

945,267.

Fig. 1.

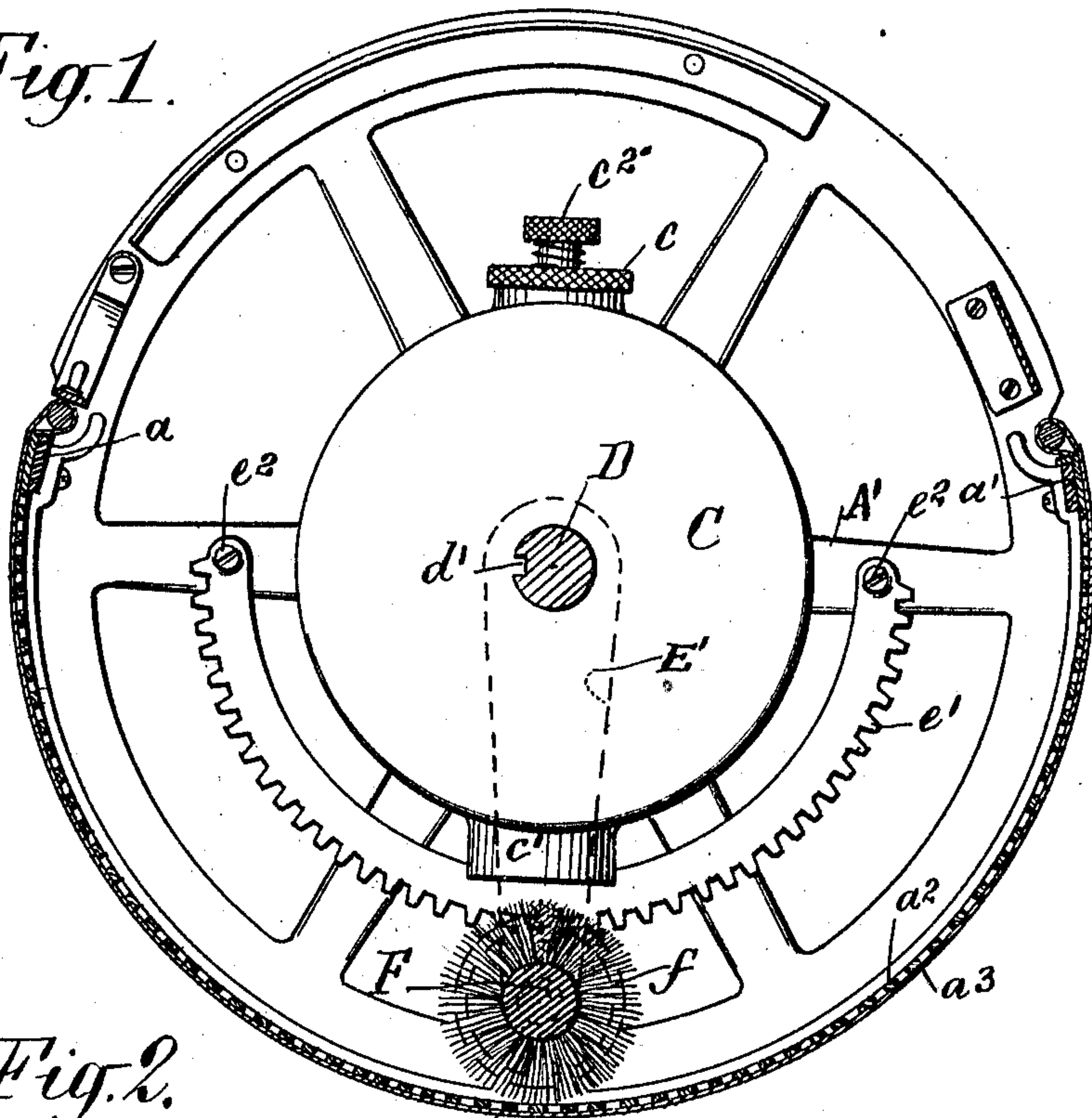


Fig. 2.

