

March 11, 1930.

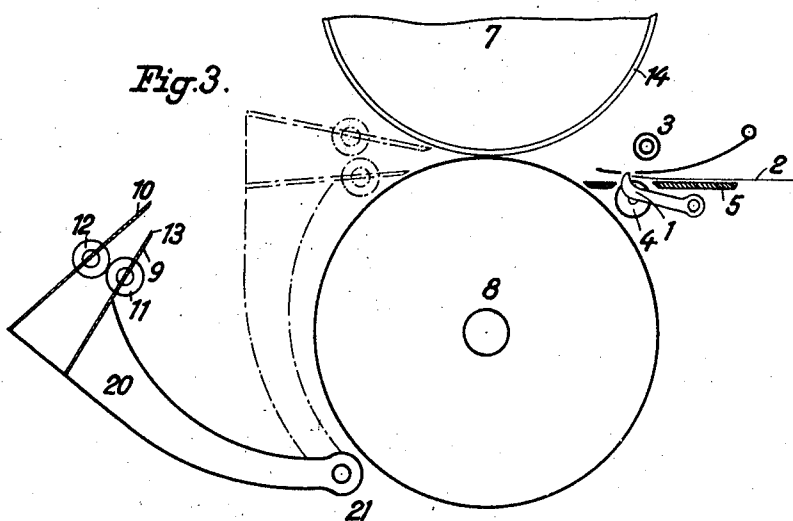
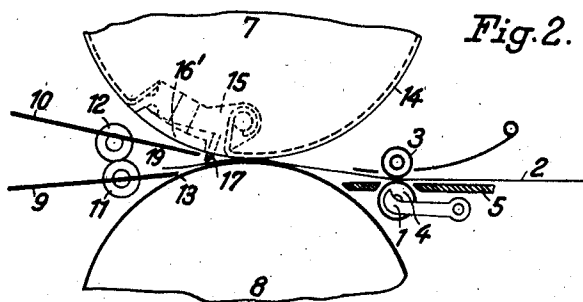
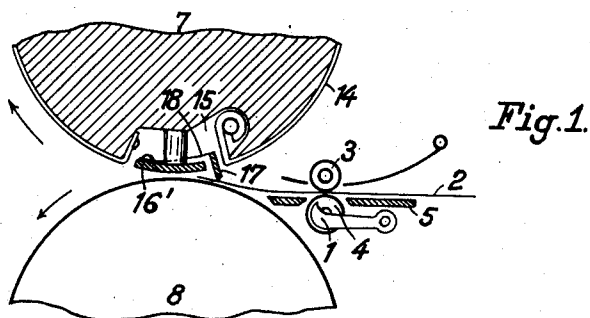
F. FISCHER

1,750,587

OFFSET PRINTING MACHINE

Filed March 21, 1928

3 Sheets-Sheet 1



Inventor:

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3 Sheets-Sheet 2

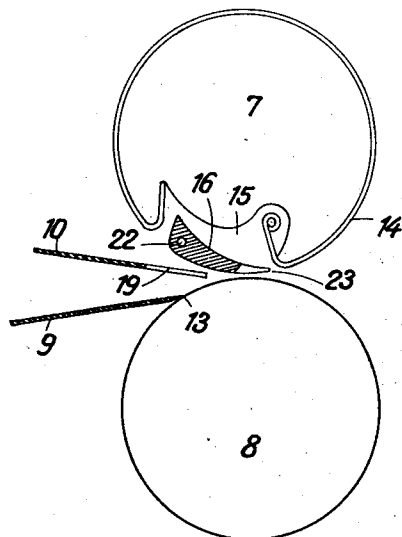
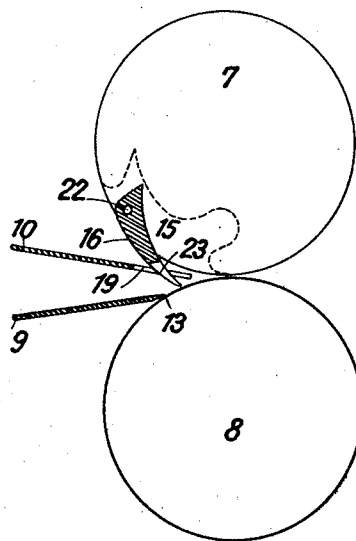


Fig. 4.

