirable that the impression roller K should be in its raised position while the stencil-carrying segment is removed because the impression roller K might then come in contact with the inked pad A¹ and become soiled. To prevent this, the handle L which controls the impression roller K is so arranged that when the impression roller is in its raised position, the handle F cannot be turned to bring the tilting frame into operation, so that after a printing operation is over and it is desired to ink the pad A¹, it is necessary first to shift the handle L and lower the impression roller K before the handle F can be brought into operation to remove the stencil-carrying segment C.

In proximity to the cylinder A and parallel to the axis B thereof is a rod M rotatable in the framework D of the machine and having secured thereto arms N which carry a rotatable inking roller O. The arms also support rubbers or doctors P and P¹ for regulating the supply of ink on the roller, and the pressure of the doctors can be adjusted by means of a spring P² and set screw P³. According to the movement of the arms N therefore, the roller O may move up to or away from the cylinder A, the doctors P and P¹ remaining always in contact with the roller.

Beneath the roller O is a wide ink trough Q which can slide into suitable supports or guides R in the framework D of the machine and can be fixed therein by means of screws R¹. The roller O is arranged to dip into the trough Q.

At one end of the rod M which carries the roller is arranged a hand lever S by means of which the roller is moved to or from the cylinder A. The lever S engages a spring catch T which normally holds the inking roller out of contact with the cylinder. The spring catch T may be pushed out of the path of the lever S by means of a button T¹ and the lever is then free to be shifted to bring the inking roller into operative position. The movement of the lever S is limited by a stop T² which prevents the inking roller from touching the metal parts and the stop can be adjusted (by a screw) so that the roller just touches the ink pad on the cylinder A.

On the spindle at one end of the inking roller O is fixed a toothed wheel U by means of which the roller may be fixed. For this purpose an abutment or projection V is pivoted on the arm N in which the roller is journaled. The abutment V is so arranged that it can be brought into or out of engagement with the toothed wheel U so as to lock the inking roller or liberate it. When the machine is not in use, the roller O and trough Q can be inclosed in a cover W hooked or otherwise secured to the rod M which supports the roller.

The operation of the inking device is as follows:—The stencil carrier is removed from the cylinder A in order to expose the under pad; a supply of ink is introduced into the trough Q; the lever S which controls the inking roller O is released from its spring catch T and is brought towards the cylinder A until the handle S engages the stop T² which insures that the roller O will just touch the under pad. The cylinder A is then either revolved or turned backwards and forwards. In the same way, before placing a new stencil on the stencil carrier the outer pad can be inked by leaving the stencil carrier on the cylinder, bringing the roller into a position where it will come in contact with the outer pad and then rotating or oscillating the cylinder.

In order to regulate the amount of ink supplied to the pad it is only necessary to adjust the pressure of the rubbers or doctors P and P¹ on the inking roller O. In many cases, however, the under pad already has a sufficient supply of ink which only requires to be spread. In that case the inking roller O is locked by bringing the pivoted abutment V into engagement with the toothed wheel U: the inking roller O is then brought into contact with the pad and the cylinder A is rotated in contact with the fixed roller whereby the ink is effectively distributed. Before replacing the stencil on the machine, the inking roller is withdrawn so that the controlling lever S engages the spring catch T.

In order to clean the inking device, it is only necessary to tilt the controlling lever S backwards so as to lift the inking roller out of

the trough Q, then to release the trough from its supports R and withdraw it from the machine.

It is to be understood that the details of arrangement and construction may be varied without departing from this invention, for example, the removable stencil carrying segment C might be pivoted to two slotted links, the slots in each engaging the spindle of the drum A so that the stencil carrying segment might either engage the drum and rotate therewith or be removed from the drum and allow the drum to rotate independently.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a rotary duplicator the combination of a rotatable cylinder, a removable permeable stencil-carrying segment thereon, an inking pad on the cylinder, inking means in coöperative relation with the pad on the cylinder, means for detaching the segment from the cylinder to expose the inking pad thereon, and means for rotating the cylinder independently of the segment for inking purposes.

2. In a rotary duplicator the combination of a rotatable cylinder, a removable permeable stencil-carrying segment thereon, corresponding positioning devices on the segment and cylinder, an inking pad on the cylinder, inking means in coöperative relation with the pad on the cylinder, means for detaching the segment from the cylinder to expose the pad, and means for rotating the cylinder independently of the segment for inking purposes.

3. In a rotary duplicator the combination of a rotatable cylinder, a removable permeable stencil-carrying segment thereon, corresponding positioning devices on the segment and cylinder, an inking pad on the cylinder, means for detaching the segment from the cylinder and supporting it out of engagement with the cylinder, an inking roller hanging near the cylinder, means for bringing the roller into engagement with the pad, and means for rotating the cylinder independently of the segment for inking purposes.

4. In a rotary duplicator the combination of a rotatable cylinder, a removable permeable stencil-carrying segment thereon, corresponding positioning devices on the segment and cylinder, an inking pad on the cylinder, means for detaching the segment from the cylinder and supporting it out of engagement with the cylinder, an inking roller hanging near the cylinder, means for bringing the roller into engagement with the pad, means for rotating the cylinder independently of the segment for inking purposes, and means for arresting the cylinder in operative position in relation to said detaching means.

