

March 31, 1942.

J. L. GIBSON

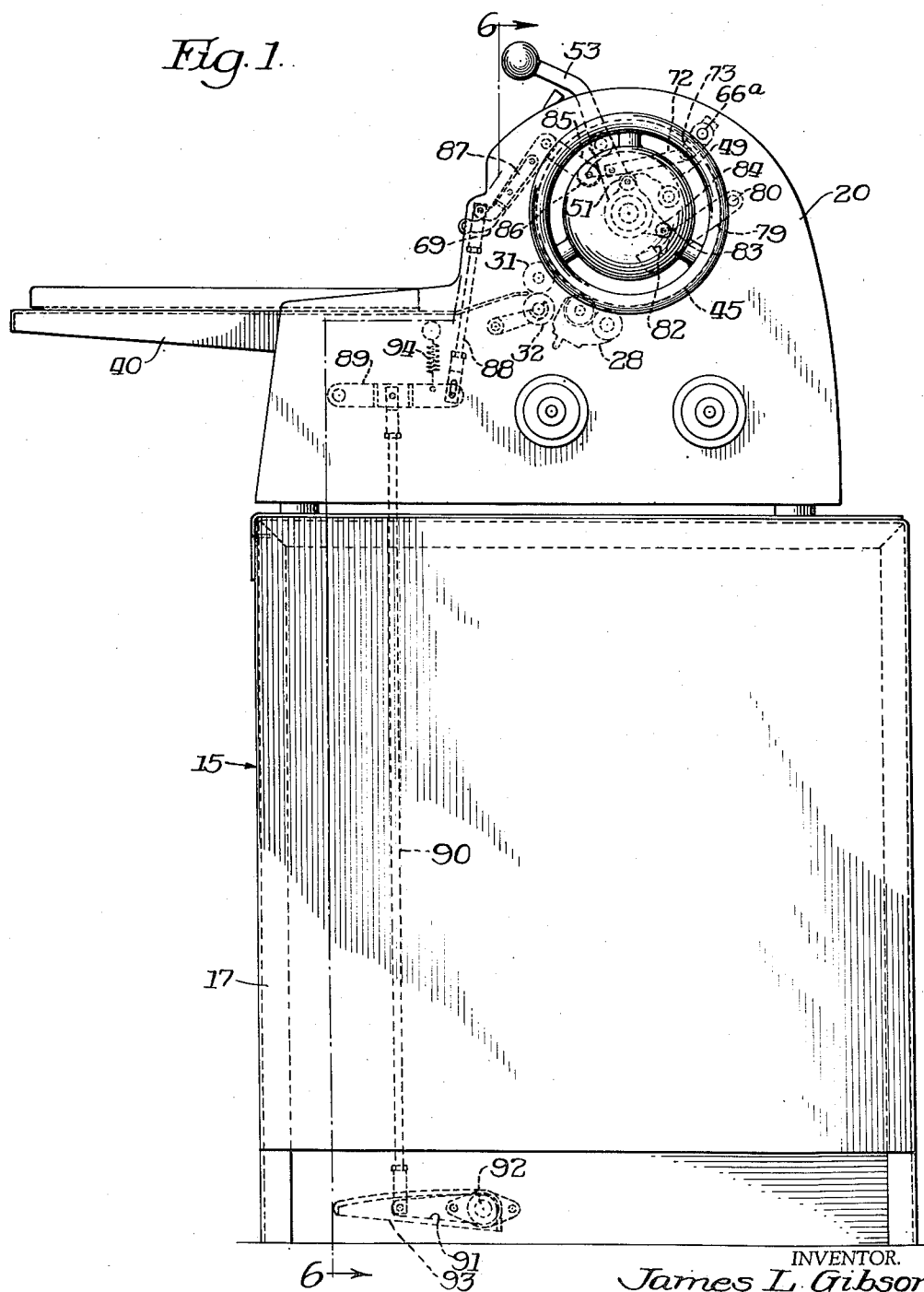
2,277,967

DUPLICATING MACHINE

Filed Dec. 23, 1940

5 Sheets-Sheet 1

Fig. 1.