Fig. 5.



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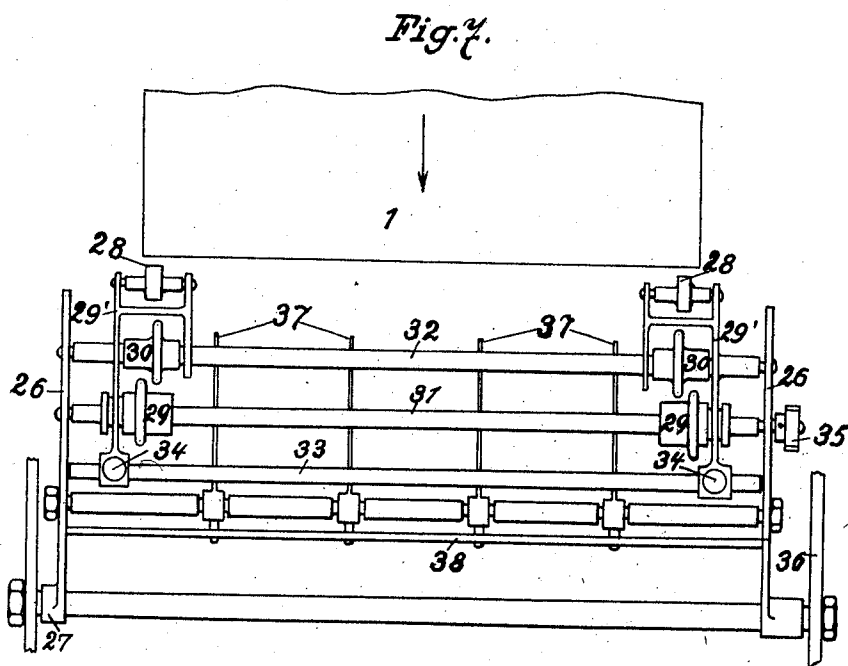
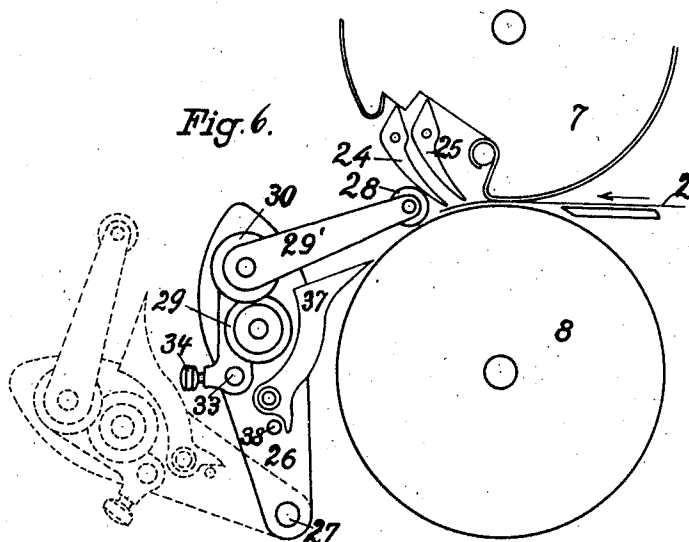
F. FISCHER

1,750,587

OFFSET PRINTING MACHINE

Filed March 21, 1928

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

FERDINAND FISCHER, OF BERLIN, GERMANY

OFFSET-PRINTING MACHINE

Application filed March 21, 1928, Serial No. 263,341, and in Germany April 16, 1927.

The guiding of individually fed sheets of paper in rotary manifolders, which work on the offset principle, owing to the occasional stickiness of the offset cloth, meets with special difficulties. In the construction of large machines these difficulties are overcome by providing tape conveyers and gripper systems which maintain a grip on the sheet whilst it is being passed between the printing rolls. In office machines the use of these known means is prevented for reasons of space and the necessity for simplicity in construction. On the other hand the paper guiding devices customary in ordinary manifolders with non-adhesive rollers, do not satisfy the requirements of offset printing.