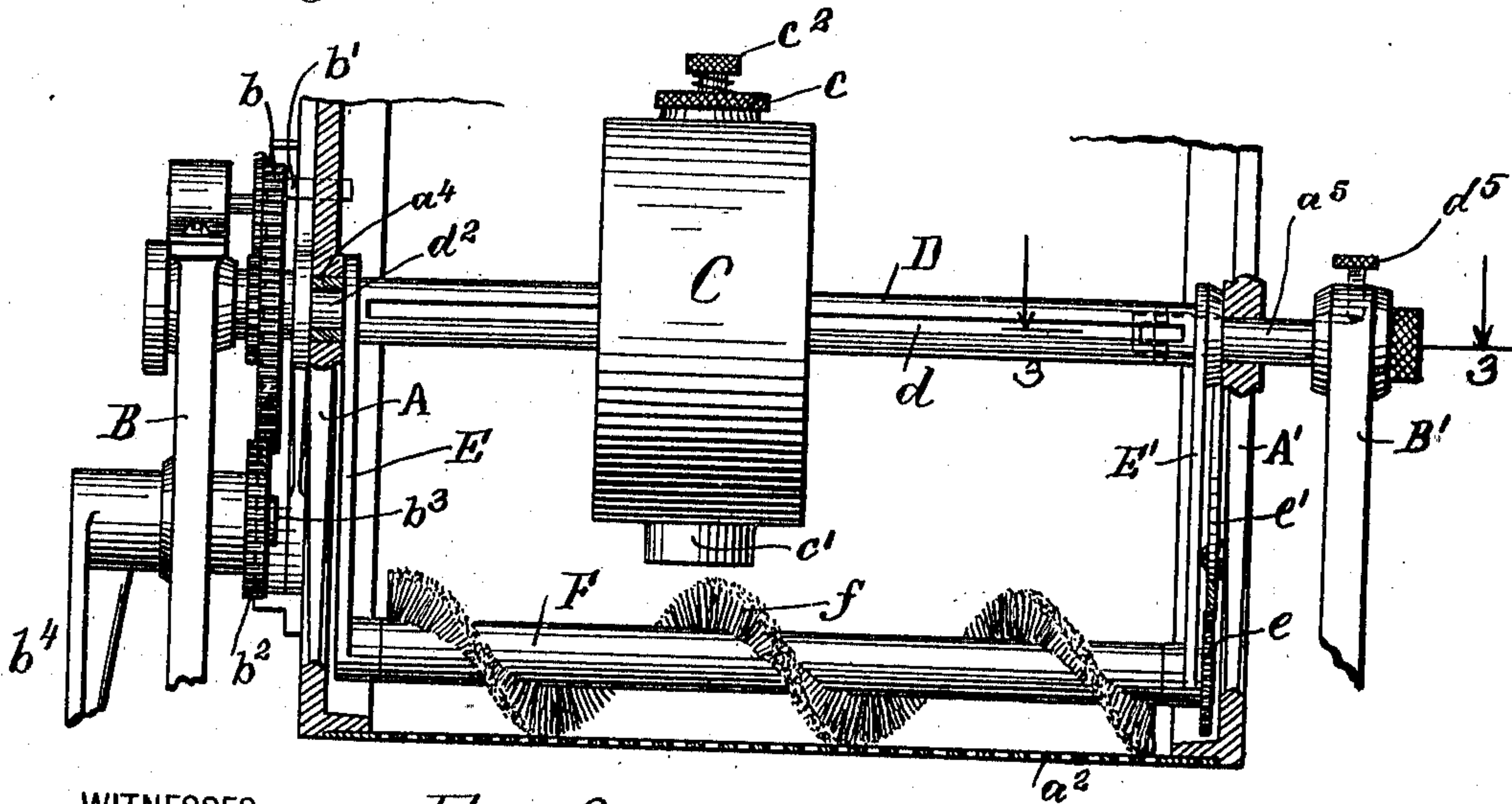
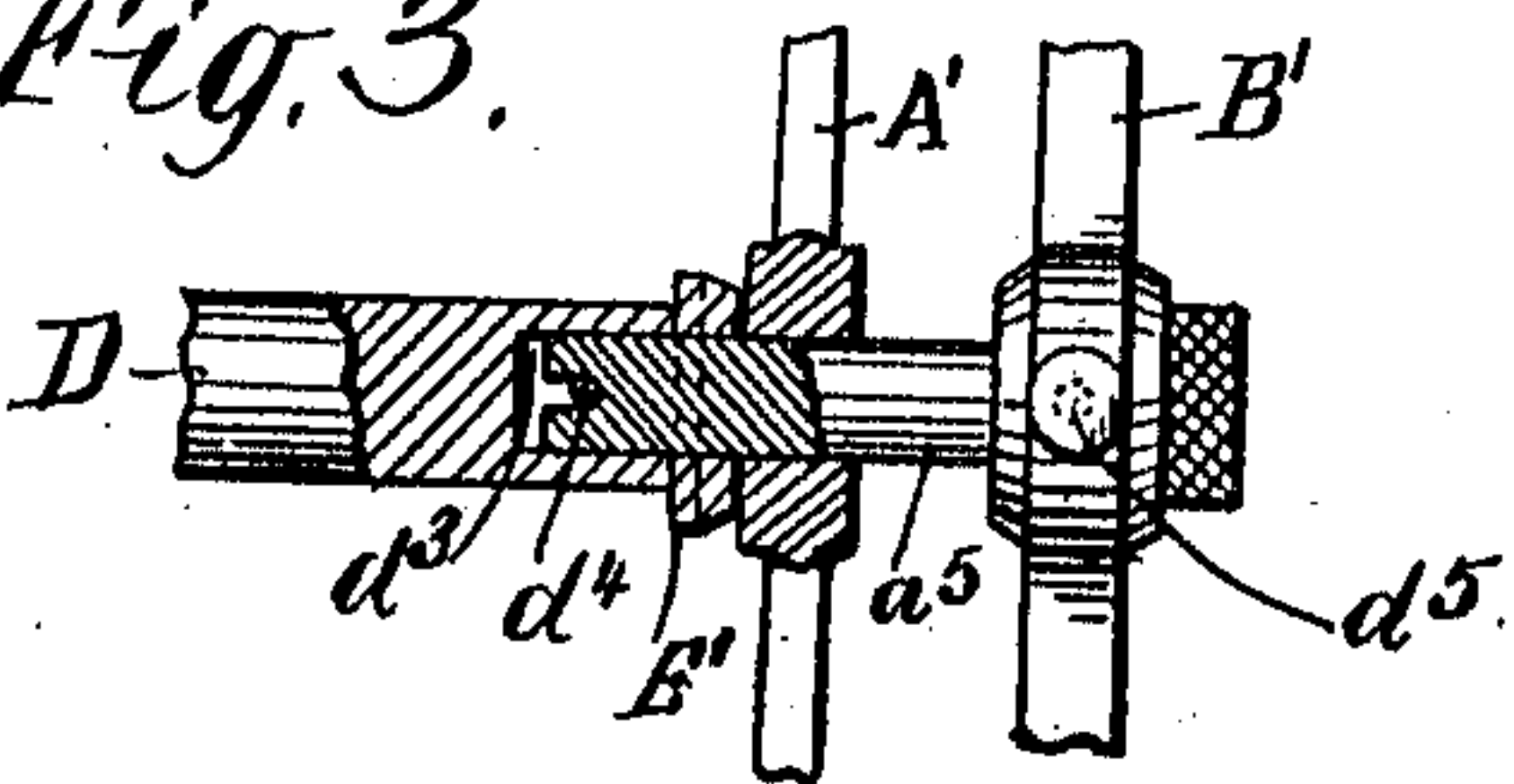


