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INKING MECHANISM FOR ROTARY PRINTING MACHINES.

APPLICATION FILED FEB. 19, 1917.

1,322,829.

Patented Nov. 25, 1919.

2 SHEETS—SHEET 1.

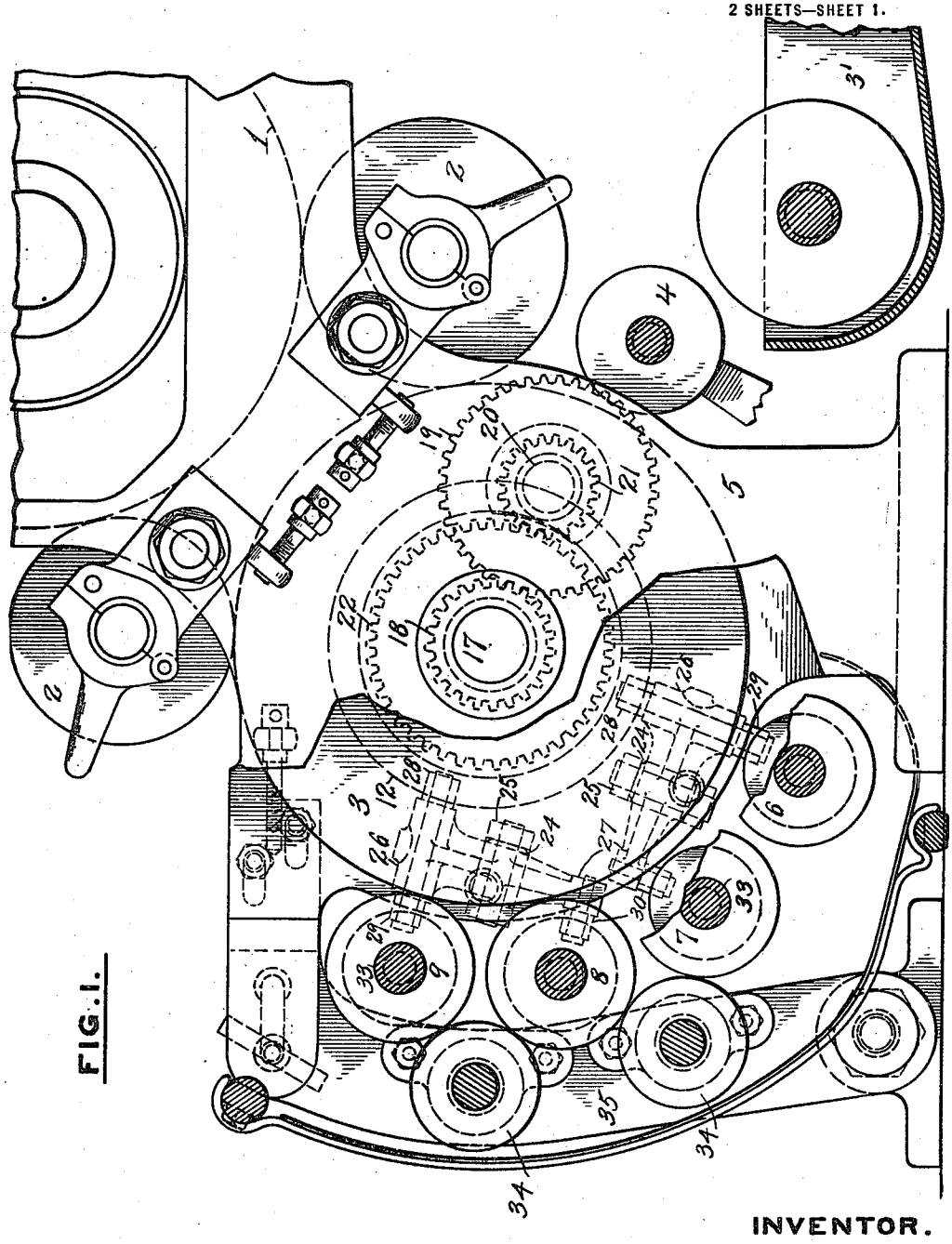


FIG. 1.