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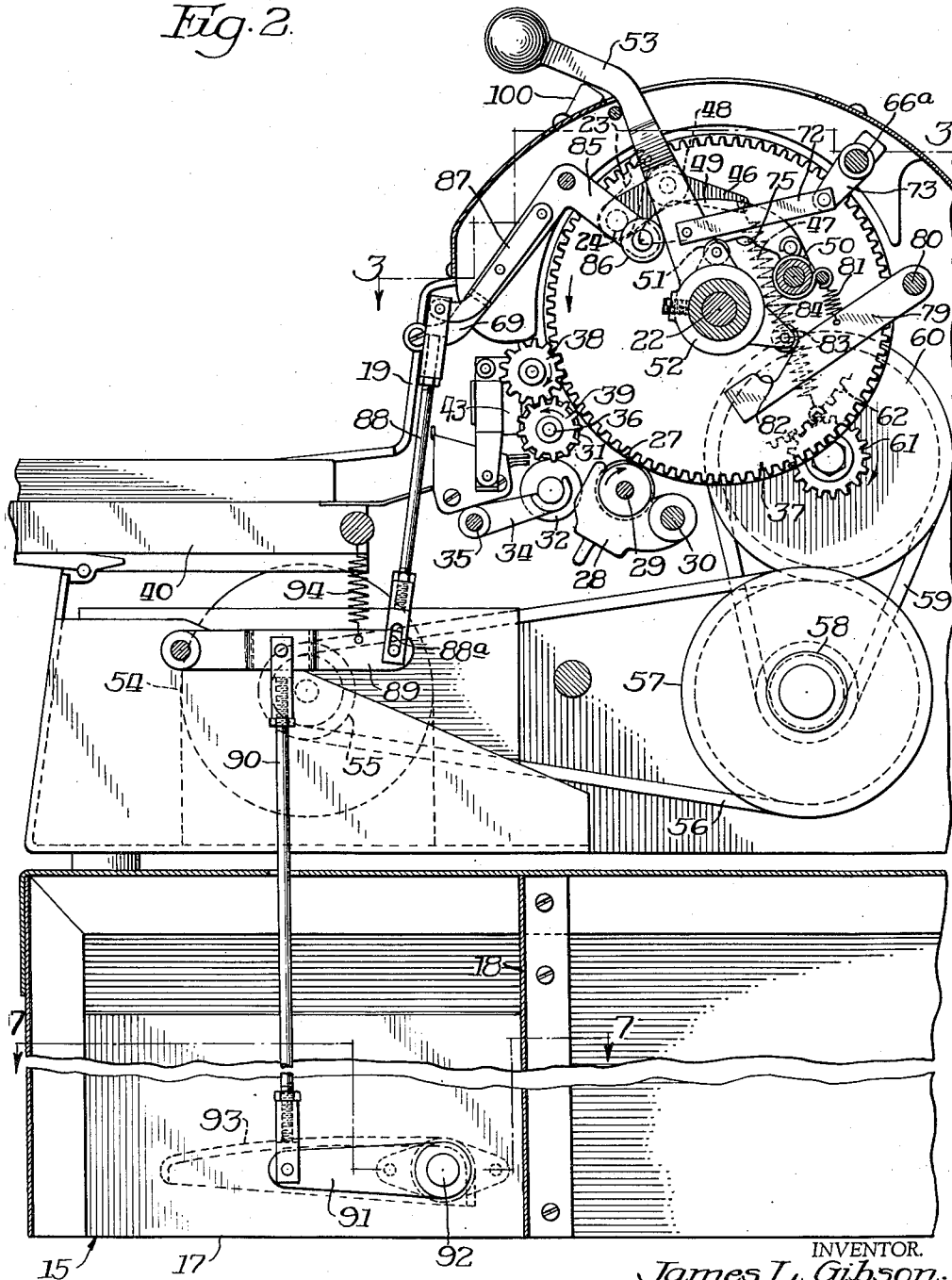
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5 Sheets-Sheet 2

REARWARD ← → FORWARD

Fig. 2.



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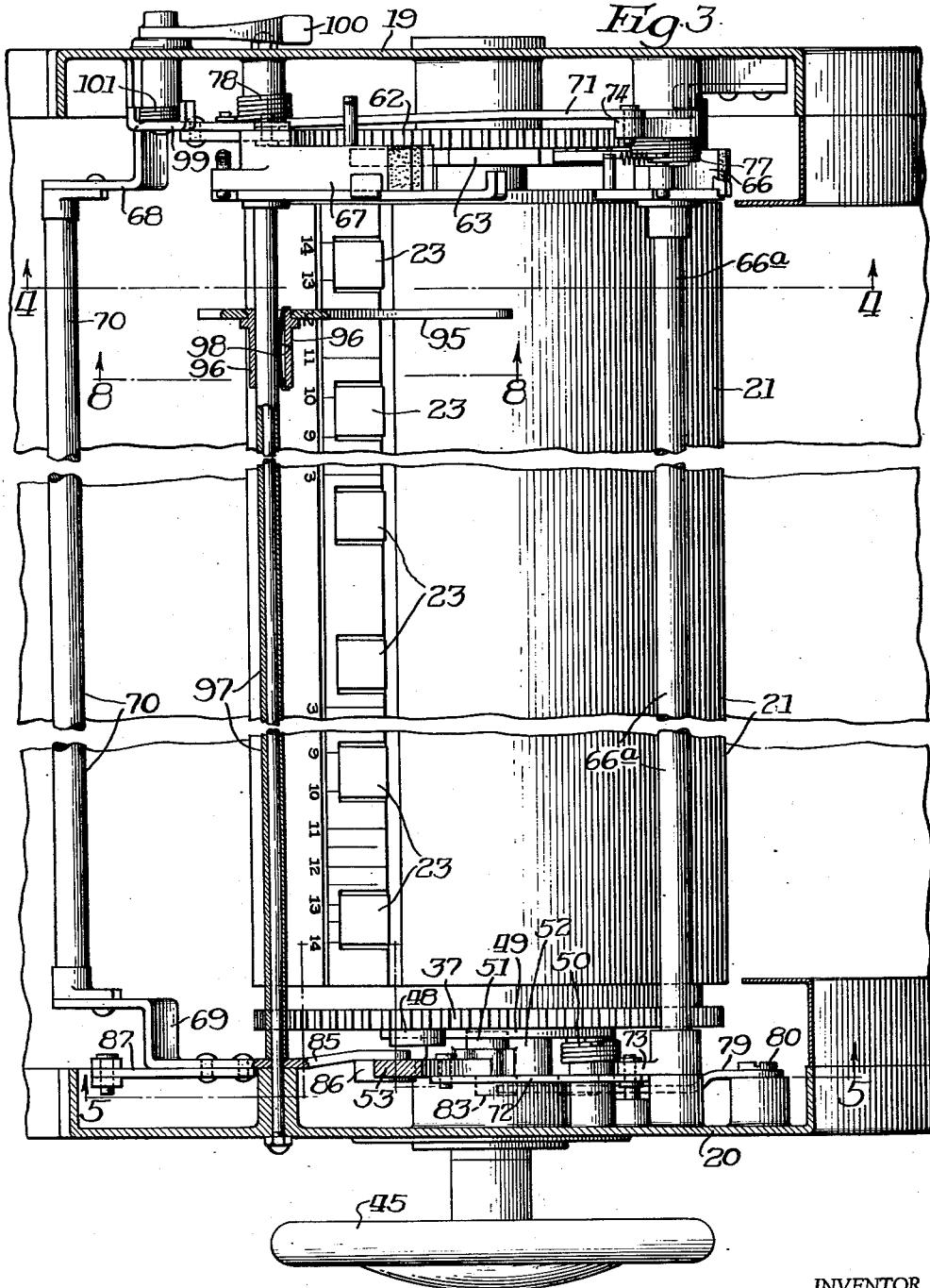
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DUPLICATING MACHINE

