April 4, 1944. M. P. NEAL 2,345,681

INKING MECHANISM FOR DUPLICATING MACHINES

Original Filed April 7, 1939 3 Sheets-Sheet 1

Fig. 1.

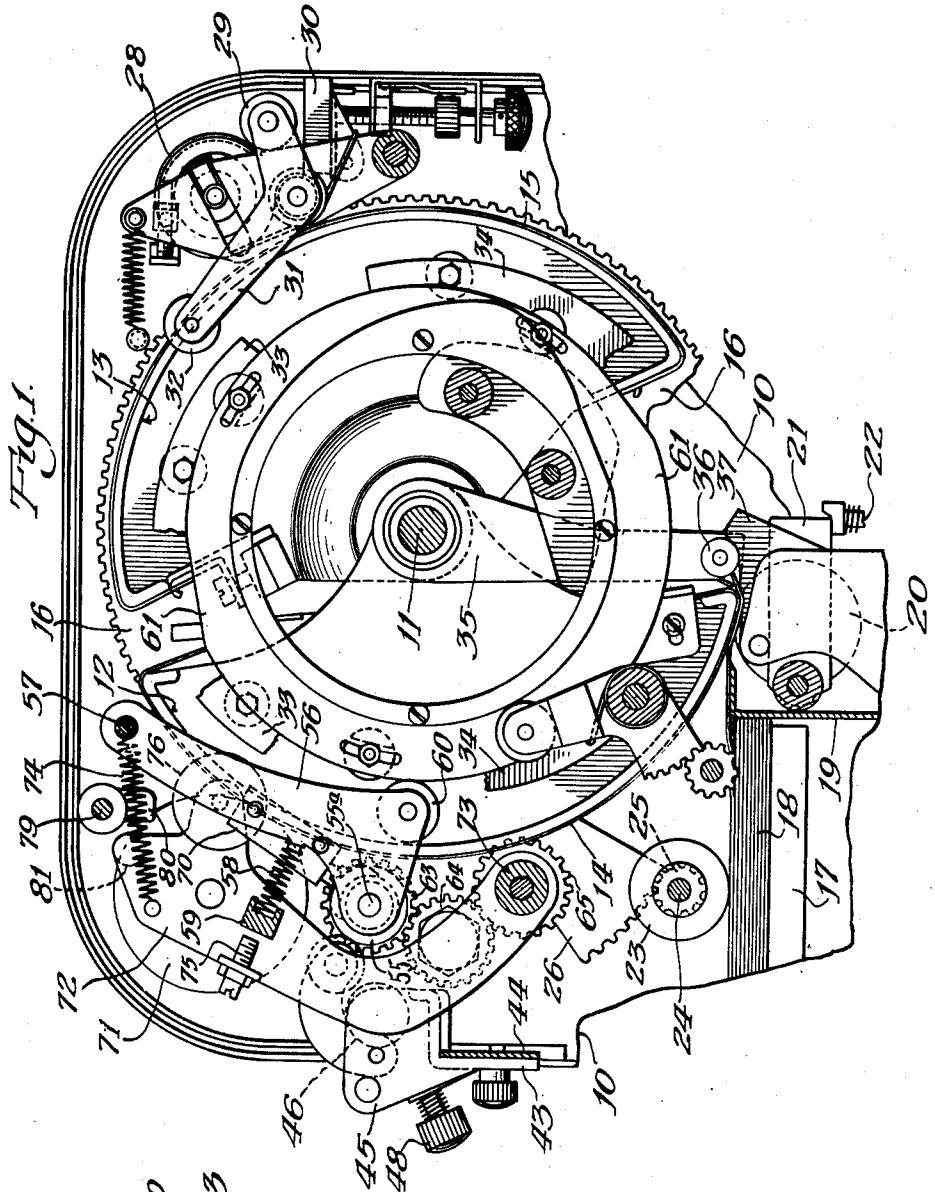


Fig. 2.

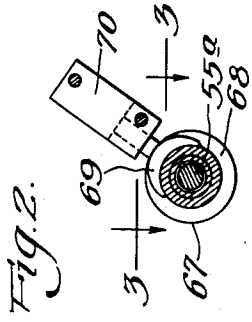
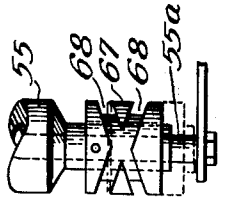


Fig. 3.