5. In a rotary duplicator the combination of a rotatable cylinder, a removable permeable stencil-carrying segment thereon, corre-

sponding positioning devices on the segment and cylinder, an inking pad on the cylinder, means for detaching the segment from the cylinder and supporting it out of engagement with the cylinder, an inking roller hanging near the cylinder, means for bringing the roller into engagement with the pad, means for rotating the cylinder independently of the segment for inking purposes, means for arresting the cylinder in operative position in relation to said detaching means, and means for forcing the segment outwards from the inking pad.

6. In a rotary duplicator the combination of a rotatable cylinder, a removable permeable stencil-carrying segment thereon, corresponding positioning devices on the segment and cylinder, an inking pad on the cylinder, means for detaching the segment from the cylinder and supporting it out of engagement with the cylinder, an inking roller hanging near the cylinder, means for bringing the roller into engagement with the pad, means for rotating the cylinder independently of the segment for inking purposes, means for arresting the cylinder in operative position in relation to said detaching means, means for forcing the segment outwards from the inking pad, an impression roller below the cylinder and means for locking the segment-detaching device until said impression roller is removed from the cylinder.

7. In a rotary duplicator the combination of a rotatable cylinder, a removable permeable stencil-carrying segment thereon, an inking pad on the cylinder, means for detaching the segment from the cylinder and supporting it out of engagement with the cylinder, means for rotating the cylinder independently of the segment for inking purposes, an ink receptacle in proximity to the cylinder, an inking roller hanging in said receptacle, means for bringing the inking roller into engagement with the pad, and means for retaining the inking roller out of engagement with the pad.

8. In a rotary duplicator the combination of a rotatable cylinder, a removable permeable stencil-carrying segment thereon, an inking pad on the cylinder, means for detaching the segment from the cylinder and supporting it out of engagement with the cylinder, means for rotating the cylinder independently of the segment for inking purposes, an ink receptacle in proximity to the cylinder, an inking roller hanging in said receptacle, means for bringing the inking roller into engagement with the pad, means for retaining the inking roller out of engagement with the pad, and means for locking the inking roller from rotation when it is desired only to spread the ink on the pad.

9. In a rotary duplicator the combination of a main frame, a cylinder rotatably mounted therein, an inking pad on said cylinder, 130

a segment of perforated metal arranged to fit over said pad, an inking roller hanging near said cylinder, a tilting frame pivoted in said main frame and arranged to engage
5 said segment and to detach it and support it out of engagement with the cylinder, means for bringing the inking roller into engagement with the pad, and a handle geared to the cylinder for rotating it.

10 10. In a rotary duplicator the combination of a main frame, a cylinder rotatably mounted therein, an inking pad on said cylinder, a segment of perforated metal arranged to fit over the pad, an inking sheet stretched over
15 said segment, a stencil stretched over said sheet, an inking roller hanging near said cylinder, a tilting frame pivoted in said main frame and arranged to engage said segment and to detach it and support it out of en-
20 gagement with the cylinder, means for bringing the inking roller into engagement with the pad and a handle geared to the cylinder for rotating it.

11. In a rotary duplicator the combination
25 of a main frame, a cylinder rotatably mounted therein, an inking pad on said cylinder, a segment of perforated metal arranged to fit over the pad, an inking sheet stretched over said segment, a stencil stretched over
30 said sheet, abutments on said cylinder and abutments on said segment to secure and register it on the cylinder, a tilting frame pivoted in the main frame and arranged to engage the segment, a handle on said frame
35 arranged to tilt it to carry the segment out of engagement with the cylinder, an inking roller hanging near said cylinder, means for bringing the inking roller into engagement with the pad, and an operating handle geared
40 to the cylinder for rotating it.

12. In a rotary duplicator the combination of a main frame, a cylinder rotatably mounted therein, an inking pad on said cylinder, a
45 segment of perforated metal arranged to fit over the pad, an inking sheet stretched over said segment, a stencil stretched over said sheet, abutments on said cylinder and abutments on said segment to secure and register
50 it on the cylinder, a tilting frame pivoted in the main frame and arranged to engage the segment, a handle on said frame arranged to tilt it to carry the segment out of engagement with the cylinder, an inking roller
55 hanging near said cylinder, means for bringing the inking roller into engagement with the pad, an operating handle geared to the cylinder for rotating it and having a recess therein, and a stop pivoted in the main frame
60 and arranged to engage said recess to fix the cylinder in operative position in relation to the tilting frame.

13. In a rotary duplicator the combination of a main frame, a cylinder rotatably mounted therein, an inking pad on said cylinder, a
65 segment of perforated metal arranged to fit

over the pad, an inking sheet stretched over said segment, a stencil stretched over said sheet, abutments on said cylinder and abutments on said segment to secure and register
70 it on the cylinder, a tilting frame pivoted in the main frame and arranged to engage the segment, a handle on said frame arranged to tilt it to carry the segment out of engagement with the cylinder, an inking roller hanging
75 near said cylinder, means for bringing the inking roller into engagement with the pad, an operating handle geared to the cylinder for rotating it and having a recess therein, a stop pivoted in the main frame and arranged
80 to engage said recess to fix the cylinder in operative position in relation to the tilting frame, and a lever pivoted to said cylinder and having a recess to engage an abutment on said segment normally to retain the stencil
85 but to force it outwards when the lever is turned.

