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ADJUSTABLE GUIDE MEANS FOR DUPLICATING MACHINE

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2 Sheets-Sheet 1

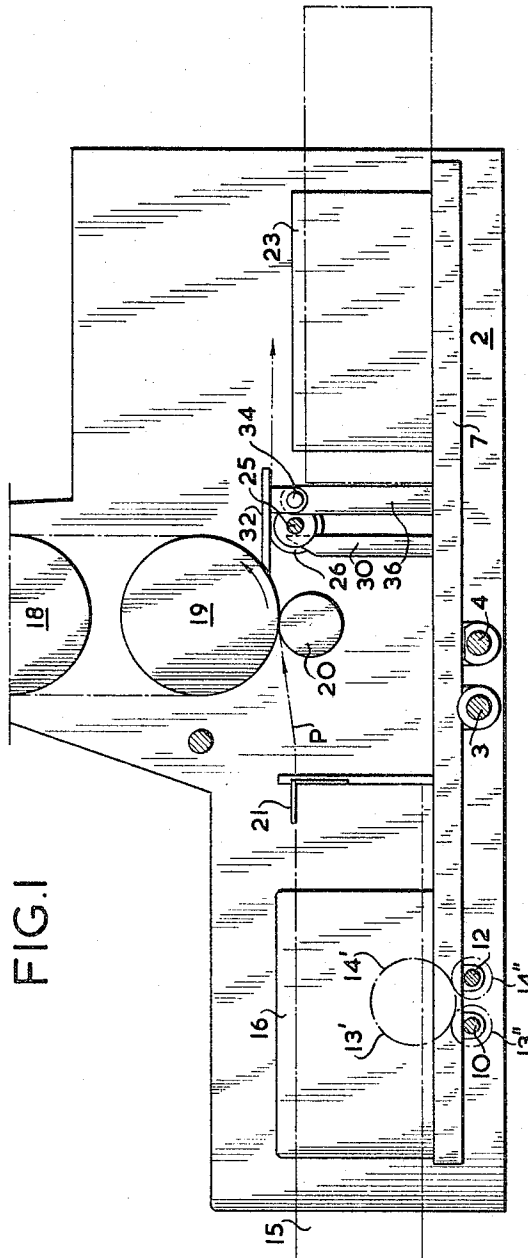


FIG. 1

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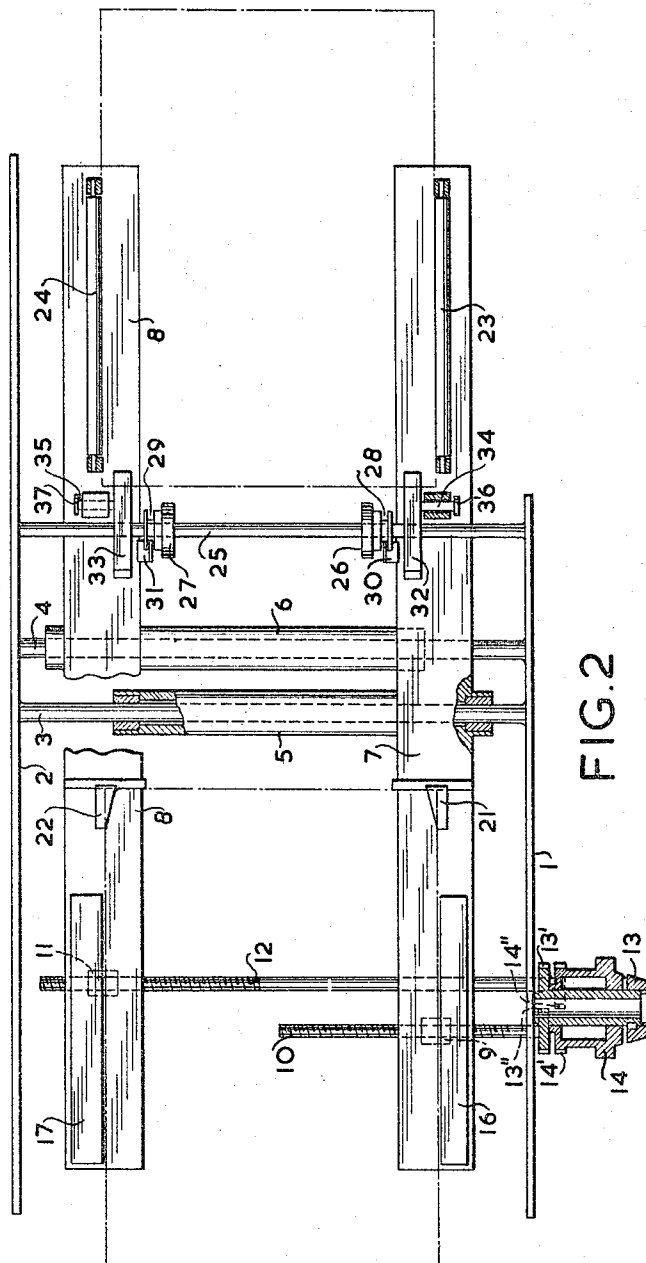
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ADJUSTABLE GUIDE MEANS FOR DUPLICATING MACHINE

