Feb. 24, 1925. 1,527,784

E. J. BRASSEUR

INKING APPARATUS FOR DUPLICATING MACHINES

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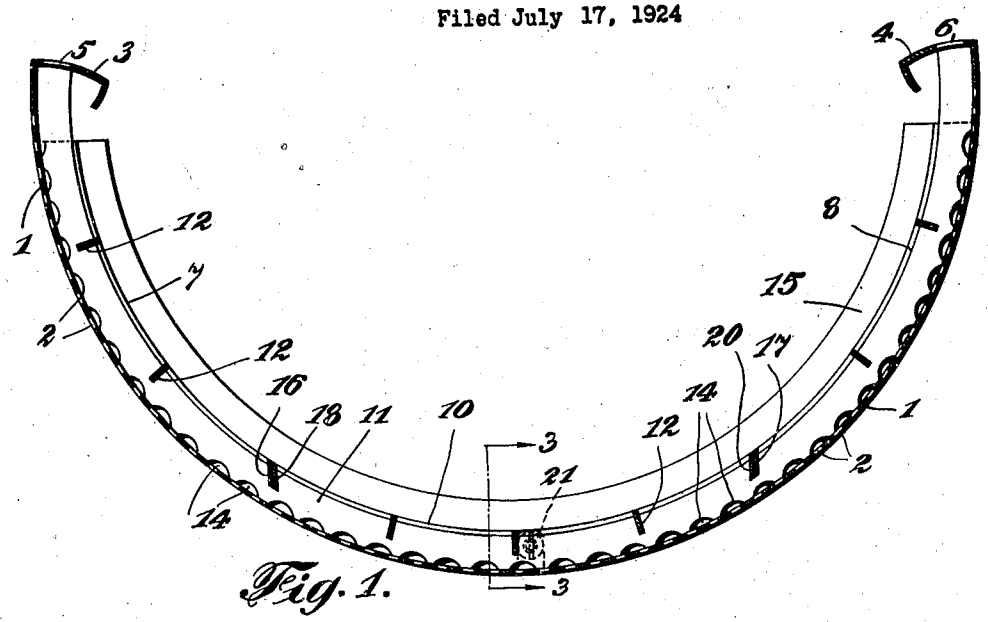


Fig. 1.

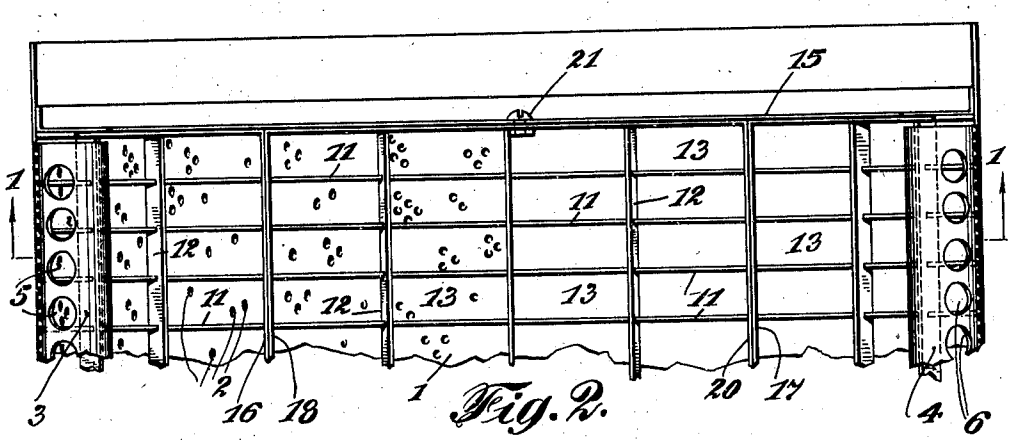


Fig. 2.

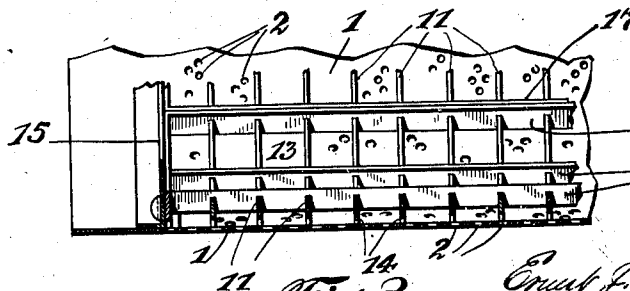


Fig. 3.