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5 Sheets-Sheet 3



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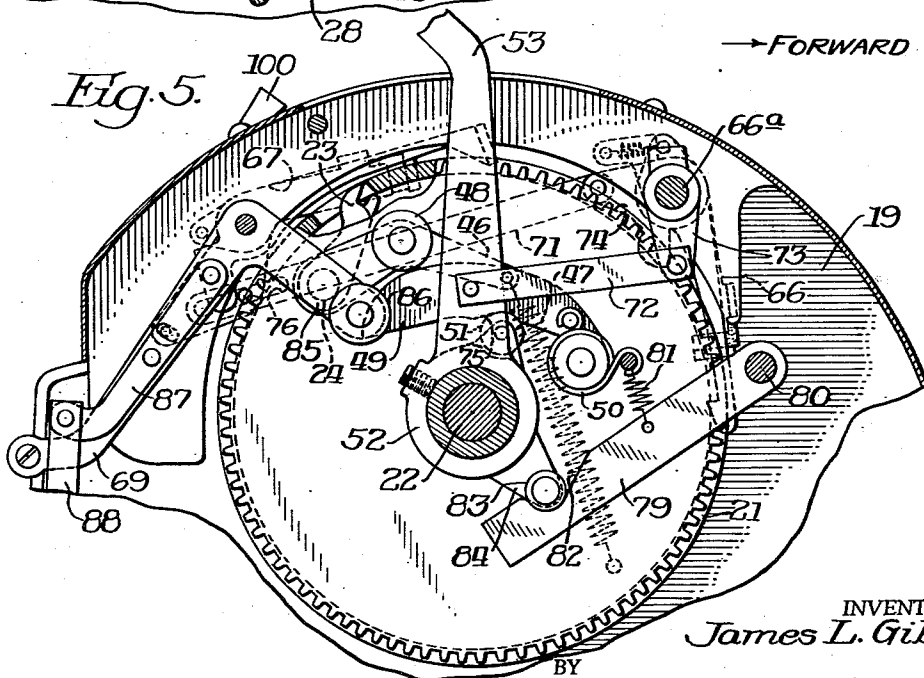
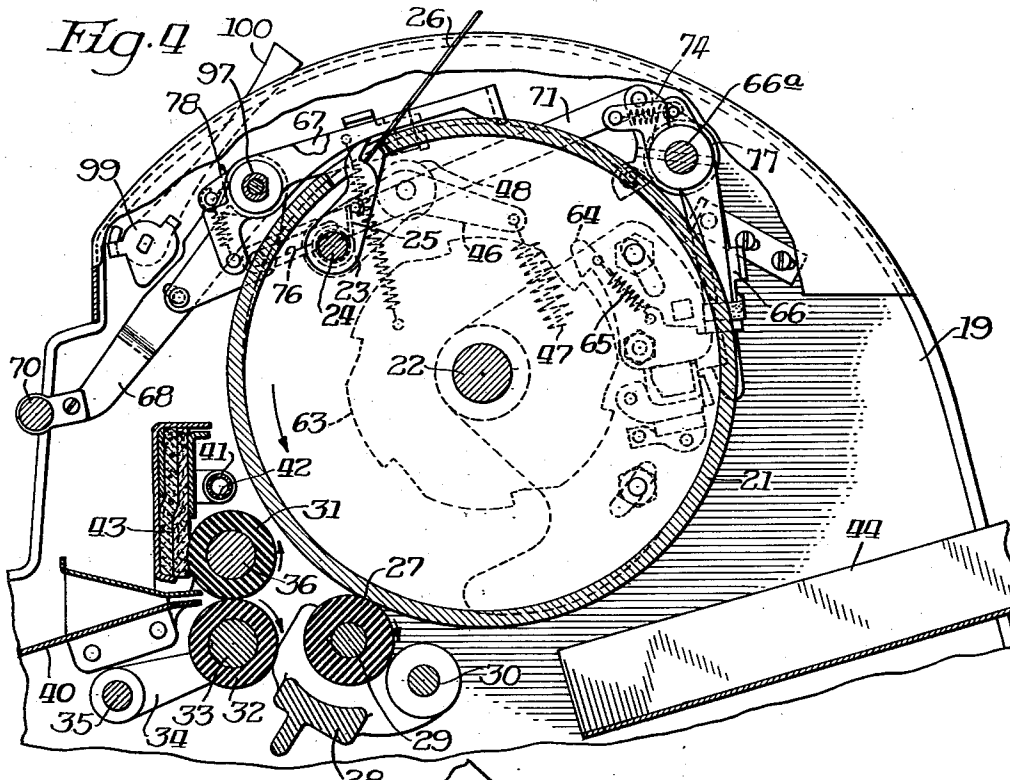
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DUPLICATING MACHINE