14. In a rotary duplicator the combination of a main frame, a cylinder rotatably mounted therein, an inking pad on said cylinder, a
90 segment of perforated metal arranged to fit over the pad, an inking sheet stretched over said segment, a stencil stretched over said sheet, abutments on said cylinder and abutments on said segment to secure and register
95 it on the cylinder, a tilting frame pivoted in the main frame and arranged to engage the segment, a handle on said frame arranged to tilt it to carry the segment out of engagement with the cylinder, an inking roller hanging
100 near said cylinder, means for bringing the inking roller into engagement with the pad, an operating handle geared to the cylinder for rotating it and having a recess therein, a stop pivoted in the main frame and arranged
105 to engage said recess to fix the cylinder in operative position in relation to the tilting frame, a lever pivoted to said cylinder and having a recess to engage an abutment on said segment normally to retain the stencil
110 but to force it outwards when the lever is turned, a spring-controlled impression roller below the cylinder, and a hand lever operatively connected therewith arranged to lock
115 the handle on the tilting frame except when the impression roller is removed from the cylinder.

15. In a rotary duplicator the combination of a main frame, a cylinder rotatably mounted therein, an inking pad on said cylinder, a
120 segment of perforated metal arranged to fit over said pad, a tilting frame pivoted in said main frame and arranged to engage said segment and to detach it and support it out of engagement with the cylinder, means for rotating the cylinder independently of the seg-
ment for inking purposes, an inking trough in proximity to the cylinder, an inking roller hanging in said trough, a handle connected
125 to said roller and a catch and stop for limiting the movement of said handle.

16. In a rotary duplicator the combination of a main frame, a cylinder rotatably mounted therein, an inking pad on said cylinder, a segment of perforated metal arranged to fit over said pad, a tilting frame pivoted in said main frame and arranged to engage said segment and to detach it and support it out of engagement with the cylinder, means for rotating the cylinder independently of the segment for inking purposes, an inking trough in proximity to the cylinder, an inking roller hanging in said trough, a handle connected to said roller and a catch and stop for limiting the movement of said handle, a toothed wheel fixed to the end of the roller and a pivoted catch to engage said wheel and lock the roller when it is to be used as an ink spreading device.

17. A rotary duplicator having a rotatable cylinder provided with an inking pad, and a removable stencil carrying frame constructed to support a stencil throughout its extent, the cylinder capable of being rotated independent of the stencil carrying frame for inking the pad, substantially as described.

18. A rotary duplicator having a rotatable cylinder provided with an inking pad, a removable stencil carrying frame constructed to support a stencil throughout its extent, and means for rotating the cylinder independently of the stencil carrying frame for inking the pad, substantially as described.

19. A rotary duplicator comprising a frame, a rotatable cylinder mounted thereon, a stencil carrier removably associated with the cylinder and capable of being supported upon the frame independent of the cylinder to permit rotation of the latter for inking purposes, substantially as described.

20. A rotary duplicator comprising a frame, a rotary cylinder thereon, a stencil carrier detachably associated with the cylinder, and means carried by the frame for supporting the stencil carrier independent of the cylinder to permit rotation of the latter for inking purposes, substantially as described.

21. A rotary duplicator comprising a frame, a rotary cylinder thereon, a stencil carrier removably associated with the cylinder,

der, means upon the frame for supporting the carrier independent of the cylinder, and means for moving the carrier from the cylinder to the carrier support and vice versa, substantially as described.

22. A rotary duplicator comprising a rotatable cylinder provided with an inking pad, a stencil carrying frame upon the cylinder constructed to support a stencil throughout its extent and capable of being removed to expose the pad, and inking means capable of being brought into cooperative relation with the pad when the carrying frame is removed, substantially as described.

23. A rotary duplicator comprising a rotatable cylinder provided with an inking pad, a stencil carrying frame upon the cylinder constructed to support a stencil throughout its extent and capable of being removed to expose the pad, and inking means capable of being brought into cooperative relation with the pad when the stencil carrying frame is removed, the cylinder capable of being rotated when the stencil carrying frame is removed for wiping the pad across the inking means, substantially as described.

24. A rotary duplicator comprising a frame, a rotary cylinder mounted thereon and provided with an inking pad, a stencil carrier removably associated with the padded part of the cylinder, means upon the frame at one side of the cylinder for supporting the carrier when removed from the cylinder, and inking means upon the frame at the opposite side of the cylinder, said inking means being normally out of contact with the cylinder and capable of being brought into cooperative relation with the pad when the carrier is removed, and the cylinder capable of being rotated to wipe the pad across the inking means, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MCION JAMES DOUGLAS CARTER.

Witnesses:

HERBERT BURRAGE,
H. D. JAMESON.