Fig. 3.



WITNESSES:

W. E. Edwards

Henry Meyer.

INVENTOR

Albert B. Dick

BY

BY *J. P. Edmunds*

ATTORNEYS

UNITED STATES PATENT OFFICE.

ALBERT B. DICK, OF LAKE FOREST, ILLINOIS, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

STENCIL-DUPLICATING APPARATUS.

945,267.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed April 17, 1909. Serial No. 490,471.

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, residing at Lake Forest, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Stencil-Duplicating Apparatus, (Case F,) of which the following is a specification.

The invention relates particularly to that type of duplicating apparatus wherein is employed a rotary drum having a stencil-carrier of foraminous material extending partially or wholly over its periphery and adapted to support a stencil between which and a pressure-roller adjacent to such drum impression sheets are passed to be imprinted upon through said stencil.

The object of the invention is to improve upon machines of this general type with regard to provision for supplying ink to the interior of the drum and distributing the same thereupon.

In carrying out the invention, I employ a rotary drum, preferably provided with a central shaft upon which is movably mounted an ink-container adapted to be moved in any suitable manner along said shaft, so that ink may be deposited therefrom upon the interior of the stencil-drum at any desired point. Within said drum I also provide an ink-distributing brush suitably mounted so as, in a preferred form of the invention, to be rotated coincidently with the rotation of said drum so as to distribute the ink uniformly over the interior of the foraminous stencil-carrier.

In the drawings, Figure 1 is a central transverse section of a duplicator drum provided with my improvements; Fig. 2 is a central longitudinal section, partly in elevation; and Fig. 3 is an enlarged detail view on the line 3—3 Fig. 2.