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5 Sheets-Sheet 4



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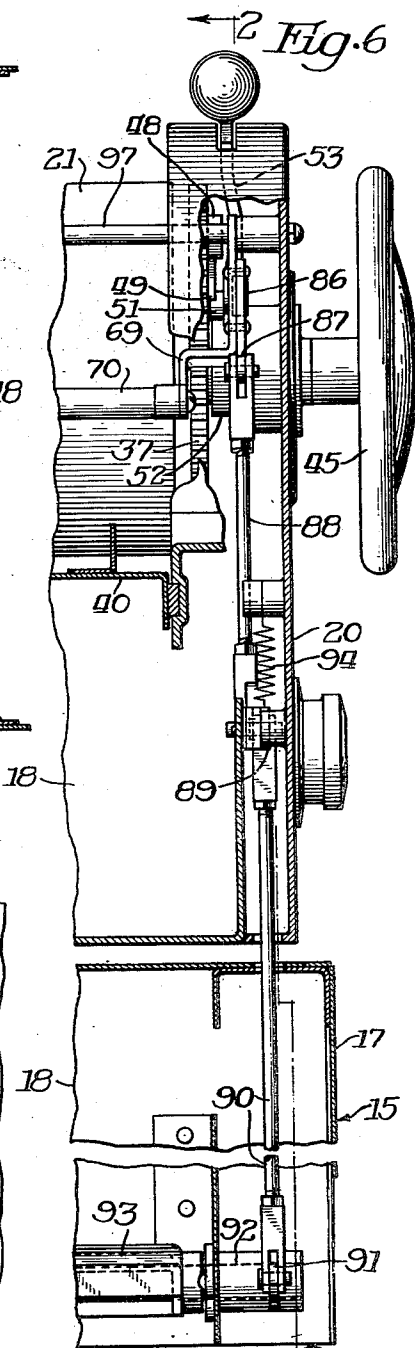
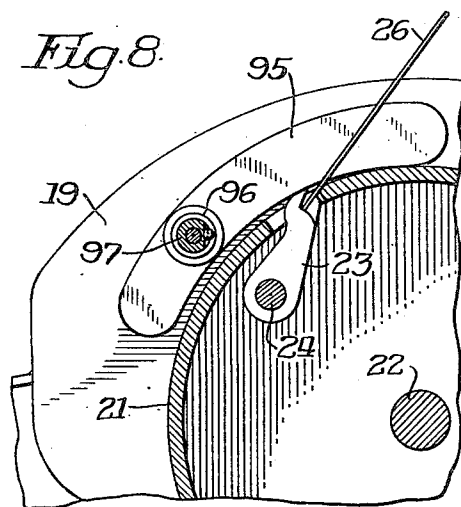
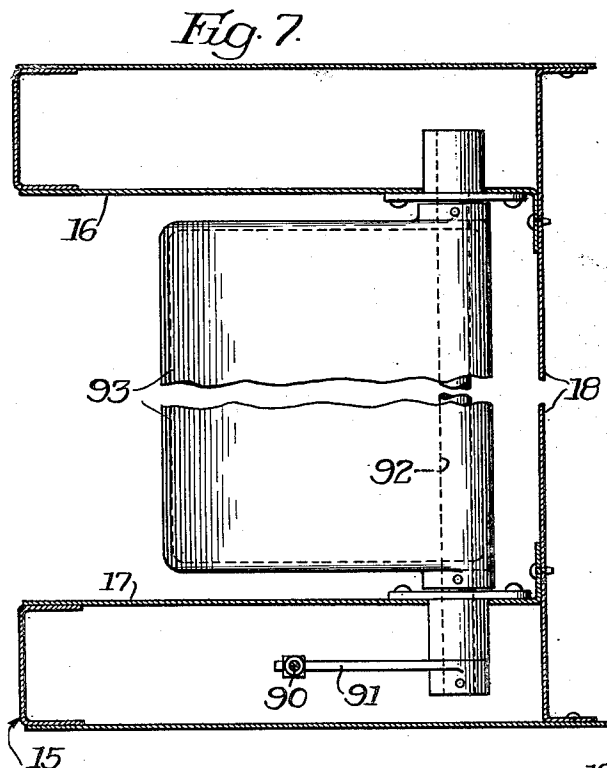
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DUPLICATING MACHINE

Filed Dec. 23, 1940

5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE

2,277,967

DUPLICATING MACHINE

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Application December 23, 1940, Serial No. 371,322

9 Claims. (Cl. 101—132.5)

This invention relates to duplicating machines of the type employing a duplicating drum which is rotated for carrying a series of copy sheets, one at a time, into impression relationship to a master sheet or other form carried around by the drum, such, for example, as the machine of the prior Hernlund patent, No. 2,117,165, granted May 10, 1938. It is the object of this invention to provide a new and improved form and arrangement of parts for controlling the rotation of the drum whereby the drum may be brought to rest at a predetermined point in each revolution for expediting the feed of a copy sheet thereto and may alternatively be brought to rest at a different point for the application of a fresh master sheet to the drum.

In the machine of the above mentioned patent, an obliquely disposed table or tray is provided for holding a master sheet of paper or other flexible material in position at the point at which the drum is brought to rest for the application of the master sheet thereto, the arrangement being such that the master sheet is adapted to be slid from the tray into engagement with the grippers, and such that when the sheet has been slid into position with its leading edge extending into the open grippers, the sheet is adapted to maintain its position on the inclined table or tray so long as the drum remains stationary so as to leave the operator free to use one or both of his hands for moving the control lever for causing the grippers to close on the master sheet. In the machine of this application, an improved arrangement is provided whereby the obliquely disposed table or tray is dispensed with. In the use of the novel construction of the invention, the operator holds a master sheet carefully in position by both hands for insuring its engagement with the grippers in the desired adjusted position and actuates the improved control means by pressure thereon independently of his hands for causing the grippers to close on the master sheet. In the preferred arrangement, the gripper closing means is actuated by pressure applied upon a foot lever in convenient position for operation by the attendant without change of his position at the machine.

In the machine of said prior patent, the means for controlling the position of the grippers for the master sheet comprises a cam member swingingly mounted on the drum adapted, when swung outwardly to the limit of its motion against the action of a spring connected with the cam, to engage an arm at a predetermined point in the rotation of the drum for causing the grippers to be opened against the action of spring means connected with the grippers. In this prior machine, a hand lever has been mounted adjacent to the cam, provided with bearing means adapted, upon an operative stroke of the

lever, to swing said cam outwardly against the action of the connected spring means for effecting an opening of the grippers, the closing of the grippers being effected by a reverse manual movement of the hand lever.