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INKING MECHANISM FOR DUPLICATING MACHINES

Original Filed April 7, 1939 3 Sheets-Sheet 2

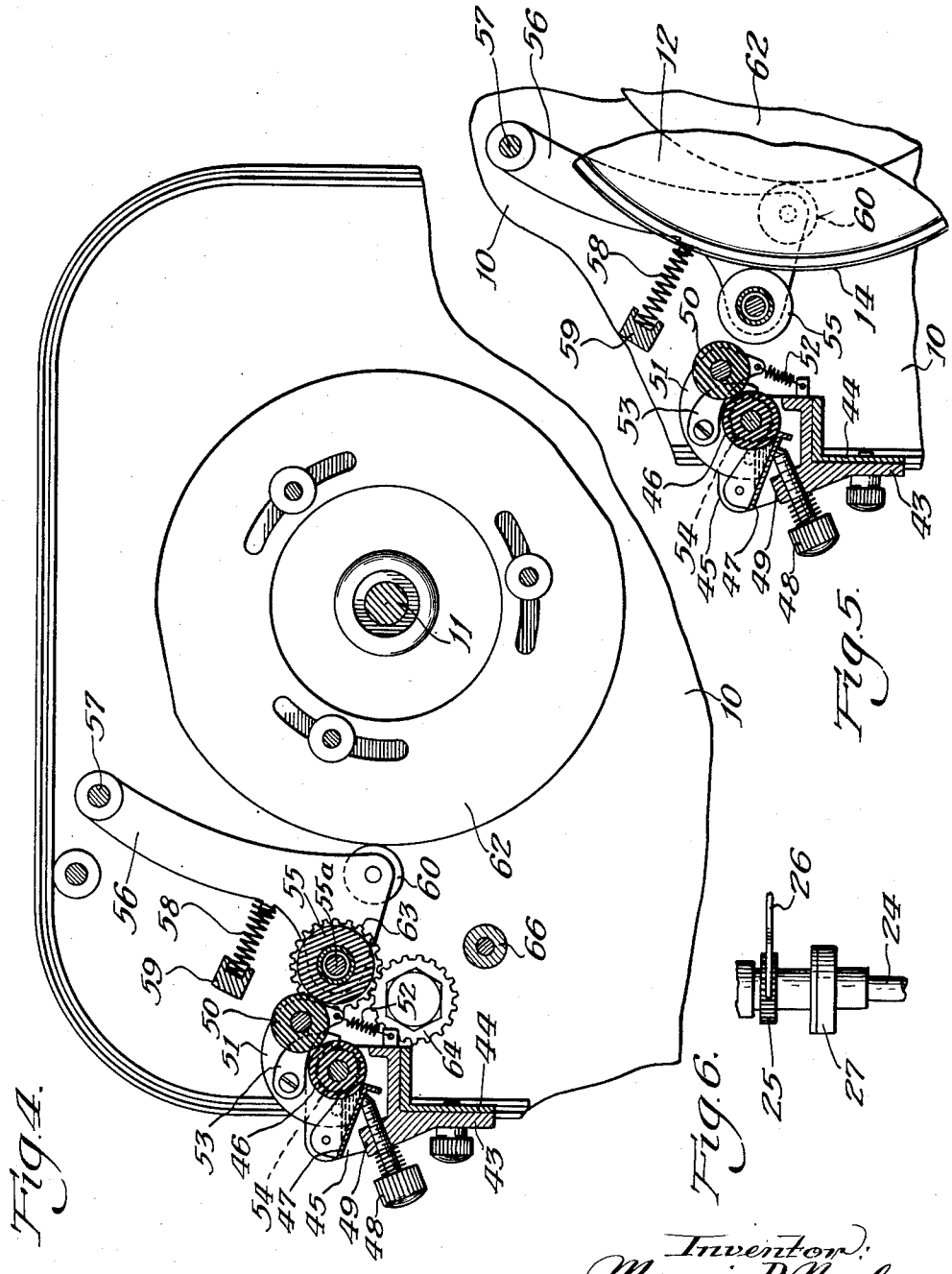

Fig. 4.

Fig. 5.

Fig. 6.