The invention therefore has for its object a solution of the problem of guiding the sheets of paper delivered by a pile-gripper accurately between the rollers of an offset printing machine but without the utilization of tape conveyors and grippers.

The invention is illustrated by way of example on the accompanying drawings wherein:

Figures 1, 2 and 3 show diagrammatically and in side elevation one embodiment of the present invention.

Figures 4 and 5 illustrate a further embodiment of the invention.

Figure 6 is a side elevation of a still further embodiment of the invention, and

Figure 7 is a plan view of the embodiment illustrated in Figure 6.

Referring to the drawings wherein the same reference numerals indicate the same or similar parts, 2 are the sheets of paper which are passed over the guiding base 5 and between the feed rolls 3, 4 and to the printing rolls the sheets being released in the known manner by a front stop 1 and being printed during their passage between the offset roll 7 and the impression roll 8. After their passage between the two printing rolls, the sheets, according to Fig. 2 are to pass into a funnel-shaped device consisting of two guiding plates 9 and 10 and then between two conveyor rollers 11 and 12 engaging in the usual manner on the edges of the sheets where-

upon the sheets are passed into a suitable delivery device.

The tendency of the paper not to follow this guide path, but to remain adhering to one or other of the printing rolls is easily counteracted as regards the smooth impression roll 8, which seldom has a tendency to be sticky and then only when in a dirty condition, by providing for example the funnel plate 9 with a sharpened edge 13 to act as a scraper.

In the offset roll 7 however, which is provided in the usual manner with a rubber printing surface 14, this method of delivery is not suitable owing to clogging up and the danger of damage to the rubber surface by the sharp edges of the scraper.

According to the present invention therefore a depression device is inserted in a recess 15 of the offset roll 7 to serve as a diverting means the recess being conveniently that provided in an offset roll for receiving the ends of the material covering the said roll.

According to Fig. 1 for this purpose the recess 15 is bridged over by a stay piece 16' on which springs 18 are mounted, said springs being provided with projecting fingers 17 which owing to their being spring mounted can recede or yield into the recess 15. The number and width of these fingers is immaterial.

The moment at which the sheet of paper 2 enters between the rolls 7 and 8 which rotate in the direction shown by the arrows in Fig. 1, is so regulated that the fingers 17 are imposed close behind the front edge of the sheet.

The fingers 17 pressing on the front edge of the paper after its passage between the rolls 7 and 8 prevent, as shown in Fig. 2, the adherence of the paper to the roll 7, so that the paper is guided under the guide plate 10 and to within reach of the conveyor rollers 11, 12. The projecting fingers 17 (Fig. 2) are prevented from striking against the guide plate 10 by means of suitable notches 19 in this guide plate, or by comb-like construction thereof.

Fig. 3 illustrates one method of mounting

the guide plates 9 and 10 and the conveyor rollers 11 and 12. All these parts are mounted on a frame 20 which as shown, is adapted to swing round a pivot 21 from the working position shown in dotted lines into an idle position shown in full lines. This permits of the easy cleaning of the whole device.

Figs. 4 and 5 illustrate a further embodiment of the invention in which the depression device is in the form of a pawl 16 pivoted at 22 in the recess 15 the pawl having a recessed edge 23 which takes the place of the fingers 17.

In the device above described an occasional grazing of the printed sheet against the upper edge of the guide funnel way occur and thus cause smearing of the impression. This is avoided in the embodiment illustrated in Figs. 6 and 7 wherein the front edge of the sheet 2 after passing the printing point between the rolls 7 and 8 is guided by the depression pawl 24 projecting from the recess in the offset roller to the guide members. As shown a second depression pawl 25 can be arranged parallel to the depression pawl 24 so that sheets running in at a time later than that which would permit them to be engaged by the pawl 24, are nevertheless depressed by the pawl 25.

The remaining guide members are mounted on a movable frame 26 pivoted on the body of the machine at 27. The upper guide member of the funnel is in this case replaced by another device.

This device consists of a pair of rollers 28 which are pressed by the carrier frame 26 against the impression roll 8 and thus serves to guide the paper out in a reliable manner. The direct delivery of the paper edge by the depression lever 24 to the rollers 28 is new. As shown in the drawing these can serve simultaneously as stay members for the movably pivoted frame 26.