In the present invention, an improved arrangement of means is provided for giving the hand lever a reverse stroke for enabling the cam to move inwardly so as to permit the grippers to be closed by the spring means attached thereto. The preferred form of means for giving said control lever such a reverse stroke comprises a treadle or foot lever arrangement connected by a train of levers and links with a bell crank lever having a roller rotatably mounted on one of its arms so as to engage the control lever upon a downward movement of the treadle for swinging the control lever to the desired changed position. In the preferred arrangement, a yieldingly acting latch is provided adapted normally to stop the control lever at the desired point in its reverse movement, but arranged so as to permit the control lever to be given additional movement in the same direction upon the application of pressure directly on said control lever.

It is one of the objects of this invention to provide an improved margin stop device adjacent to the drum by reference to which the master sheet can be positioned accurately, such margin stop device being adjustably mounted so as to be movable longitudinally of the drum, suitable graduations being provided at opposite end portions of the drum for enabling the operator easily to center the master sheet lengthwise with respect to the drum.

It is another object of the invention to improve apparatus 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 side view of a duplicating machine embodying the invention;

Fig. 2 is a vertical sectional view taken substantially at the line 2—2 of Fig. 6, being shown on a considerably enlarged scale as compared with Fig. 1, and being partially broken away for clearness of illustration;

Fig. 3 is a horizontal sectional view taken on an enlarged scale at the line 3—3 of Fig. 2;

Figs. 4 and 5 are vertical sectional views taken substantially at the line 4—4 and the line 5—5 of Fig. 3, but with certain of the parts in changed position as compared with said Fig. 3;

Fig. 6 is a vertical sectional view taken on an enlarged scale at the line 6—6 of Fig. 1 and partially broken away for clearness of illustration.

Fig. 7 is a horizontal sectional view taken substantially at the line 7—7 of Fig. 2; and

Fig. 8 is a vertical sectional view taken substantially at the line 8—8 of Fig. 3.

Referring now to the several figures of the drawings, in which corresponding parts are indicated by the same reference characters, 15 indicates a cabinet upon which a duplicating machine is mounted, a portion of the operating means for the duplicating machine being carried by the cabinet, as indicated by dotted lines in Fig. 1. The cabinet 15 preferably comprises two side portions 16 and 17 connected by a cross plate 18, as shown in Fig. 7.

As is best shown in Fig. 3, the duplicating machine comprises frame members 19 and 20 at opposite sides of the machine, between which a drum 21 is rotatably mounted by means of a heavy shaft 22. The drum is provided with a plurality of grippers 23 mounted in spaced relation to each other on a shaft 24 extending longitudinally of the drum, each of the grippers being normally pressed by a spring 25 into operative position for holding one or more master sheets 26 removably in position on the drum. The master sheet 26 is shown in Figs. 4 and 8 in a preliminary position ready to be gripped, such sheet in the operation of the machine being wrapped about the drum, as is fully understood by those familiar with the art, and as is explained fully in the prior patent above referred to.

An impression roller 27 is rotatably mounted on a yoke member 28 by means of a shaft 29 which is pivotally mounted at 30 between the standards 19 and 20, and is normally held pressed against the face of the drum 21 so as to cooperate therewith in the well known manner. A short distance in rear of the impression roller 27, two forwarding rollers 31 and 32 are rotatably mounted in operative relation to each other for forwarding copy sheets, one at a time, into the bite of the drum 21 and the impression roller 27. The roller 32 is rotatably mounted by means of a shaft 33 journaled between arms 34 pivotally mounted at 35 on the standards 19 and 20, such arms being normally pressed upwardly for causing the roller 32 to exert adjustable pressure on the roller 31, as is shown in said prior patent. The roller 31 is supported by means of a shaft 36 journaled between the standards 19 and 20. A gear 37, rotating with the drum 21, meshes with an idler pinion 38 for driving a pinion 39 fixedly mounted on the shaft 36 of the forwarding roller 31 so as to cause said roller to rotate at the same surface speed as that of the drum 21. The roller 32 is driven by friction from the roller 31.

In the arrangement shown in the drawings, means is provided for applying a film of solvent upon the upper faces of the copy sheets as they are forwarded by the rollers 31 and 32, such copy sheets being fed from a table or tray 40 in any suitable manner into the bite of said rollers. This means comprises a pipe 41 having a series of openings 42 in its lower face for spraying a supply of solvent upon the upper face portion of the roller 31 for application in turn to a copy sheet passing between the forwarding rollers. For this purpose, solvent is delivered to the pipe 41 under suitable pressure from any suitable source, as is well understood in connection with machines of this type. A wiper 43 of felt or other suitable material is supported in pressure relationship to said roller 31 for distributing the solvent evenly along and about the roller 31 as the roller rotates with the solvent being sprayed

thereon. A tray 44 is provided in front of the impression roller 27 for receiving the copy sheets after being pressed into operative printing engagement with the master sheet on the drum, as is usual in machines of this type. A hand wheel 45 is provided on the shaft 22 of the drum for rotating the drum by hand whenever desired.

Means is provided for opening and closing all of the grippers 23 in unison, such means being very similar to that shown by said prior patent. This means comprises an arm 46 fixedly mounted on the shaft 24 with a spring 47 bearing on its free end portion for drawing the arm inwardly so as to swing the grippers in clockwise direction in Figs. 2 and 4 into operative gripping position. This arm 46 is provided at an intermediate point with a roller 48 in position to be engaged by a cam 49 (see Figs. 3 and 5) which is pivotally mounted on the standard 20, a spring 50 being provided for holding the cam normally swung to its innermost position. The cam is adapted to be moved outwardly against the action of the spring 50 by means of a roller 51 mounted on the hub 52 of a lever 53 rotatably mounted on the shaft 22, such roller 51 being adapted by engagement with the inner face of said cam 49 to move the cam outwardly upon a stroke of said lever in counterclockwise direction into the position as shown in Fig. 2. As the drum rotates in counterclockwise direction in Fig. 2, the roller 48 on the arm 46 comes into contact with the cam in its outwardly moved position for causing the arm 46 to move outwardly for opening the grippers. The machine as illustrated is provided with means, also controlled by the lever 53, for bringing the drum to a stop at a predetermined point in its rotation, such stopping mechanism being operative when the lever 53 is moved to the limit of its motion toward the left in Fig. 2, or when standing at an intermediate point in its stroke, as hereinafter described.

