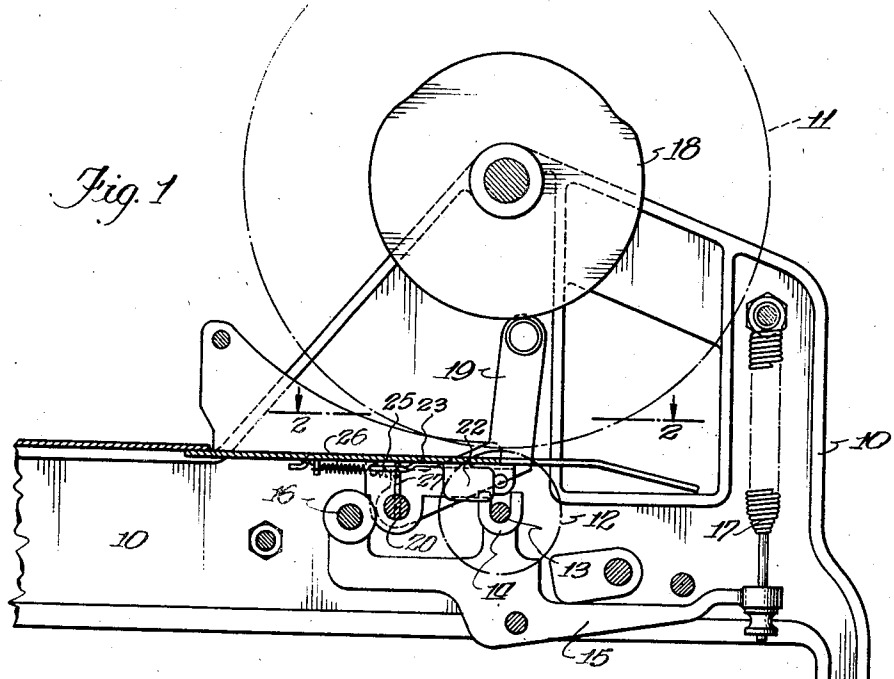
Nov. 5, 1940. H. HILDEBRANDT 2,220,242

DUPLICATOR

Filed Aug. 4, 1939

Fig. 1



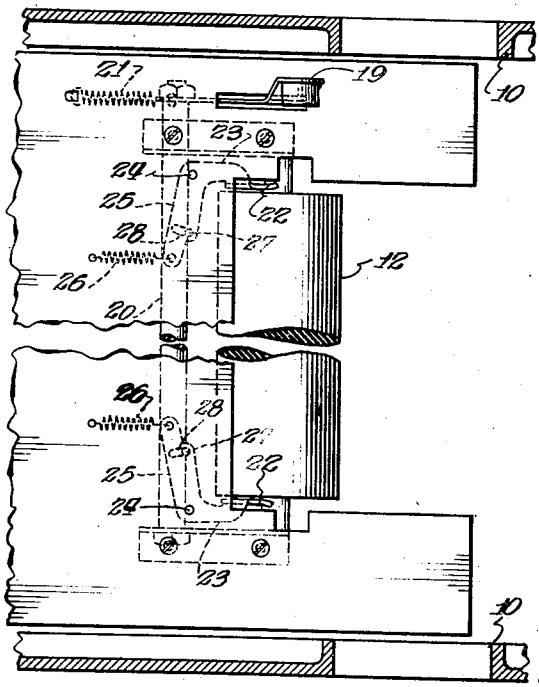


Fig. 2

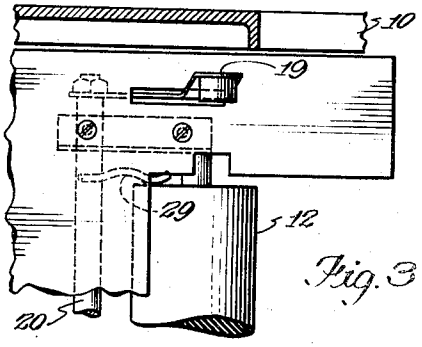


Fig. 3

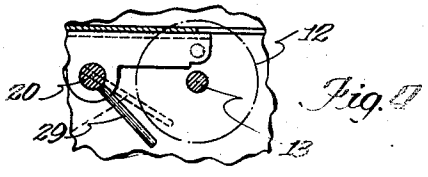


Fig. 4

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2,220,242

DUPLICATOR

Henry Hildebrandt, Chicago, Ill.

Application August 4, 1939, Serial No. 288,327

7 Claims. (Cl. 101—116)

My invention relates to improvements in duplicators and more particularly to an improvement in the feeding mechanism thereof, the present invention being an improvement on that disclosed in the prior patent to Gerrmann No. 2,062,876 dated December 1, 1936.

The primary object of the present invention is to provide a duplicator so constructed and arranged that the sheets of paper fed therethrough will be fed in a more accurate manner so as to insure proper registration of the printing thereon.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing forming a part hereof and in which:

Fig. 1 is a partial side view, shown partially in section, of a duplicator of well known construction to which my improvement has been applied;

Fig. 2 is a partial horizontal section taken substantially on line 2—2 of Fig. 1 and in which certain parts have been broken away for the sake of clearness.

Fig. 3 a detail view illustrating a modified form of construction; and

Fig. 4 a vertical section corresponding with Fig. 3.