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3 Claims. (Cl. 271—59)

This invention relates to a duplicating machine comprising at least one roller and a counter-pressure roller and means for supplying sheets from a supply stack at the entrance of the machine and for delivering the sheets on to a receiving table, the said means comprising adjustment mechanisms for width adjustment. The term "duplicating machine" should in this specification comprise any printing machine in which the invention can be applied, i.e., for example offset machines.

When the paper size is changed in a known duplicating machine, there is at the entrance to the machine performed an adjustment to the new size and correspondingly there is at the receiving table performed an adjustment to the width of the new size to be printed. The present invention aims at providing a construction by which this adjustment is simplified.

According to the invention common adjustment members for the simultaneous width adjustment at entrance and discharge are provided. This entails that only one adjustment operation instead of two and often more adjustments must be made, when the size of the paper sheets is changed.

In a particularly simple embodiment the adjustment members comprise carrying members which extend from the entrance to the discharge end of the machine and which carry elements, such as side guides, joggers, etc., the adjustment of which depends on paper width or margin or both. By not only interconnecting the adjustment members, but by letting them comprise through carrying members a particularly simple construction is attained by which adjustment difficulties are avoided. The marginal adjustment which also formerly necessitated several adjustment operations can by the construction according to the invention be made by a single operation without any risk of operational errors which in the known apparatuses may occur if the operator makes different lateral adjustments at the feed table side and the receiving tray side of the machine.

A particularly expedient and simple construction is attained when the carrying members according to the invention also control the adjustment of stripping members and separator members and discharging rollers, if any.

By way of example, but not of limitation an embodiment is shown in the accompanying drawings, in which:

FIG. 1 is a side elevation of the parts of a duplicating machine necessary for understanding the invention, in which duplicating machine the front side member has been omitted, and

FIG. 2 is a plan view of the duplicating machine in FIG. 1, those parts, as, e.g., the drums and the counter-pressure roller, which would otherwise impede the view of the through carrying members incorporated in the adjustment mechanism, for carrying out the width adjustment at the entrance and discharge of the machine, have been removed.

The machine comprises two side members 1 and 2 disposed at a fixed distance from each other, and connected by rods 3 and 4, each of which is in the case shown secured to one side member, 1 and 2, respectively. Tubular rods 5 and 6 can slide on the rods 3 and 4 respec-

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tively. To each of the tubular rods 5 and 6 are secured through carrying members 7 and 8, respectively, extending from the entrance of the machine to its discharge. To the carrying member 7 a nut 9 is secured for an adjustment spindle 10 which is journaled in the side member 1. Correspondingly, there is on the carrying member 8 provided a nut 11 for an adjustment spindle 12 which is likewise journaled in the side member 1. Each of the two spindles 10 and 12 is operated by an adjustment knob, 13 and 14, respectively, which are mounted concentrically so that there is a possibility of operating the two turning knobs simultaneously and thereby performing a marginal adjustment while a constant width adjustment is preserved. Each adjustment knob 13 and 14 is in fixed connection with a gear wheel, 13' and 14', respectively, which engage gear wheels, 13'' and 14'', respectively, secured each to one spindle, 10 and 12, respectively.

In FIG. 1 the gear wheels 13' and 14' are shown as a dot-and-dash circle, being located in front of the plane of the drawing.

The carrying members 7 and 8, which extend as side rails from the sheet entrance to the sheet discharge end of the machine, carry a number of elements which advantageously can be adjusted simultaneously when the machine is to be adjusted to different sheet sizes, or when the sheet margin is to be regulated. A supply stack of sheets at the entrance may be located on a fixed or a movable table not shown, and the said stack is in FIG. 1 indicated diagrammatically and is designated by 15. Abutting on the sides of the supply stack side guide members 16 and 17 are provided which are mounted in fixed positions on the carrying members, 7 and 8, respectively. If a supply stack of sheets of another width, e.g., a smaller width, is placed on the table, one or both guide members 16 and 17 are adjusted, so that the distance between the guiding members becomes correspondingly smaller. The size of the margin on the typed stencils may vary from one stencil to another. On the finished printed sheets belonging to the same print job it is, however, desired that they have one and the same margin and with a view to attaining this one may by a simultaneous operation of the two adjustment knobs 13 and 14, i.e., while preserving the width adjustment, adjust the margin in the individual cases, the supply stack being hereby displaced in the direction of width in relation to the stencil, which in the case shown runs over two rollers 18 and 19 in FIG. 1.