The stencil-drum comprises two heads A, A', connected by tie-bars a , a' , and foraminated stencil-carrier a^2 over which extends an ink-pad a^3 . The stencil is secured over said ink-pad in any suitable manner. The head A is loosely mounted upon a stub-shaft a^4 and the head A' upon a stub-shaft a^5 , said stub-shaft a^4 being supported in the forward frame-member B and the stub-shaft a^5 in the rearward frame-member B'. Loosely mounted upon the stub-shaft a^4 is a pinion b provided with a pin b' which en-

gages with a recess in the drum-head A, so that the rotation of said pinion b will transmit corresponding motion to the drum. Meshing with the pinion b is a similar, but smaller, pinion b^2 , mounted upon a stub-shaft b^3 adapted to be actuated by crank b^4 .

C designates the ink-container, here shown as circular in form, provided with a filling-port c , an ink-outlet-port c' , and a spring-pressed valve c^2 for permitting the flow of ink from said container through said port c' . Said container is mounted upon a central shaft D provided with a longitudinal rabbet or groove d with which coacts an ear d' upon the container C. Said shaft D is provided at one end with a reduced portion d^2 which is received within the hollow end of the stub-shaft a^4 . The other end of said shaft D is supported by the stub-shaft a^5 , which has sliding connection therewith, as clearly illustrated in Fig. 3. Such other end is provided with a socket d^3 of suitable size to receive the end of said stub-shaft a^5 . Within said socket is a pin d^4 , with which coacts the bifurcated end of said stub-shaft a^5 . When the bifurcated end of said stub-shaft is in engagement with said pin, the shaft D is locked against rotary motion. To release it, so as to permit such motion if desired, the stub-shaft a^5 may be withdrawn sufficiently to break the connection between its end and the pin d^4 and locked in such position by means of set-screw d^5 . In either case, the container C may be moved longitudinally of the drum, the ear d' being in engagement with the rabbet or groove d .

Mounted upon and secured to the shaft D are two downwardly depending arms E, E', and supported in the ends of said arms are the trunnions of distributing roller F, provided with a brush f here shown as spiral in form, although it is obvious that it may take such other form as may be desired. At the rearward end of the distributing-roller, the trunnion is prolonged beyond its bearing in the lower end of the arm E', and is there provided with a pinion e adapted to be rotated by engagement with a sector e' secured to the drum-head A' by means of screws e^2 which, in addition to securing said sector as stated, project outward sufficiently far to form stops for the arm E'.

The operation of the device is as follows:—The parts being in the position in

which they are shown in Fig. 2, the ink-container C may, by means of the valves c^2 , be permitted to deposit ink at any desired point longitudinally of the drum. The drum may then be partially rotated to and fro, the engagement of the sector e' secured thereto with the pinion e serving to rotate said pinion and therefore the distributing-roller F, which accordingly serves to distribute the ink uniformly over the internal surface of the carrier a^2 . In that form of the invention illustrated in the drawing, the extent to which the drum may be rotated is defined by the position of the screws e^2 , this being desirable where, as in the apparatus illustrated, the stencil-carrier extends but a portion of the way around the drum. Where, as in duplicators of this (rotary) type, such carrier extends completely around the drum, the sector e' , instead of being semicircular, may be circular and the stopping function of the screws e^2 may be dispensed with, in which case the operation will be substantially the same as that heretofore described, save that the drum, instead of being partially rotated to and fro, may be rotated continuously in the same direction. The distributor is mounted in contact with the interior of the drum and the mechanism for actuating the distributor is such that a wiping action of the distributor upon the drum takes place, as in this way a more thorough distribution of the ink over the foraminous stencil-carrier is effected. This wiping action may be obtained by causing the distributor to rotate at a surface speed different from that of the drum or by rotating the distributor in a direction opposite to that in which the drum is rotated; or, if desired, both of these methods of obtaining the wiping action may be employed together. Referring to Fig. 1, it will be seen that the gearing whereby the distributor is rotated is such that when the drum is rotated in one direction, the distributor will be rotated in the opposite direction, and also this gearing is such that the surface speed of the distributor is different from that of the drum, as a result of which a wiping action of the distributor upon the interior of the drum takes place and a thorough distribution of the ink is obtained.

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

1. In duplicating apparatus, a rotary drum and means for moving the same, a central shaft within said drum, and an ink-container mounted upon said shaft and freely movable longitudinally of said drum, substantially as set forth.

2. In duplicating apparatus, a rotary drum and means for moving the same, a central shaft within said drum, an ink-container mounted upon said shaft and freely movable

longitudinally of said drum, and a locking device for said shaft, substantially as set forth.

3. In duplicating apparatus, a rotary drum and means for moving the same, a central shaft within said drum and immovable relatively thereto, and an ink-container mounted upon said shaft and freely movable longitudinally of said drum, substantially as set forth.