The embodiment of the invention illustrated in Figs. 1 and 2 comprises a frame 10 in which a stencil cylinder 11 is rotatably mounted, said cylinder carrying the usual inked stencil in the usual manner. The usual impression roller 12 has its trunnions 13 rotatably mounted in bearings 14 on operating arms 15 which are pivoted at 16 on the frame of the duplicator. The arms 15 are normally drawn upwardly by means of tension springs 17 to apply the impression roller to the stencil cylinder in the usual way.

A cam member 18 is secured at one end of the cylinder 11 and operates a rocker arm 19 carried by a rocker shaft 20 which in turn carries the usual paper stops, not shown, for properly positioning the sheets of paper fed to the machine in the usual way, there being one of said paper stops at each side of the machine. The cam 18 operates the shaft 20 in timed relation with the cylinder 11 as is usual in duplicators of this character a tension spring 21 being operatively connected with the shaft 20 to keep the arm 19 in contact with the cam 18. The parts already described, or their equivalents, are shown in the Patent No. 2,062,876 and form no part of my present invention except in so far as they cooperate with the parts to be presently described.

However a duplicator constructed in accordance with Patent No. 2,062,876 sometimes fails to register or position the sheets of paper being fed therethrough properly relatively to the stencil on the cylinder 11. I have found by experience and experiment that this failure to register properly is due largely to the spinning or over-running of the impression roller after the impression contact with the inking cylinder has been made, and especially when the duplicator is operated by power and at relatively high speed.

To correct this defect, I arrange brake shoes 22 to contact with opposite ends of the impression roller 12, said brake shoes being carried by one of the arms of bell crank levers 23 pivoted at 24 under the table of the duplicator. The other arms 25 of said bell cranks are yieldingly held by springs 26 to cause braking contact of the brake shoes 22 with the ends of the roll 12 as indicated. Rocker arms 27 are carried by the rocker shaft 20 and engage segmental slots 28 in the arms 25 of the bell cranks and whereby said bell cranks may yield sufficiently to accommodate slight variations in the lengths of the rollers 12 as will be readily understood. The arrangement is such that when the rocker shaft 20 is operated to depress the paper stops to permit feeding of the paper through the duplicator, the brake shoes 22 will be moved back from contact with the impression roller 12 to permit of the free operation thereof. However as soon as rocker shaft 20 is operated in the reverse direction to place the paper stops in operating positions, preparatory to the feeding of a sheet of paper, the brake shoes will be applied to the ends of the roller 12 to prevent further rotation or over-running thereof. In this way over-running or spinning of the impression roller will be prevented and consequent disturbance of the sheet of paper about to be printed will also be prevented, thereby insuring more perfect positioning and registration of the sheets of paper in the duplicator. The specific construction disclosed is a simple and effective one for the purpose.

In the modification illustrated in Figs. 3 and 4 the rocker shaft 20 is equipped with two brake arms 29 adapted and arranged to be applied as shown to the ends of the roller 20 in stopping the over-running or spinning thereof. This constitutes a simpler form of braking mechanism but one which does not provide for the same latitude of variation in the lengths of the rollers 12.

Otherwise the operation is the same as that of the brake shoes 22 already described.

While I have illustrated and described the preferred forms of construction for carrying my invention into effect, these are capable of variation and modification without departing from the spirit of the invention. I therefore do not wish to be limited to the precise details disclosed but desire to avail myself of such variations and modifications as fall within the scope of the appended claims.

I claim as my invention:

1. A duplicator comprising a cylinder; a freely rotatable impression roller cooperating therewith and arranged to be rotated thereby; and means for automatically stopping the rotation of said impression roller after each operation thereof.

2. A duplicator comprising a cylinder; a freely rotatable impression roller cooperating therewith and arranged to be rotated thereby; and braking means for automatically stopping the rotation of said impression roller after each operation thereof.

3. A duplicator comprising a cylinder; a freely rotatable impression roller arranged under said cylinder; automatic means for raising said roller into cooperative contact with said cylinder; and means for automatically stopping the rotation of said impression roller after each operation thereof.

4. A duplicator comprising a cylinder; a freely rotatable impression roller arranged under said cylinder; automatic means for raising said roller into contact with said cylinder; and braking means automatically applied to the ends of said roller for stopping the rotation thereof after each of its operations.

5. A duplicator comprising a cylinder; an impression roller arranged under said cylinder; automatic means for raising said roller into cooperative contact with said cylinder; a pair of spring held bell crank levers carrying brake shoes arranged to contact with the ends of said roller; a rocker shaft operable by said cylinder; and rocker arms carried by said rocker shaft and operatively engaging said bell crank levers to release said brake shoes when said impression roller is raised into operative contact with said cylinder.

6. A duplicator comprising a cylinder; an impression roller arranged under said cylinder; automatic means for raising said roller into cooperative contact with said cylinder; a pair of spring held bell crank levers carrying brake shoes arranged to contact with the ends of said roller; a rocker shaft operable by said cylinder; and rocker arms carried by said rocker shaft and operatively engaging said bell crank levers to release said brake shoes when said impression roller is raised into operative contact with said cylinder, there being slots in said levers and the ends of said rocker arms engaging said slots which thereby permit of slight brake releasing motion of said levers.

7. A duplicator comprising a cylinder; an impression roller arranged under said cylinder; automatic means for raising said roller into cooperative contact with said cylinder; a rocker shaft operable by said cylinder; brake arms carried by said rocker shaft and arranged to contact with the ends of said roller to stop the rotations thereof; and automatic means for operating said rocker shaft to apply and release said braking arms.

HENRY HILDEBRANDT.