The paper, as is known, only remains unprinted at the edges and in the event of a change in the width of the paper a displacement of the stay rollers up to the edges of the paper is required. This requirement can be effected as shown in Fig. 7.

Each of the rollers 28 is mounted in a frame 29' which together with all the elements fitted thereon, can be moved laterally and fixed at any desired point. In this manner, in spite of the varying width of the printing paper, the rollers 28 can always be set on the edge of the sheet. The delivery rollers 29, 30 which in themselves are known, and which are adapted to arch the entering sheet at its side edges in the known manner, are moved simultaneously with the lateral displacement of the frame 29'. The rollers 29, 30 are loosely mounted on their continuously rotating driving shafts 31, 32 the rotary movement of which they share by means of grooves and engaging ribs provided in the

known manner. Parallel to the two rotating shafts 31, 32 is a stationary cross bar 33 on which the frames 29' by means of set screws 34 can be fixed at any desired point. Each frame 29' has therefore three bearing seatings one each on the cross bar 33 and on the rotating shafts 31 and 32. The shafts can be driven in the usual manner, for example by means of a pinion 35 mounted on the shaft 31 which pinion, with swung-in frame engages with a pinion mounted on the machine frame 36 and not shown in the drawing. The mounting of the delivery rollers, which in themselves are known, in the movable carriage, during the adjustment of the stay rollers according to the width of the paper brings about the new action of the automatic adjustment of all delivery rollers.

For stripping off the sheet from the roll 8 a number of stripping tongue 37 in themselves known, are provided on the frame 26, the points of which, when the frame 26 is swung in, rest against the roll 8. When the frame 26 is swung out into the position shown in dotted lines, a stop 38 limits the tipping movement of the tongues 37.

The paper guided under the rollers 28 by the depression pawl 24 passes over the tongues 37 between the delivery rollers 29, 30 and thus to the point of delivery.

What I claim is:—

1. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, means for collecting said sheets after passing between said rolls, and means on said offset roll for guiding said sheets into said collecting means.

2. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, the said offset roll having a recess therein, a device in said recess for guiding the sheets of paper after passing between said rolls, and sheet collecting means on the machine.

3. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, a recess in the offset roll, a depression member in said recess normally projecting outwardly therefrom, and means for collecting said sheets.

4. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, the offset roll having a recess therein, a sheet-guiding member pivotally mounted in said recess and normally projecting outwardly therefrom, and means for collecting said sheets.

5. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, the offset roll having a recess therein, a sheet depressing device mounted in said recess and projecting therefrom, a frame pivotally mounted on the machine, and sheet guiding means on said frame. 70
6. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, the said offset roll having a recess therein, a device in said recess for guiding the sheets of paper after passing between said rolls, and conveyor rollers which grip and advance the sheets after they have been printed. 80
7. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, the offset roll having a recess therein, a sheet depressing member mounted in said recess and projecting therefrom, a frame pivotally mounted on the machine, sheet guiding means on said frame, and conveyor rollers on said frame. 85
8. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, the offset roll having a recess therein, a sheet depressing device in said recess, a frame pivotally mounted on the machine, a sheet guiding device on said frame, a carrier on said frame, and rollers on said carrier supported to engage against the impression roll. 90
9. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, the offset roll having a recess therein, a sheet depressing member in said recess, a frame pivotally mounted on the machine, cross members on said frame, a carrier on said cross members, means for adjusting the carrier on said cross members, and rollers on said carrier. 95
10. An offset printing machine in which the printing is effected by an offset roll and an impression roll and between which rolls the paper is to be fed, comprising, in combination with said rolls, the offset roll having a recess therein, a sheet depressing member in said recess, a frame pivotally mounted on the machine, cross members on said frame, a carrier on said cross members, means for adjusting the carrier on said cross members, rollers on said carrier, and delivery rolls on said carrier. 100
11. An offset printing machine, in which the printing is effected by an offset roll and an impression roll and between which rolls 105
- 120
- 125
- 130

In testimony whereof I affix my signature. 75
FERDINAND FISCHER.