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INKING MECHANISM FOR DUPLICATING MACHINES

Original Filed April 7, 1939 3 Sheets-Sheet 3

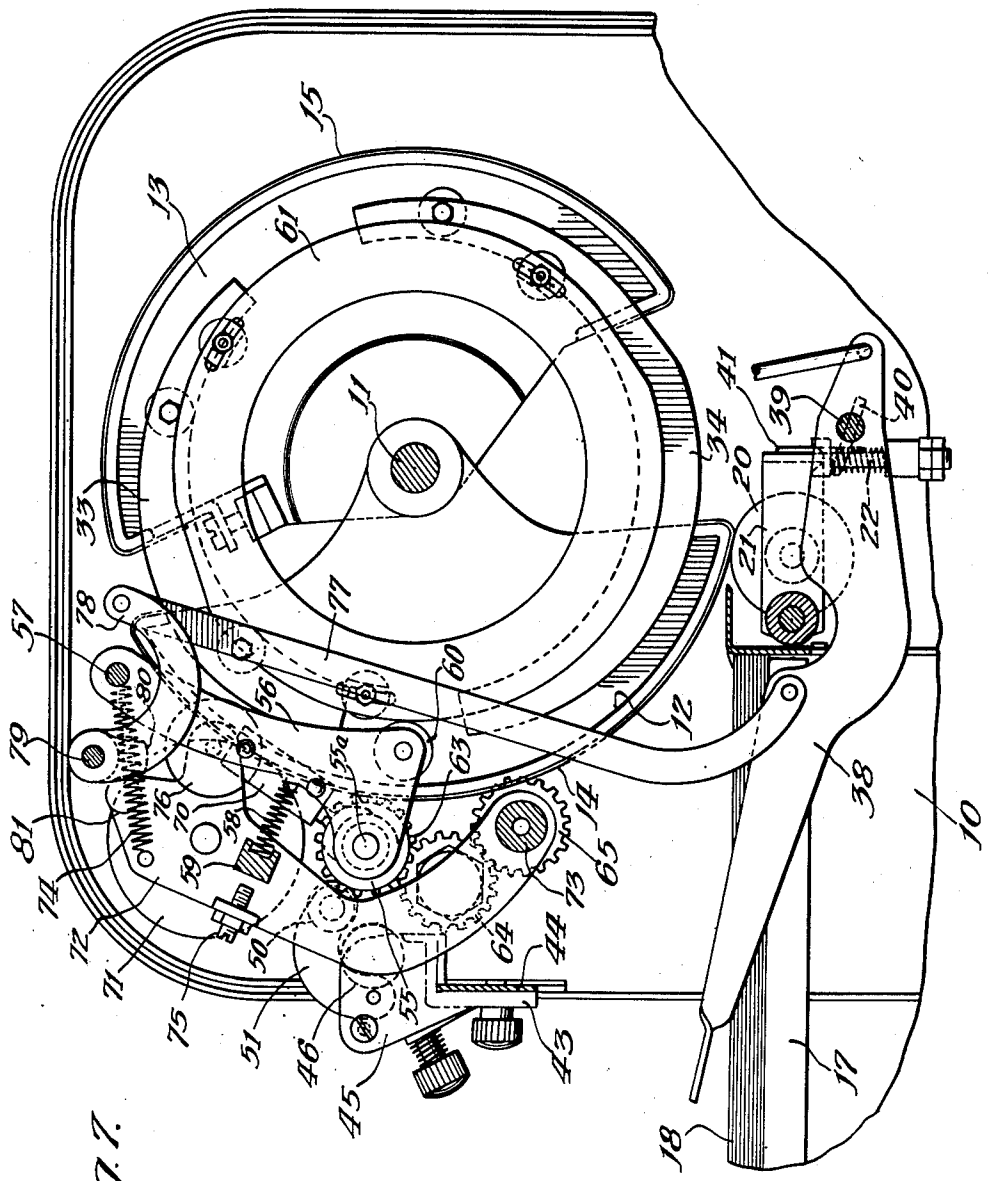

Fig. 7.

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Patented Apr. 4, 1944 2,345,681

UNITED STATES PATENT OFFICE

2,345,681

INKING MECHANISM FOR DUPLICATING MACHINES

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Original application April 7, 1939, Serial No. 266,518. Divided and this application October 25, 1941, Serial No. 416,544

10 Claims. (Cl. 101—145)

The invention relates to duplicating apparatus and particularly to an improved form of blackline duplicating apparatus employing a drum having a master sheet thereon in the form of a thin sheet of aluminum or the like upon which a suitable ink repellent may be spread for controlling the effective application of ink to the sheet. My present improvements are not however to be restricted to use in connection with this type of machine, so far as they are applicable to other types of machines.

It is one of the objects of this invention to provide an improved form and arrangement of operating and control parts in a machine of this type whereby the operator is enabled easily and quickly to stop the movement of the copy sheets through the machine and at the same time to stop or curtail the operation of certain other parts. To this end it is the object of the present invention to provide an improved arrangement of inking means which can be readily controlled as desired and which at the same time shall be highly effective for cutting and tempering the ink thoroughly so as to be applied evenly on the face of the master sheet on the drum.

It is another object of the invention to provide improved control means by which the desired sequence may be attained in the preparation of the parts for operation of the machine and the desired sequence in the withdrawal of the different mechanisms from operative condition so as to enable the operator to best advantage to provide for an interval of rest for at least a portion of the operative mechanisms without permitting the mechanisms to get out of operative condition, thus enabling the operator to renew operation without a prolonged reconditioning procedure.

For attaining these ends I have provided a drum comprising two separate portions of different size radially, upon the smaller of which drum portions the ink is primarily spread and equalized by cutting rollers or the like, after which the ink is taken off by an ink transfer roller and reapplied on the form carried by the larger drum portion, from which in turn the ink is transferred to the copy sheets under the influence of the pressure applied by the impression roller. For permitting this operation, the impression roller is pressed firmly against the drum portion of greater diameter but is held out of engagement with the drum portion of smaller diameter.