The invention may also be used in connection with a duplicating machine with only one roller. The sheet is fed in a way known per se along a path indicated by a dot-and-dash line, designated by P, and passes between the master cylinder 19 and the pressure roller 20, whereupon it drops on to a receiving table at the sheet discharge of the machine.

At the sheet entrance of the machine there are on the carrying members 7 and 8 fixedly mounted separator members 21 and 22 for the purpose of separating the top sheet from the remaining part of the supply stack during the feed of the sheets. Due to these members being mounted on the carrying members 7 and 8 their width adjustment will occur automatically dependent on the width adjustment of the side guides 16 and 17.

At the sheet discharge end of the machine a so-called side jogger 24 and a guiding member 23 are provided which are both likewise mounted on the through carrying members, 7 and 8, respectively, so that an erroneous adjustment to a new sheet width as well as to another margin is precluded.

The side jogger 24 serves for aligning the sheets discharged when they drop onto the receiving table, and it is therefore by way of example mounted pivotally on

the carrying member 8, as indicated by a signature for bearings at the ends of the side joggers.

The guiding member 23 may expediently be swingable with two fixed positions, so that it will normally be vertical, while when the printed stack of sheets is removed it can be lowered into a horizontal position.

Besides the said side jogger 24 there may at the sheet discharge of the machine be placed a so-called end jogger, not shown, on one or both carrying members, for example in the way that the end jogger is hinged to the carrying members, so that in the case of a swinging movement effected by a connection to the main shaft of the machine they will align the sheets discharged in the longitudinal direction.

The members 7 and 8 are termed carrying members, but this terminology does not necessarily imply that the different elements to be adjusted simultaneously by means of the carrying members must be mounted on these carrying members. The following example will show that for attaining the characteristic effect of the invention it is sufficient that the carrying members control the movements of the said elements, which may very well be mounted in some other way. Between the side members of the machine has thus been shown a shaft 25, on which two discharging rollers 26 and 27 are mounted displaceably but not rotatably, the said discharging rollers being provided with a boss with a circular guiding groove, 28 and 29, respectively, which a guiding member, 30 and 31, respectively, engages which is fixedly mounted on the carrying members, 7 and 8, respectively. If for example the handle 13 is operated, so that the spindle 10 is turned in the nut 9 and thereby moves the carrying member 7, the guiding member will displace the discharging roller 26 on the shaft 25. Correspondingly, the discharging roller 27 can be displaced by the operation of the knob 14. The shaft 25 is driven from the main shaft of the machine in a way not shown, so that the peripheral velocity of the discharging rollers 26 and 27 is slightly higher than the velocity with which the sheet leaves the place of printing. As this and other similar details are unnecessary for understanding the invention, a more detailed description is omitted in this place.

On the carrying members 7 and 8 are furthermore mounted stripping members, 32 and 33, respectively, the mutual spacing of which will therefore likewise be changed when the machine is adjusted to another sheet width by the operation of the knobs 13 and 14. The stripping members 32 and 33 are journaled around shafts 34 and 35 carried in uprights, one, 36, of which is shown in FIG. 1.

The invention is described in connection with a certain embodiment as an example, but it will be obvious to a person skilled in the art that it can be used in connection with any type of duplicating machine or printing machine whether it comprises one or two drums or is provided with openable or extensible trays at the sheet entrance and the sheet discharge. In the latter case the carrying members or the guiding members must be so designed that an opening movement or an extension is possible, e.g., by a hinge connection or a telescope connection.

I claim:

1. In a duplicating machine having at least one roller and a counter-pressure roller in which sheets are supplied from a supply stack at the entrance of the machine to said rollers and delivered from said rollers to the discharge end of the machine, the improvement comprising a pair of parallel spaced carrying members extending from the entrance of the machine to the discharge end thereof, side guides for the sheets in the supply stack and side guides for the discharged sheets, said side guides being mounted on said carrying members, and means for adjusting the distance between said carrying members to simultaneously adjust the distance between the side guides for the sheets in the supply stack and the distance between the side guides for the discharged sheets.

2. The improvement as claimed in claim 1, further comprising stripping members, separator members and discharging rollers, all mounted on said carrying members and all being simultaneously adjustable in response to said adjustment of the carrying members.

3. The improvement as claimed in claim 1, wherein said means to adjust the distance between said carrying members comprises a first and second threaded nut member secured to each of said carrying members, respectively, a first and second threaded shaft operatively engaging said first and second nut members, respectively, and a pair of coaxial control knobs drivably connected with said first shaft and said second shaft, respectively, so that rotation of said first knob causes movement of one of said carrying members, and rotation of said second knob causes movement of the other of said carrying members.

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