In the arrangement shown, the drum 21 is normally driven by a motor 54 which is connected by a pulley 55 and belt 56 with a pulley 57, the pulley 57 in turn being connected by a pulley 58 and belt 59 with a pulley 60 which is connected with a pinion 61 meshing with a gear 62 mounted upon the shaft 22. The gear 62 is provided with a ratchet wheel 63 (see Figs. 3 and 4) which is releasably connected with the drum 21 by means of a latch 64 pivotally mounted on said drum 21. With the latch 64 moved outwardly as shown in dotted lines in Fig. 4, the ratchet wheel 63 rotates independently of the drum; when, however, the latch has been moved inwardly into engagement with the ratchet wheel, the drum is caused to rotate at uniform speed with the ratchet wheel as driven by the motor.

The position of the latch 64 is controlled by a mechanism similar to that shown and described in the prior patent mentioned above, such mechanism forming, in and of itself, no part of the present invention. The mechanism accordingly is not shown in detail and is not described at length. The latch is normally held at its operative driving position by a spring 65, being moved outwardly out of driving position by engagement with an arm 66 swingingly mounted in position by means of a shaft 66a, as shown in said Fig. 4, or by engagement with a swingingly mounted arm 67, the arms 66 and 67 being moved alternatively into position for engagement with the latch 64 as the operator may desire. The arm 66 is employed for stopping the drum in position for the application of a master sheet thereto, while

the arm 67 serves to stop the drum at a predetermined point in each revolution in position for the feed of a copy sheet into operative relationship with the master sheet on the drum.

The means for controlling the positions of the arms 66 and 67 comprises pivotally mounted arms or levers 68 and 69 at opposite sides of the machine, connected at their rear end portions by a cross bar 70 by which the levers may be operated. Upon downward movement of the arm 68 to the limit of its motion by downward pressure upon the cross bar 70, the arm 67 is moved outwardly into position to permit the latch 64 to pass without engaging said arm 67 so as to prevent stoppage of the drum by said arm 67. The arm 66 is also connected with said lever 68 for operation thereby, such connection being effected through the medium of a link 71 arranged so that, upon a downward movement of the lever 68 to the limit of its motion, the arm 66 also is moved outwardly into position for permitting the latch 64 to pass freely for preventing stoppage of the drum by said arm 66.

In the prior patent above mentioned, which shows an arrangement of parts as above briefly described, the arms corresponding to the arms 66 and 67 have operative connection with the lever corresponding to the lever 53. In the present machine, a modified form of connecting means of this type is shown for providing improved operation. In the construction here illustrated, the lever 53 is connected by a link 72 with an arm 73 fixedly connected with the arm 74 to which the link 71 is connected. The arrangement is such that when the lever 53 stands at the limit of its motion toward the right in Fig. 5, the cam 49 stands in its innermost position and the link 71 is held moved to the limit of its motion toward the left in said Fig. 5. In this position of the parts, the arm 66 is held moved outwardly so as to be inoperative for stopping the drum, while at the same time the arm 67 is held moved inwardly so as to be operative for stopping the drum. Under these conditions, the drum 21 is stopped at a predetermined point in each revolution of the drum, while the ratchet wheel 63 continues to rotate, the drum being permitted to remain stationary until the levers 68 and 69 have been moved downwardly for releasing the arm 67 from the latch 64.

When the lever 53 is moved toward the left in Fig. 5 into intermediate position, as shown in said figure, the arms 66 and 67 are both permitted to stand in their innermost positions so that either of said arms is operative for stopping the drum. In this position of the parts, the roller 51 engages a notch 75 in the lower face of the cam 49 so as to permit such cam 49 to stand in inoperative position so as to have no effect upon the grippers.

When the lever 53 is swung to the limit of its motion rearwardly into the position as shown in Fig. 2, the arm 66 is maintained in its inwardly swung position so as to be operative for stopping the drum, or for holding the drum stopped at the position for applying a new master sheet. In this position of the lever 53, the arm 67 is swung outwardly so as to be out of operative stopping position. The differential action of the lever 53 with respect to the arms 66 and 67 is brought about by reason of the lost motion connection between the link 71 and the arm 67, comprising a slot 76 in the rear end portion of the link 71. The ability of the link 72 to move rearwardly toward the left in Fig. 5 with a consequent rota-

tion of the shaft 66a in clockwise direction after the arm 66 has been moved to its innermost position is brought about by the fact that the arm 66 is adapted to swing about the shaft 66a. A spring 77, as shown in Fig. 3, applies pressure yieldingly on the arm 66 for causing it to swing inwardly upon clockwise rotation of said shaft 66a, and as is fully described by said prior patent. A spring 78 normally holds the arm 67 in innermost position.

With the lever 53 in its extreme rearward position as shown in Fig. 2, the cam 49 is held in its outermost position for effecting the opening of the grippers 23 as above described. When the lever 53 stands in the position as shown in Fig. 5, the roller 51 is centered with respect to the notch 75 of the cam 49 so as normally to hold the lever 53 yieldingly against movement in either direction. This holding effect is strengthened by reason of the fact that in the position of the parts as shown in said Fig. 5 the line of centers of the shaft 22 and the roller 51 is substantially normal with respect to the line of centers of the roller 51 and the axis of the cam 49. When the lever 53 is moved to its extreme rearward position as shown in Fig. 2, the roller 51 is positioned some little distance toward the left as compared with the Fig. 5 showing so as to cause the spring 50, acting through the cam 49, to have a tendency to move the roller still farther toward the left. The lever 53 in its extreme rearward position is seen thus to be self-locked against movement forwardly.