A novel form of ink supporting and feeding means is provided, comprising a fountain roller rotatably mounted in position with a comparatively stiff scraper plate pivotally mounted so as to engage the face of the roller. A set screw is provided bearing against the outside face of the scraper plate at an acute angle thereto so as to be finely adjustable for controlling the pressure of the plate against the roller and thus controlling the thickness of the film of ink carried out of the fountain by the roller. In the arrangement shown the scraper plate engages the bottom face portion of the roller and acts as the supporting means for maintaining a supply of ink against the face of the roller.

In my novel arrangement a second roller is mounted so as to be movable toward and from the face of the fountain roller, and a third roller is mounted so as to be movable back and forth between the second roller and the drum section of smaller diameter. The parts are arranged so that the movement of the third roller into engagement with the second roller causes the second roller to move out of engagement with the fountain roller. Means is also provided for giving the fountain roller a slight rotary movement upon each movement of the second roller away from the fountain roller, this being accomplished preferably by the use of a latch pawl movable with the second roller and engaging a ratchet rotatable with the fountain roller. Means is also provided for giving the third roller reciprocatory movement longitudinally as it engages first the second roller and then the drum, this means comprising preferably a cam member carried by said third roller and having a compound groove in its face engaged by a swiveled follower mounted on the framework of the machine.

It is another object of the invention to improve mechanisms of this type in sundry details hereinafter pointed out. The preferred means by which the several objects have been attained are illustrated in the accompanying drawings in which—

Fig. 1 is a vertical sectional view through a duplicating machine embodying my invention but with some of the parts removed and other parts broken away, the section being taken at a point adjacent to the end of the drum;

Fig. 2 is a vertical sectional view of a fragmentary portion of the apparatus showing the arrangement of the means for giving one of the inking rollers a longitudinal reciprocatory movement;

Fig. 3 is a top face view of the operating cam of the apparatus shown in Fig. 2, being shown substantially as seen at the line 3—3 of Fig. 2;

Fig. 4 is a vertical sectional view taken at an intermediate point through the inking mechanism and at a point adjacent to the end of the drum

so as to show the operating cam at another portion of the view;

Fig. 5 is a view similar to a portion of Fig. 4 but with certain of the parts in changed position, and showing a fragmentary portion of the drum in its operative relationship to the inking mechanism;

Fig. 6 is a fragmentary detailed view showing diagrammatically a portion of the driving means for the sheet forwarding roller; and

Fig. 7 is a vertical sectional view similar to Fig. 1 but taken at a slightly different point so as to show the manually operable means by which the impression roller and portions of the inking mechanism may be thrown out of operation, and with many of the parts of the machine omitted.

This application is being filed as a division of my earlier application Serial No. 266,518, filed April 7, 1939. Many of the parts are accordingly shown herein more or less diagrammatically, or are omitted entirely except so far as such parts form the subject matter to which this application relates.

Referring now to the several figures of the drawings in which corresponding parts are indicated by the same reference characters, 10 indicates the framework of the duplicating machine supporting a heavy shaft 11 which in turn supports a drum comprising two sections 12 and 13 which are mounted in fixed position with respect to each other with openings between the circumferential wall portions of the sections at opposite sides of the drum. The drum section 12 is of slightly greater diametrical size than that of the section 13, being provided with a master sheet 14 wrapped thereabout and secured thereto by any suitable means. The drum section 13 is provided with an ink pad 15 wrapped about its curved face and secured in position by any suitable holding means. The drum is normally driven in counterclockwise direction in Fig. 1 by means of a large gear 16 which is fixedly connected with the drum sections 12 and 13.

In Fig. 1 a fragmentary portion of a table or tray 17 is shown, supporting a pile of copy sheets 18 stacked against a vertically disposed plate 19 at the forward edge of the pile of sheets. A short distance in advance of the table 17 (toward the right in Fig. 1) a platen or impression roller 20 is rotatably mounted in position so as to press on the master sheet 14 carried by the larger drum section as the drum rotates but so as to be held out of pressure relationship with respect to the smaller drum section 13. In the construction illustrated the impression roller 20 is rotatably supported by pivotally mounted arms 21 which are pressed upwardly by spring supported plungers 22. Means is provided for moving the impression roller 20 downwardly out of position for engagement with the drum section 12 when desired, such means being provided for use in part in connection with the inking mechanism and being hereinafter described.

Above the table or tray 17 in position to engage the top sheet of the pile of copy sheets 18 I have mounted a forwarding roller 23 supported by a shaft 24 and driven in counterclockwise direction in Fig. 1 by a pinion 25 meshing with a toothed sector 26 which is swung back and forth by any approved arrangement of actuating means during the rotation of the drum. A one-way clutch 27 of any approved type is preferably interposed between the pinion 25 and the forwarding roller 23 so as to permit the roller to stand stationary upon the stroke of the sector 26 in one direction.