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UNITED STATES PATENT OFFICE.

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INKING APPARATUS FOR DUPLICATING MACHINES.

Application filed July 17, 1924. Serial No. 726,466.

To all whom it may concern:

Be it known that I, ERNEST J. BRASSEUR, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Inking Apparatus for Duplicating Machines, of which the following is a specification.

This invention relates to duplicating machines of the stencil carrying type, and in particular the invention has to do with the inking facilities of such machines.

The main object of this invention is to provide a stencil carrying type of duplicating machine with a novel means for efficiently distributing ink over the perforated diaphragm of such a machine and for maintaining a supply of ink on the diaphragm in a manner that does not permit excessive feeding of the ink during the duplicating operations of the machine.

A further object of the invention is to provide a simple form of constructional means to be quickly affixed in position in close proximity or in contact with the perforated diaphragm to assist in distributing the ink over the diaphragm in an entirely new manner and to thereby obtain a more even intensity of printing during the duplicating operations.

Another object of this invention is to design the constructional parts of the apparatus so they may be quickly manufactured at minimum costs and may be readily assemble in the machine.

Other objects and advantages of this invention will become apparent as the detailed description is read.

Reference is hereby made to a copending application by the same inventor executed at even date herewith and entitled Duplicating machines. The referred to application includes additional features relating to the novel inking means.

A preferred embodiment of this invention is illustrated in the accompanying drawings wherein;

Fig. 1 is a sectional view of a perforated diaphragm of a duplicating machine showing a grid mounted in association with the diaphragm.

Fig. 2 is a top plan view of a portion of the perforated diaphragm showing a part of a grid in normal position; and

Fig. 3 is a partial perspective view partly in section of portions of the diaphragm and the grid illustrating the joining edges of two of the grid sections.

Referring now to these drawings a diaphragm 1 of the usual stencil-carrying duplicating machine is shown in portion and is provided with the usual perforations 2 which permit ink placed on said diaphragm to pass to a suitable ink pad and from there to a stencil, all of which construction is well known in the art. In this particular form of diaphragm it is desired to have the ends of the diaphragm upturned or bent inwardly to form abutments 3 and 4. These abutments are provided with suitable series of openings 5 and 6 which permit ink flowing from the diaphragm to pass to another portion of the duplicating apparatus more fully described in the other application above referred to.

In describing in detail the means employed for assisting in distributing ink over the perforated diaphragm and for maintaining a small free supply of ink in contact with said diaphragm, it has been found desirable to mount such a means in close association with said diaphragm as will guide the ink over said diaphragm in a manner to obtain an even distribution. It has been found from experience that a suitable frame work or grid may be positioned in close association with said diaphragm for accomplishing this result. Such a framework or grid is preferably constructed to have longitudinal and cross partitions which form relatively small areas over the surface of said diaphragm. When desired a screen of large mesh properly positioned in relation to the diaphragm may be employed in accomplishing this purpose. It is to be understood that the frame or grid may be placed in contact with the diaphragm or slightly above it. In either case the grid is considered to be in close association with the diaphragm.

In setting forth and describing the most simple construction to attain this proper distribution, it has been found advisable from the manufacture and assembly standpoints to form the grid in a series of sections here illustrated as end sections 7 and 8 and an intermediate section 10. It is to be understood that these sections form a complete grid and if desired may be constructed in the form of a single unit. This preferred form provides a series of partitions

11 which extend longitudinally from end to end of said diaphragm thus forming channels along which ink may flow and be suitably guided. The grid is also provided with suitable cross partitions 12 which cooperate with the longitudinal partitions to form the small enclosures or areas 13 as noted in the drawings. The ink which is placed on the diaphragm will normally cover the surface of the diaphragm between the partitions and will cleave, to a certain extent, to the partitions thereby maintaining a small supply of ink that is free on said diaphragm but yet not in such relation to the diaphragm as to force ink therethrough.