For providing additional assurance that the lever 53 may be stopped at its intermediate position when desired, a latch arm 79 is provided, pivotally mounted at 80, as is clearly shown in Fig. 5, being normally drawn upwardly by a coiled spring 81. At its rearward end portion, the latch arm is provided with a notch 82 adapted to engage a roller 83 mounted on the outer end of an arm 84 extending from the hub 52 of the lever 53. The rear face of the notch 82 is at such an angle as to have a substantial tendency for stopping the movement of the lever 53 in clockwise direction in said Fig. 5. It is, of course, understood that upon the application of pressure upon the lever 53, the lever can be moved in clockwise direction in said Fig. 5 beyond the intermediate position as shown, against the action of the spring 81.

For providing improved facility for moving the lever 53 from its extreme rearward position as shown in Fig. 2, to its intermediate position as shown in Fig. 5, the lever 69 is provided with a diagonally disposed extension 85 having a roller 86 rotatably mounted upon its lower end in position to engage the face of the lever 53 as shown in Fig. 2. The extension 85 in the arrangement shown extends at right angles to the lever 69 whereby the two levers together comprises in effect a bell crank. At its rearward end, the lever 69 is provided with an arm 87 fixedly mounted thereon, pivotally connected with a link 88 which extends downwardly to an arm 89, to which it has a lost motion connection by means comprising a slot 88a in the link. The arm 89 in turn is connected at its intermediate point with a link 90 which, at its lower end, is connected with an arm 91 fixedly mounted upon a shaft 92 extending across the cabinet 15 between the portions 16 and 17 thereof, as is clearly shown in Fig. 7. Upon the shaft 92, a wide treadle or foot lever 93 is fixedly mounted so as to enable an operator, by pressure thereon at any desired point between the

cabinet portions 16 and 17, to give the shaft 92 a rocking movement in counterclockwise direction in Fig. 2. A spring 94 is connected with the link 89 for holding the link and the foot lever 93 normally in raised position as shown in said Fig. 2.

With the parts in the position as shown in Fig. 2, with the grippers 23 standing open as shown in Fig. 4, an operator standing in centered position behind the machine places a master sheet into position in the grippers as shown in Fig. 4, holding the flexible sheet with both hands so as to insure that it shall be in the desired adjusted position. When the proper adjustment of the master sheet has been effected, the operator is enabled, by downward pressure upon the foot lever 93, to pull the levers 68 and 69 downwardly through the medium of the link connections between the lever 69 and the foot lever 93. This downward movement of the lever 69 causes the roller 86 to move upwardly and forwardly so as to give the lever 53 a movement in clockwise direction in Fig. 2 for causing the grippers 23 to close upon the master sheet while the sheet is still held in position by the operator by the use of both hands. The arm 85 is of such length that the roller 86 is unable to contact the lever 53 in its intermediate position as shown in Fig. 5. It is clear accordingly that the stroke of the lever 53 into its intermediate position is effected partially by the spring 50 which tends to center the roller 51 with respect to the notch 75 of the cam 49. The arrangement is such that when the foot lever 93 is given a downward stroke, the parts are brought to the position as shown in Fig. 5, with the grippers closed upon a master sheet 26. The lever 53 is then moved by hand to its foremost position ready for a duplicating operation of the machine. When the lever 53 moves to its foremost position, the arm 66 is disconnected from the drum so as to permit the arm 67 to stop the drum at the home position at which copy sheets are fed to the drum.

For enabling an operator readily to center a master sheet in position upon the drum, a margin stop plate 95 is provided at one side of the machine, such margin stop plate being provided with a hub portion 96 which is slidably mounted upon a cross bar 97 flattened at its forward face for holding the hub from rotary movement with respect thereto. A spring 98 is provided in the hub 96 for engagement with the bar 97 for preventing rotary movement of the hub and for holding the hub and the margin bar plate by friction in adjusted position transversely of the machine. In the arrangement shown, the drum 21 is provided with graduations adjacent to the grippers 23 as shown in Fig. 3 for expediting the centering of a fresh master sheet on the drum.

For holding the lever 68 downwardly so as to cause the arm 67 to remain in its outwardly moved position against the action of the spring 78, a cam 99 is provided in position for engaging the arm 68 as is clearly shown in Figs. 3 and 4, such cam being operable by means of a handle or lever 100. The arrangement is such that when the handle 100 is in the position as shown in Fig. 4, the lever 68 is adapted to move through its complete operative stroke. When however the lever 100 is moved backwardly so as to cause the high point of the cam 99 to engage the lever 68, the lever 68 is held in a downwardly moved position for holding the arm 67 in its outermost position. A spring 101 is provided in connection

with the lever 100 for holding the cam 99 normally in the position as shown in said Figs. 3 and 4.

It is believed that the operation of the machine will be understood without extended explanation, being substantially the same as that of the machine of said prior patent except with respect to the application of a fresh master sheet thereto. When it is desired to change from one master sheet to another, the lever 53 is moved to its rearmost position as shown in Fig. 2, so as to cause the drum to stop in its master sheet change position, as shown in said figure, with the grippers 23 opened. After the operator has removed the old master sheet, a fresh master sheet is moved to its position for attachment to the drum by the operator who holds the sheet carefully by both hands for bringing it accurately to the desired adjusted position. With the master sheet thus held in position, the operator presses downwardly on the foot lever 93, giving the lever preferably a sharp quick downward stroke which serves to swing the control lever 53 to its intermediate position at which the grippers 23 are closed on the sheet. If upon inspection the sheet should be seen to be out of adjustment, the lever 53 would be given by hand a slight angular movement rearwardly so as to loosen the grippers on the sheet sufficiently for permitting the sheet to be slid to the desired position. Upon the return of the lever 53 thereafter to its foremost position, the drum is ready for rotary movement, which is brought about by a downward stroke of the arm or lever 68 by which the holding arm 66 is disengaged from the latch 64. At the end of a slight rotary movement, the latch 64 stops the drum in its home position by engagement with the arm 67, whereupon the machine is ready for normal duplication operation.