In the arrangement shown, means is provided for applying an ink repellent upon the face of the master sheet in advance of the application of ink thereto. This means comprises a roller 28 rotatably mounted in position for engaging the master sheet as the drum revolves, such roller 28 being provided with a suitable ink repellent through the medium of a roller 29 which is moved into and out of position to take a supply of the repellent from a receptacle 30, the roller 29 being rotatably mounted on a bell crank lever 31 actuated as the drum rotates by a roller 32 engaging cams 33 and 34 carried by the drum. Inasmuch as this mechanism forms in and of itself no part of the present invention, it is believed to be unnecessary to describe the same further herein.

For stopping the forward movement of the copy sheets as they are fed to the drum, a margin bar arrangement is provided, comprising arms 35 adapted to swing circumferentially of the drum in the space between the two sections 12 and 13. The arms 35 normally stand in position adjacent to the rear edge portion of the drum section 13, but as the drum revolves in counterclockwise direction in Fig. 1 rollers 36 carried by said arms engage latch devices 37 by which the margin bar device is held stationary for a short period, during which time it serves effectively as stop means for limiting the forward feed of the copy sheets by the rollers 23. As soon as the section 12 of the drum is brought into engagement with the arms 35, such arms are pushed forwardly out of engagement with the latch devices 37, whereupon the arms are carried again to their normal position adjacent to the drum section 13. This means also forms no part of the present invention.

The means for moving the impression roller 20 downwardly out of operative position manually comprises a lever 38 fixedly mounted on a transversely extending shaft 39 positioned a short distance in front of said impression roller 20. This shaft is provided with pins 40 extending therethrough, the rear end portions of such pins being in engagement with openings in brackets 41 depending from a crossbar 42 which connects the front ends of the arms 21. The arrangement is such that when the lever 38 is given a downward stroke in counterclockwise direction in Fig. 7 the pins 40 cause the brackets 41 and the arms 21 to move downwardly for carrying the impression roller 20 out of position for engagement with the drum.

The improved means for applying ink upon the master sheet 14 comprises a heavy plate 43 preferably in the form of an angle extending across the machine in position to be removably supported by a frame bar 44. At its opposite ends the plate 43 is provided with upstanding portions 45 having a fountain roller 46 journalled between them. A heavy scraper plate 47 is also pivotally mounted between the end portions 45 so as to engage the bottom face portion of the roller, a set screw 48 being provided for pressing the plate 47 adjustably against the roller 46. In the arrangement shown, the set screw 48 is arranged in acute angle relation to the plate 47, being secured by screw threads in a lug 49 carried by the plate 43. The arrangement is such that when a supply of ink is provided between the plate 47 and the roller 46, a film of ink of controlled thickness is carried around by the roller 46 when

it is rotated in counterclockwise direction in Figs. 4 and 5.

For taking ink from the fountain roller 46 I have provided a vibrating distributor roller 50 which is journaled between two bowed arms 51 pivotally mounted on the end plates or standards 45, respectively, the arrangement being such that when the arms are swung to the limit of their motion in clockwise direction in Fig. 4 the roller 50 is brought into operative engagement with said fountain roller 46. The arms 51 are connected by coiled springs 52 with the plate 43 for urging the arms normally to the position in which the roller 50 engages the roller 46.

Rotary movement of the roller 46 is brought about at timed intervals by the use of a latch pawl 53 which is pivotally mounted on one of the arms 51 (see Fig. 4) adapted by engagement with a ratchet wheel 54 carried by the roller 46 to give said roller a limited rotary movement in counterclockwise direction in said figure when the arms 51 are swung in counterclockwise direction for moving the roller 50 out of engagement with said roller 46.

The means provided for swinging the arms 51 upwardly in counterclockwise direction in Fig. 4 comprises a roller 55 extending across the machine in front of the roller 50, such roller 55 being journaled between arms 56 pivotally mounted on a crossbar 57 extending between portions of the framework 10 at opposite sides of the machine. The arms 56 are normally urged to the limit of their swinging movement toward the drum by coiled springs 58 interposed between said arms and lugs 59 extending inwardly from the framework, and said arms are moved outwardly away from the drum (toward the left in Fig. 4) by rollers 60 carried by said arms in position to engage cams 61 and 62, respectively, mounted on opposite ends of the drum. The roller 55 is supported between the arms 56 by a shaft 55a along which the roller is slidable longitudinally.

The arrangement as above described is such that when the rollers 60 are in engagement with the low portions of the cams 61 and 62 said roller 55 stands in spaced relation to the roller 50, but that when the rollers 60 are engaged by the high portions of said cams the arms 56 are swung toward the left in Fig. 4, serving to carry the roller 55 into engagement with the roller 50, and serving also to move said roller 50 upwardly out of engagement with the fountain roller 46. The arrangement of the cams 61 and 62 angularly with respect to the drum is such that the roller 55 in its inwardly swung position engages the ink pad or blanket 15 carried by the drum section 13 of smaller diameter, and that said roller in its outwardly swung position stands in spaced relation to the master sheet 14 carried by the drum section 12 of greater diameter.