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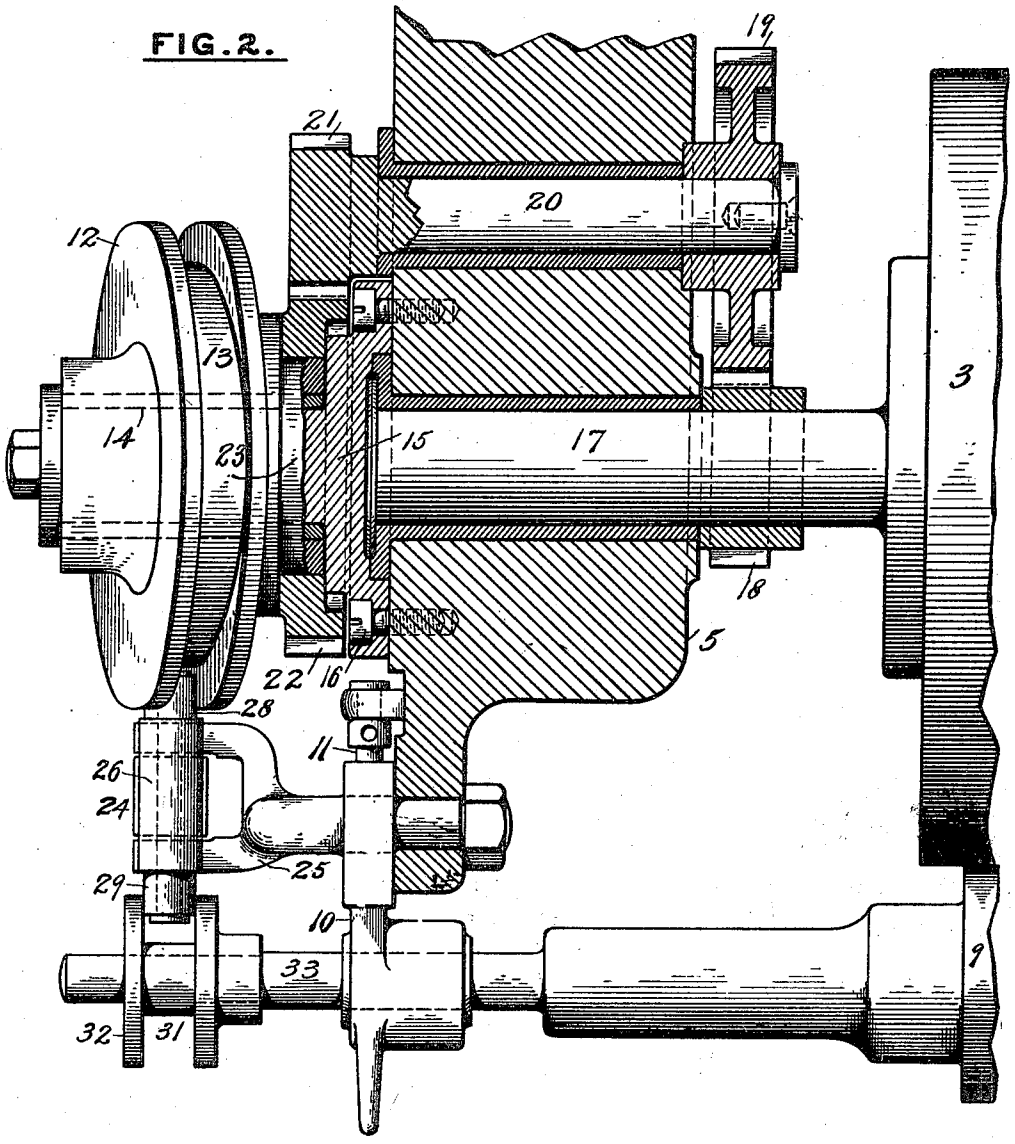
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2 SHEETS—SHEET 2.

FIG. 2.




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# UNITED STATES PATENT OFFICE.

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## INKING MECHANISM FOR ROTARY PRINTING-MACHINES.

1,322,829. Specification of Letters Patent. Patented Nov. 25, 1919.

Application filed February 19, 1917. Serial No. 149,436.

*To all whom it may concern:*

Be it known that I, LOUIS A. SCHMIDT, a citizen of the United States, residing at New York city, county of Kings, and State of New York, have invented certain new and useful Improvements in Inking Mechanism for Rotary Printing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in inking mechanism for rotary printing machines.

In high speed rotary printing machines, the ink is usually delivered from a suitable fountain by means of a virbrating ductor roll to a main ink distributing cylinder from which it is distributed to the form member of the printing couple, a similar mechanism being provided for each of the couples of the machine. In order to get an even distribution of the ink, various rolls are employed, which are known in the art as vibrating rolls, these rolls coöperating with the distributing cylinder to work up or grind up the ink supplied to the distributing cylinder. To get the best distribution of ink on the distributing cylinder, these rolls are located at desired points about the periphery of the cylinder, and are given a vibratory motion, that is, a motion to and fro longitudinally of the axis of the cylinder, usually by means of various lever constructions.