During the operation of the duplicating machine, the diaphragm 1 and the grid sections 7, 8, and 10 will be rotated, but the grids will remain non-movable in respect to the diaphragm. During this rotation of the drum it will be readily perceived that a small proportion of ink will endeavor to flow out of the enclosures and the grid has been constructed to permit the ink to flow from one area or enclosure to another. The preferred construction for accomplishing and permitting the ink to flow out of one area to another and still retain some ink within each area is to provide suitable notches 14 in the longitudinal partitions and to preferably position the cross partitions above the diaphragm as illustrated in Fig. 1. It is to be understood that notches may be provided in the bottom edges of the cross partition 12 if desired or other constructions may be employed.

Any suitable means may be used to maintain the grid in normal position in respect to the perforated diaphragm. The particular construction which is desired for this purpose includes the positioning of suitable flanges 15 near the edges of the perforated diaphragm as illustrated in the drawings. The grid sections are constructed so as to be positioned between these flanges, and in assembling the sections of the grids it will be noted that grid 7 is placed in contact with abutment 3 and that section 8 is placed in contact with abutments 4. Each of these sections is provided with cross partitions 16 and 17 respectively which are positioned at angles to the perforated diaphragm. The intermediate or middle section 10 of the grid has its two end partitions 18 and 20 also formed at angles to properly engage the partitions 16 and 17 of sections 7 and 8. With such construction a suitable fastening means engaging only the middle section 10 becomes necessary. This will be readily appreciated where it is noted that as section 10 is assembled in position sections 7 and 8 are forced against abutments 3 and 4 respectively by reason of the angle positions of partitions 16, 17, 18 and 20. The means for fastening the middle section in position comprises a suitable screw stud 21 as noted in Fig. 2 and it cooperates with flange 15. It is to be understood that other simple and suitable fastening means may be employed if desired.

It will be seen from the foregoing description that the ink distributing means mounted in close association with the perforated diaphragm is simple of construction and permits the manufacture to be completed at reduced costs, and it is arranged to be quickly assembled in non-movable position in desired relation to the diaphragm. When the grid or frame is in normal position it will be noted that the ink received by the diaphragm will be automatically distributed over the diaphragm in a substantially uniform manner and by reason of the grid construction a small free supply of ink will be maintained in contact with the diaphragm thereby obtaining substantially uniform duplicating results from the operation of the machine.

It will be understood that while there is here described in detail a particular embodiment of the invention for purposes of full disclosures, and some detailed features which are specifically claimed for a special advantage, many changes and modifications may be made in the particular construction and arrangement of parts without departing from the broad scope of the invention which is outlined in the subjoined claims.

I claim:

1. In a duplicating machine, a perforated diaphragm constructed to receive ink, and means positioned non-movable in respect to said diaphragm for assisting in distributing ink over said diaphragm.

2. In a duplicating machine, a perforated diaphragm constructed to receive ink, and means held in close association with said diaphragm and non-movable in respect thereto for assisting in distributing ink thereover.

3. In a duplicating machine, a perforated diaphragm constructed to receive ink, and means positioned non-movable in respect to said diaphragm for assisting in distributing ink over said diaphragm, said means being constructed of material which permits a small amount of ink to cleave thereto.

4. In a duplicating machine, a perforated diaphragm constructed to receive ink, and means positioned non-movable in respect to said diaphragm for assisting in distributing ink over said diaphragm and for holding a free supply of ink in contact with said diaphragm.

5. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid member closely associated with said diaphragm for assisting in distributing ink thereover and for maintaining a small supply of free ink on said diaphragm.

6. In a duplicating machine, a perforated

diaphragm constructed to receive ink, and a grid member positioned in close relation to said diaphragm and having a series of partitions positioned in longitudinal relation over the surface of said diaphragm to form channels from one end of said diaphragm to the other end thereof for guiding ink over said diaphragm.

7. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid having a series of partitions positioned in longitudinal relation over the surface of said diaphragm to form channels from one end of said diaphragm to the other end thereof for guiding ink over said diaphragm, said partitions being arranged to permit ink to pass from one channel to another.

8. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid member closely associated with said diaphragm for guiding ink thereover, said grid having partitions extending across the width of said diaphragm.

9. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid member closely associated with said diaphragm for guiding ink thereover, said grid having partitions extending across the width of said diaphragm, said partitions arranged to permit some ink to pass from one side of one partition to another side thereof.

10. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid positioned to be closely associated with said diaphragm and to be non-movable in respect thereto, said grid being constructed to form a series of relatively small areas over the surface of said diaphragm.

11. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid positioned to be closely associated with said diaphragm and to be non-movable in respect thereto, said grid being constructed with longitudinal and cross partitions to form relatively small areas.

12. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid positioned to be closely associated with said diaphragm and to be non-movable in respect thereto, said grid having longitudinal and cross partitions to form relatively small areas, said longitudinal partitions being provided with notches which permit ink to flow under said longitudinal partitions.

13. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid positioned to be closely associated with said diaphragm and to be non-movable in respect thereto, said grid having longitudinal and cross partitions forming relatively small areas, said cross partitions being positioned out of contact with said diaphragm to permit ink to flow under said cross partitions in passing from one area to another.

14. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid positioned to be closely associated with said diaphragm and to be non-movable in respect thereto, said grid having longitudinal and cross partitions forming relatively small areas, said longitudinal partitions being provided with notches to permit ink to flow under said longitudinal partitions and said cross partitions being mounted above said diaphragm to permit ink to flow under said cross partitions.

15. In a duplicating machine, a perforated diaphragm constructed to receive ink, and a grid having longitudinal partitions to form channels from one end of said diaphragm to the other end thereof, said grid having cross partitions raised above the lower edges of said longitudinal partitions to permit ink to flow along said channels and under said cross partitions.

16. In a duplicating machine, a perforated diaphragm constructed to receive ink, flanges extending upwardly and being positioned near the edges of said diaphragm and extending substantially the length thereof, and a grid affixed to said flanges and held in close association with said diaphragm for distributing ink over said diaphragm and for maintaining a small free supply of ink on said diaphragm.

17. In a duplicating machine, a perforated diaphragm constructed to receive ink, flanges extending upwardly and being positioned near the edges of said diaphragm and extending substantially the length thereof, and a grid composed of a series of sections positioned in close association with the ends of said diaphragm and with said flanges, said grid sections being constructed to assist in distributing ink over said diaphragm.

18. In a duplicating machine, a perforated diaphragm constructed to receive ink, said diaphragm having its ends upturned to form abutments, flanges positioned near the edges of said diaphragm and extending the length thereof, a grid composed of three sections arranged to be placed between said abutments and said flanges and in contact with one another, and fastening means cooperating with said flanges and one of said grid sections for maintaining said sections in normal position relatively to said diaphragm.

19. In a duplicating machine, a perforated diaphragm constructed to receive ink, said diaphragm having its ends upturned to form abutments, flanges affixed to said diaphragm near the edges thereof and constructed to extend the length of said diaphragm, a grid composed of three sections and being positioned between said abutments and said flanges and in close association with said diaphragm, said sections having the edges thereof which engage another

of the sections constructed at an angle to said diaphragm to thereby cause the two end sections to be positively held against said abutments when said third grid section is assembled in position, and fastening means cooperating with said intermediate section of the grid for holding said sections in position.

20. In a duplicating machine, a perforated diaphragm constructed to receive ink, flanges mounted on said diaphragm near the edges thereof, a grid composed of three sections each being provided with longitudinal and cross partitions and being held in close association with said diaphragm, said partitions being constructed to permit ink to pass thereunder, and means for holding said grid sections in normal position.

21. In a duplicating machine, a perforated diaphragm constructed to receive ink, said diaphragm having its ends upturned to form abutments, flanges mounted on said diaphragm at the edges thereof and extending the length of said diaphragm, a grid composed of two end sections and an intermediate section constructed to be positioned in close association with said diaphragm and between said abutments and said flanges, said grid sections having longitudinal and cross partitions, said longitudinal partitions having notches in the bottom edges thereof to permit ink to flow thereunder, said cross partitions being raised above said diaphragm to permit ink to flow thereunder, said end sections being held positively in engagement with said abutments and having the edges which engage the intermediate section formed at an angle to said diaphragm, said intermediate section having its edges that engage said end sections formed at angles so as to force said end sections against said abutments, and fastening means cooperating with said flanges and the middle grid section for maintaining said grid sections in normal position.

This specification signed this 15th day of July, 1924.

ERNEST J. BRASSEUR.