In the arrangement shown, the roller 55 is driven continuously by a gear 63 carried by the roller (see Fig. 4), such gear 63 meshing with an idler gear 64 which in turn meshes with a second idler gear 65 mounted on a lug 66, such gear 65 meshing with the large gear 16 carried by the drum. The arrangement is such that the roller 55 is driven at substantially the same surface speed as that of the ink pad 15 carried by the drum portion 13. As is clearly shown in Fig. 1, the gear 63 is positioned substantially on the line of centers between the gear 64 and the crossbar 57 about which the arms 56 swing. This arrangement enables the gear 63 to be given a slight movement toward and away from the drum while in mesh with the gear 64 without interfering with the smooth meshing of the parts.

Means is also provided for giving the roller 55 longitudinal movements with respect to the blanket or pad 15 and with respect to the roller 50 for assisting in the cutting of the ink and in the distribution of the ink along the cooperating rollers. This means comprises a cam member 67 carried by the roller 55 so as to be slidable therewith along the shaft 55a, such cam member having a compound cam groove 68 into which a swiveled follower 69 extends, as shown in Fig. 2, such follower 69 being rotatably mounted on a bracket 70 which in turn is fixedly mounted on one of the arms 56, as is shown in Fig. 1. The arrangement is such that upon one revolution of the cam the cam and the roller 55 are moved longitudinally in one direction and that upon the next revolution the cam and roller are moved in the reverse direction, such reciprocation of the roller continuing without break during the rotation of said roller.

By the use of the mechanism as just described, ink is taken from the fountain comprising the roller 46 and the adjustable plate 47 and is distributed by the co-operation of the rollers 46, 50 and 55. The amount of the ink is controlled by the pressure of the plate 47 on the roller 46, the roller 46 being given only a comparatively small part of a complete revolution upon each actuation of the roller by the pawl 53.

In the arrangement illustrated, the roller 55 is given a complete reciprocation back and forth for each two revolutions of the roller and in view of the fact that said roller 55 is given a considerable number of revolutions during each revolution of the drum, it will be appreciated that the ink as applied to the ink pad 15 on the drum section 13 is quite thoroughly worked and cut and is applied very smoothly and evenly upon the pad.

For taking the ink from the pad 15 to which it has been applied by the rotating and longitudinally moving roller 55, and applying such ink even more uniformly to the master sheet 14 on the drum portion 12, I have provided a form roller 71 which is journaled between two arms 72, one of said arms being pivotally mounted on the lug 66, and the other of which at the opposite side of the machine is pivotally mounted upon a lug 73 extending inwardly from the framework 10 as is clearly shown in Fig. 1. These arms 72 are connected by coiled springs 74 with the shaft or bar 57, such springs serving normally to urge the form roller 71 toward the drum. As is clearly shown in Fig. 1, each of the arms 72 is provided with a set screw 75 adjustably mounted in position to engage one of the lugs 59 for limiting the movement of the form roller toward the right in said Fig. 1. The arrangement of the parts is such that the form roller is pressed by the springs 74 yieldingly against the pad or blanket 15 on the drum section 13 so as to take ink therefrom and then in turn is pressed against the master sheet 14 on the drum section 12 so as to apply the ink to said master sheet. The set screws 75 are provided for controlling the degree of pressure of the form roller 71 on the pad 15, said set screws being out of engagement with the lugs 59 at the time when the form roller is in engagement with the master sheet on the drum section 12. Rollers 76 are provided on the arms 72 in position to engage suitable cams carried by the drum for carrying the form roller smoothly

and evenly from one to the other of said drum sections 12 and 13, which are in spaced relation circumferentially with respect to each other and are of different diametrical size, as hereinbefore set forth. The roller 76 at one side of the machine engages the cams 33 and 34 for such bridging action, while the roller 76 at the opposite side of the machine engages similar cams not shown.

Means is provided for moving the form roller 71 to the left in Fig. 7 away from the drum when the lever 38 is given an operative stroke downwardly. This means comprises a link 77 pivotally connected at its lower end with said lever 38 and pivotally connected at its upper end with a downwardly bowed arm 78 which is non-rotatably connected with a rock shaft 79. The shaft 79 is provided at opposite sides of the machine with short arms or lugs 80 which are adapted by engagement with lugs or rollers 81 carried by the arms 72 to sv ıg said arms 72 towards the left in Fig. 7 for carrying the form roller 71 out of position for engaging the drum when said shaft 79 is given a rotary movement in clockwise direction in said Fig. 7 by a downward stroke of the lever 38. In Fig. 7 the arms or lugs 80 are shown out of engagement with the lugs or rollers 81, this position of the parts corresponding with the normal raised position of the lever 38. When the lever 38 is moved downwardly, the arms or lugs 80 displace the rollers 81 and the arms 72 against the action of the springs 74 for carrying the form roller 71 away from the drum.