4. In duplicating apparatus, a rotary drum and means for moving the same, a central shaft within said drum having a rabbet or groove, and an ink-container mounted upon said shaft and coacting with the same and with said rabbet or groove therein, said container being freely movable longitudinally of said drum, substantially as set forth.

5. In duplicating apparatus, the combination with a drum and means for moving the same, of an ink-container mounted within the drum and movable longitudinally of the drum, a rotary ink-distributor mounted eccentrically within the drum and in contact with the interior thereof, and a connection between said distributor and said drum for moving the distributor simultaneously with the movement of the drum, substantially as set forth.

6. In duplicating apparatus, the combination with a drum and means for moving the same, of an ink-container longitudinally movable within said drum, an ink-distributor, and a connection between said distributor and said drum for moving the distributor simultaneously with the movement of said drum, substantially as set forth.

7. In duplicating apparatus, the combination with a drum and means for operating the same, of an ink-container mounted within said drum, a rotary ink-distributor mounted eccentrically within the drum in contact with the interior thereof, and means for simultaneously rotating the drum and distributor in opposite directions while they are in contact, substantially as set forth.

8. In duplicating apparatus, the combination of a drum and means for operating the same, of an ink-container mounted within the drum and movable longitudinally of the drum, a rotary ink-distributing brush mounted eccentrically within the drum in contact with the interior thereof and means for simultaneously rotating the drum and brush in opposite directions while they are in contact, substantially as set forth.

9. In duplicating apparatus, the combination with a drum and means for moving the same, of a longitudinally movable ink-container within said drum, a rotary ink-distributor also within said drum, a gear connection between said distributor and drum, and a locking device for said container and distributor, substantially as set forth.

10. In duplicating apparatus, the combi-

nation with a drum and means for moving the same, of an ink-container centrally mounted within said drum and movable longitudinally thereof, an ink-distributor supported adjacent to the interior of said drum and provided with a pinion, and means carried by said drum for operating said distributor through said pinion, substantially as set forth.

10 11. In duplicating apparatus, the combination with a drum and means for rotating the same, of an ink-distributing brush mounted within the drum and a gear connection between said brush and said drum
15 operated by the rotation of the drum to so rotate said brush as to cause a wiping action of the brush upon the drum, substantially as set forth.

20 12. In duplicating apparatus, the combination with a drum and means for rotating the same, of an ink-container within the drum, a rotary ink-distributing brush within the drum, and a gear connection between the brush and drum operated by the rotation of the drum to so rotate said brush as
25 to cause a wiping action of the brush upon the drum, substantially as set forth.

30 13. In duplicating apparatus, the combination with a drum and means for moving the same, of a rotary ink-distributor within said drum, means for locking the same against bodily movement, and mechanism for rotating said distributor when so locked, substantially as set forth.

35 14. In duplicating apparatus, the combination with a drum and means for moving the same, of a rotary ink-distributor within said drum, means for locking the same against bodily movement, and mechanism
40 operated by the movement of said drum for rotating said distributor, substantially as set forth.

45 15. In duplicating apparatus, the combination with a drum and means for rotating the same, of a rotary ink-distributor mount-

ed eccentrically within said drum and means for so rotating said distributor while in contact with said drum as to cause a wiping action of the distributor upon the drum, substantially as set forth. 50

16. In duplicating apparatus, the combination with a drum, of a rotary ink-distributor mounted eccentrically within the drum and adapted to contact therewith, and means for simultaneously rotating the drum
55 and distributor in opposite directions while they are in contact, substantially as set forth.

17. In duplicating apparatus, the combination with a drum, of a rotary ink-distributor mounted eccentrically within the drum and adapted to contact therewith, and means for simultaneously rotating the drum
60 and distributor at different surface speeds so as to cause a wiping action of the distributor upon the drum, substantially as set forth. 65

18. In duplicating apparatus, the combination with a drum, of an ink-container within the drum, a rotatable ink-distributor
70 mounted eccentrically within the drum in position to contact with the drum, and means for simultaneously rotating the drum and distributor at different surface speeds, substantially as set forth. 75

19. In duplicating apparatus, the combination with a drum, of an ink-container mounted within the drum and movable longitudinally of the drum, a rotatable ink-distributor mounted eccentrically within the
80 drum in position to contact with the drum, and means for simultaneously rotating the drum and distributor at different surface speeds, substantially as set forth.

This specification signed and witnessed
this 6th day of April, 1909. 85

ALBERT B. DICK.

Witnesses:

R. R. HARRINGTON,
W. G. ARNOLD.