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

I claim:

1. In a liquid process duplicating machine, the combination of a drum, gripper means for removably mounting one or more master sheets on said drum, yielding means normally holding said gripper means closed, means comprising a control lever adapted by a stroke to operative position in one direction from the position in which it stands during normal duplicating operation of the machine to cause said gripper means to open at a predetermined position of said drum, and means comprising a lever adjacent to said control lever adapted normally to stand out of engagement with said control lever but adapted by engagement with the control lever in said operative position to give it a reverse movement for causing said gripper means to close.

2. In a liquid process duplicating machine, the combination of a drum, gripper means for removably mounting one or more master sheets on said drum, yielding means normally holding said gripper means closed, means comprising a control lever adapted by a stroke in one direction to cause said gripper means to open at a predetermined position of said drum, an arm swingingly mounted adjacent to said control lever having a roller rotatably mounted thereon in position to engage said control lever on an operative stroke of the arm and to give said control lever a reverse stroke for causing said gripper means to

close, yielding means normally opposing such operative stroke of said arm, and means comprising a pressure member for giving said arm an operative stroke against the action of said yielding means.

3. In a liquid process duplicating machine, the combination of a drum, gripper means for removably mounting one or more master sheets on said drum, yielding means normally holding said gripper means closed, means comprising a control lever adapted by a stroke in one direction to open said gripper means and adapted by said stroke to move into self-locking position so as automatically to hold the gripper means open against the action of said yielding means, and means comprising a member movably mounted adjacent to said control lever and normally standing out of position to engage the control lever adapted by an operative stroke in one direction when the control lever is in self-locking position to engage said control lever and to move it out of self-locking position so as to cause said gripper means to be closed by the spring means acting thereon.

4. In a liquid process duplicating machine, the combination of a drum, gripper means for removably mounting one or more master sheets on said drum, yielding means normally holding said gripper means closed, means comprising a control lever adapted by a stroke in one direction to open said gripper means and adapted by said stroke to move into self-locking position so as automatically to hold the gripper means open against the action of said yielding means, means comprising a member movably mounted adjacent to said control lever adapted by an operative stroke in one direction to engage said control lever and to move it out of locking position so as to cause said gripper means to be closed by the spring means acting thereon, and yielding means adapted normally to move said movable member in the reverse direction away from said control lever when the pressure on said movable member has been relieved after an operative stroke.

5. In a liquid process duplicating machine, the combination of a drum, gripper means for removably mounting one or more master sheets on said drum, yielding means normally holding said gripper means closed, means comprising a control lever adapted by a stroke in one direction to cause said gripper means to open at a predetermined position of said drum, means comprising a foot lever for giving said control lever a reverse movement for causing said gripper means to close, and latch means adapted by engagement with said control lever normally to stop its return movement at an intermediate point.

6. In a liquid process duplicating machine, the combination of a drum, gripper means for removably mounting one or more master sheets on said drum, yielding means normally holding said gripper means closed, means comprising a control lever adapted by a stroke in one direction to cause said gripper means to open at a predetermined position of said drum, means comprising a foot lever for giving said control lever a reverse movement for causing said gripper means to close, and latch means adapted by engagement with said control lever normally to stop its return movement at an intermediate point and adapted to yield when pressure is applied

on the lever for permitting a continuation of the return movement.

7. In a liquid process duplicating machine, the combination of a drum, gripper means for removably mounting one or more master sheets on said drum, yielding means normally holding said gripper means closed, means comprising a control lever adapted by a stroke in one direction to cause said gripper means to open at a predetermined position of said drum, means comprising a foot lever for giving said control lever a reverse movement for causing said gripper means to close, a latch lever pivotally mounted adjacent to said control lever having a notch in position to engage the control lever with the wall of the notch at such angle at one side as to cause the latch lever normally to stop the control lever at an intermediate point in its return movement but adapted to yield for permitting continued movement of the control lever, and a spring for moving said latch lever normally into holding position with respect to said control lever.

8. In a liquid process duplicating machine, the combination of a drum, gripper means for removably mounting one or more master sheets on said drum, yielding means normally holding said gripper means closed, means comprising a control lever adapted by a stroke in one direction to cause said gripper means to open at a predetermined position of said drum, a member movably mounted adjacent to said control lever adapted by an operative stroke in one direction to engage and move said control lever so as to cause said gripper means to close, yielding means opposing said operative stroke of said movably mounted member, a bar extending across the machine adjacent to the point at which the gripper means stand when opened to receive a master sheet, a sleeve slidably mounted on said bar, and a margin stop plate mounted on said sleeve so as to extend circumferentially of the drum and adapted by engagement with the side edge of a master sheet to control the positioning of the sheet on the drum.

9. In a liquid process duplicating machine, the combination of a drum, gripper means for removably mounting one or more master sheets on said drum, yielding means normally holding said gripper means closed, means comprising a control lever adapted by a stroke in one direction to cause said gripper means to open at a predetermined position of said drum, a member movably mounted adjacent to said control lever adapted by an operative stroke in one direction to engage and move said control lever so as to cause said gripper means to close, yielding means opposing said operative stroke of said movably mounted member, a bar extending across the machine adjacent to the point at which the gripper means stand when opened to receive a master sheet and flattened at one side, a sleeve slidably mounted on said bar having a flat spring therein engaging the flattened face of said bar for holding said sleeve frictionally in adjusted position along said bar, and a margin stop plate mounted on said sleeve so as to extend circumferentially of the drum and adapted by engagement with the side edge of a master sheet to control the positioning of the sheet on the drum.

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