By the use of the improved arrangement as above described, an operator is enabled to throw the ink transfer roller 71 out of position for engagement with the drum and to move the impression roller 20 downwardly out of position for engagement with the larger drum section 12, this being accomplished by a downward movement of the lever 38.

Under such circumstances, the drum is adapted to continue rotation with the ink repellent being continuously applied upon the master sheet 14 and with the ink also being applied by the roller 55 upon the face of the master sheet. Such movement of the lever 38 downwardly is adapted also to throw out of operation the means by which the copy sheets are fed forwardly to the drum, although such operation is not described herein. By the use of this arrangement an operator is enabled to have a partial operation of the machine such as to enable him to clear up any possible difficulties which may have arisen in connection with the progress of the copy sheets one at a time through the machine. During this corrective action on the part of the operator the film of ink on the master sheet is kept tempered ready for immediate copy operation of the machine upon an upward stroke of the lever 38 to the normal operating position.

By the provision of the means as shown and described for controlling the movement of the rollers 50 and 55 I have provided a very effective construction which is easy to manufacture and easy to regulate and control so as to obtain highly effective results.

While the form and arrangement of parts as shown in the drawings and as above described are preferred the invention is not to be limited to such arrangement, except so far as the claims may be so limited, it being understood that changes might well be made in the construction without departing from the spirit of the invention.

I claim:

1. In a duplicating machine, the combination of a drum rotatably mounted in position and comprising two portions of different effective diameter, means for mounting a master sheet on the face of the drum portion of greater diameter, means for rotating said drum, an ink fountain, means comprising a plurality of rollers for taking ink from said fountain and applying such ink in comparatively well cut condition on the drum portion of smaller diameter, means for holding said ink applying means out of operative engagement with the drum portion of greater diameter, a roller rotatably mounted on a movable axis so as to be movable inwardly and outwardly with respect to the drum, and means actuated in timed relation to the rotation of the drum for moving said last-named roller successively into engagement with both of said drum portions for taking ink from the portion of smaller diameter and applying it to the master sheet on the drum portion of greater diameter.

2. In a duplicating machine, the combination of a drum rotatably mounted in position and comprising two portions of different effective diameter, means for mounting a master sheet on the face of the drum portion of greater diameter, means for rotating said drum, an ink fountain, means comprising a plurality of rollers for taking ink from said fountain and applying such ink in comparatively well cut condition on the drum portion of smaller diameter, means comprising a cam rotating with said drum adapted upon a portion of each revolution of the drum to hold said ink applying rollers out of engagement with said drum portion of greater diameter and adapted upon another portion of each revolution of the drum to permit the rollers to move inwardly into effective engagement with the drum portion of smaller diameter, a roller rotatably mounted on a movable axis adjacent to said drum, yielding means for pressing said last-named roller toward said drum, and means comprising a cam rotating with the drum adapted at portions of successive revolutions of the drum to move said last-named roller outwardly against the action of said yielding means into position to engage both portions of the drum in turn so as to take ink from the portion of smaller diameter and to apply such ink to the master sheet on the portion of greater diameter.

3. In a duplicating machine, the combination of a drum rotatably mounted in position and comprising two portions of different effective diameter, means for mounting a master sheet on the face of the drum portion of greater diameter, means for rotating said drum, an ink fountain, means comprising a plurality of rollers for taking ink from said fountain and applying such ink in comparatively well cut condition on the drum portion of smaller diameter, means comprising a cam rotating with said drum adapted upon a portion of each revolution of the drum to hold said ink applying rollers out of engagement with said drum portion of greater diameter and adapted upon another portion of each revolution of the drum to permit the rollers to move inwardly into effective engagement with the drum portion of smaller diameter, a roller rotatably mounted on a movable axis adjacent to said drum, yielding means for pressing said last-named roller toward said drum into position to engage both portions in turn so as to take ink from the portion of smaller diameter and to ap-

ply it to the master sheet on the portion of greater diameter, and adjustable means for limiting the inward movement of said last-named roller for controlling the pressure of said roller against the drum portion of smaller diameter.

4. In a duplicating machine, the combination of a drum rotatably mounted in position and comprising two portions of different diameter, means for attaching a master sheet on said drum portion of greater diameter, means for rotating said drum, an ink fountain comprising a rotatably mounted fountain roller adapted upon rotary movement to withdraw a film of ink of controlled thickness from the fountain, a second roller movable toward and from said fountain roller, a third roller movable between said second roller and said drum so as to engage them alternately, means adapted upon each revolution of the drum to move said third roller away from the drum into engagement with said second roller for carrying said second roller out of engagement with said fountain roller, and a fourth roller mounted in position to engage both of said portions of the drum for taking the ink from said portion of smaller diameter and applying it upon the master sheet carried by the drum portion of greater diameter.

5. In a duplicating machine, the combination of a drum rotatably mounted in position and comprising two portions of different diameter, means for attaching a master sheet on said drum portion of greater diameter, means for rotating said drum, an ink fountain comprising a rotatably mounted fountain roller adapted upon rotary movement to withdraw a film of ink of controlled thickness from the fountain, a second roller movable toward and from said fountain roller, a third roller movable between said second roller and said drum so as to engage them alternately, means adapted upon each revolution of the drum to move said third roller into engagement with said second roller for carrying said second roller out of engagement with said fountain roller, means actuated by the movement of said second roller with respect to said fountain roller for giving said fountain roller a slight rotary movement, and a fourth roller mounted in position to engage both of said portions of the drum for taking the ink from said portion of smaller diameter and applying it upon the master sheet carried by the drum portion of greater diameter.

6. In a duplicating machine, the combination of a drum rotatably mounted in position and comprising two portions of different diameter, means for attaching a master sheet on said drum portion of greater diameter, means for rotating said drum, an ink fountain comprising a rotatably mounted fountain roller adapted upon rotary movement to withdraw a film of ink of controlled thickness from the fountain, a second roller movable toward and from said fountain roller, a third roller movable between said second roller and said drum so as to engage them alternately, means adapted upon each revolution of the drum to move said third roller into engagement with said second roller for carrying said second roller out of engagement with said fountain roller, means comprising a latch pawl movable with said second roller adapted by engagement with a ratchet carried by said fountain roller to give said fountain roller a slight rotary movement upon each movement of said second roller away from the fountain roller, and a fourth roller mounted in position to engage both of said portions of the drum for taking the ink from said portion of smaller diameter and applying it upon the master sheet carried by the drum portion of greater diameter.

7. In a duplicating machine, the combination of a drum rotatably mounted in position and comprising two portions of different effective diameter, means for rotating said drum, means for mounting a master sheet on the face of the drum portion of greater diameter, means for applying ink to the drum portion of smaller diameter, means for holding said ink applying means out of engagement with the drum portion of greater diameter, arms pivotally mounted adjacent to said drum, a roller rotatably mounted on the free end portions of said arms, yielding means normally pressing said roller into position to engage said drum for taking ink from the portion of smaller diameter and applying it upon the master sheet carried by the portion of greater diameter, adjustable means for limiting the movement of said arms toward said drum for controlling the pressure of said roller on the drum portion of smaller diameter, and manually operable means for moving said roller out of the position in which it engages said drum.

8. In a duplicating machine, the combination of a drum rotatably mounted in position and comprising two portions of different effective diameter, means for rotating said drum, means for mounting a master sheet on the face of the drum portion of greater diameter, means for applying ink to the drum portion of smaller diameter, means for holding said ink applying means out of engagement with the drum portion of greater diameter, arms pivotally mounted adjacent to said drum, a roller rotatably mounted on the free end portions of said arms, yielding means normally pressing said roller into position to engage said drum for taking ink from the portion of smaller diameter and applying it upon the master sheet carried by the portion of greater diameter, a shaft rotatably mounted adjacent to said arms, lugs on said shaft adapted by engagement with said arms to move them for carrying said roller out of engagement with said drum, a lever pivotally mounted adjacent to said drum, and operative connections between said lever and said shaft adapted upon a stroke of the lever to rotate the shaft in the direction for moving said roller away from the drum.

9. In a duplicating machine, the combination of a drum rotatably mounted in position and comprising two portions of different diameter, means for rotating said drum, means for attaching a master sheet on the drum portion of greater diameter, an impression roller rotatably mounted adjacent to said drum in position to engage said drum portion of greater diameter but held out of engagement with said drum portion of smaller diameter, means for applying ink to said drum portion of smaller diameter but held out of operative engagement with said master sheet on the drum portion of greater diameter, ink transfer means for taking ink from the drum portion of smaller diameter and applying it to the drum portion of greater diameter, and means comprising a lever adapted by an operative stroke in one direction to move said impression roller outwardly out of position for engaging said drum and for throwing said ink transfer means out of operation while the drum continues to rotate and said first-named ink applying means continues to operate.

10. In a duplicating machine, the combination of a drum rotatably mounted in position and

comprising two portions of different diameter, means for rotating said drum, means for attaching a master sheet on the drum portion of greater diameter, an impression roller rotatably mounted adjacent to said drum in position to engage said drum portion of greater diameter but held out of engagement with said drum portion of smaller diameter, means for feeding copy sheets between said drum and said impression roller, means for applying an ink repellent to said master sheet, means for applying ink to said drum portion of smaller diameter but held out of operative engagement with said master sheet, other means for taking the ink from said drum portion of smaller diameter and applying it to the drum portion of greater diameter, a lever pivotally mounted adjacent to said drum, and means actuated by a stroke of said lever in one direction, for moving said impression roller out of the position in which it engages said drum, and for throwing out of operation the means for transferring the ink from one portion of the drum to the other, the arrangement being such that upon a reverse movement of said lever said parts are all moved again into operative relationship for renewing the normal operation of the machine.

MORRIS P. NEAL.