It is the especial object of the present invention to provide a simplified but efficient mechanism employing levers for giving this longitudinal vibratory movement to the rolls whereby the lever constructions through which this motion is effected may be similar, that is, of the same form and dimensions, so that no matter what the positions of the rolls about the distributing cylinder, the same type of lever may be used, the levers being interchangeable, this affording great convenience, particularly in machines employing a number of printing units, and doing away with the use of levers of different lengths.

It is another object of the invention to provide a mechanism for vibrating the rolls which may be driven from the distributing cylinder, and at a speed much less than that of the cylinder, and in which one lever may effect the simultaneous movement of two rolls in opposite directions.

With these and other objects in view, the invention consists in certain novel parts and combinations which will be described in detail in connection with the accompanying drawings, in which—

Figure 1 is a side view, partly in section and partly broken away, of so much of an inking mechanism as is necessary for an understanding of the invention, and

Fig. 2 is an end elevation, partly in section, of certain of the mechanism shown in Fig. 1.

Referring now to these drawings, the invention has been illustrated in connection with a rotary printing machine, a form cylinder of such machine being indicated by the numeral 1. This cylinder 1 has cooperating therewith the usual form rolls 2 to which ink is delivered from the main ink distributing cylinder 3, this cylinder being driven as usual at the same surface speed as the form cylinder through any suitable mechanism (not illustrated). Ink is delivered from a suitable source of ink supply, as fountain 3′, to the cylinder by means of a vibrating ductor roll 4.

The ink distributing cylinder 3 is supported in the side frames of the machine, one such frame being indicated at 5, and this cylinder has coöperating therewith a plurality of ink distributing rolls. The number of these rolls and their positions about the distributing cylinder may, of course, be changed as desired. In the particular construction illustrated, these rolls are four in number, marked 6, 7, 8 and 9, and are arranged closely adjacent each other. These rolls are supported in any suitable manner, as in sockets, one of which is indicated marked 10, supported from the main frame 5 of the machine, these sockets being, in the best constructions, adjustable by means of adjusting rod 11 to vary the pressure of their contact with the distributing cylinder as may be expedient, independent sockets being provided for each roll.

These rolls have a vibratory movement, that is, a movement to and fro longitudinally of the distributing cylinder, to work up or mix and thoroughly distribute the ink

on the surface of that cylinder, before it is delivered therefrom to the form rolls. In machines embodying the invention, this movement is effected by the employment of a single cam, which preferably is driven at a reduced speed from the distributing cylinder, this cam operating a number of levers of like construction so that they are interchangeable. Furthermore, the levers are preferably so arranged that each lever will operate two rolls simultaneously in opposite directions. While the particular construction for effecting this may vary in its details, as illustrated there is provided a single large track cam 12 having a track or groove 13. This track cam 12 is supported preferably outside the frame of the machine on a stud 14 having a flanged inner end 15 secured to one of the side frames 5 of the machine in any suitable manner, as by screws 16. This cam is driven from the distributing cylinder and preferably at a reduced speed. While this may be effected in various way, in the particular construction illustrated the shaft 17 of the distributing cylinder is provided with a driving pinion 18 which meshes with a gear 19 on a short cross shaft 20 mounted in suitable bearings in one of the side frames 5 of the machine. This shaft 20 has formed on its outer end a pinion 21 which meshes with a gear 22 fast on a hub 23 of the track cam 12, before referred to, the gears 18, 19, 21, 22 being proportioned to drive the track cam at such reduced speed from that of the distributing cylinder as is necessary or desired.

Coöperating with this track cam are a series of levers which are identical in construction, so that they are interchangeable and can be used for operating the vibrating rolls, no matter what their position around the cylinder, thus obviating the use of long and short levers for varying positions. These levers are indicated generally by the numeral 24 and are pivoted centrally to yoked brackets 25 suitably secured in one of the side frames 5 of the machine. These levers have two arms 26, 27, each carrying three operating rolls 28, 29 and 30, the rolls 28 and 29 being carried on lever arm 26, and the roll 30 being carried on the lever arm 27. The operating rolls 28 take into the groove 13 of the track cam 12 and, through these, the levers are rocked on their pivots. The other operating rolls 29, 30 take into grooves 31 formed between collars 32 on the ends of the shafts 33 of two adjacent vibrating rolls, as 6, 7, for instance. It will be seen that by this construction, when the levers are operated through the rotation of the track cam 12, the two roll shafts engaged by each of the rolls cause a movement simultaneously longitudinally of the distributing cylinder, but in opposite directions.

If desired additional small rolls, such as rolls 34, may be employed, these rolls being known as rider rolls, simply running on the vibrating rolls but not having the vibrating movement and aiding in more thorough mixture and distribution of the ink. These rolls are carried preferably in a pivoted frame 35, so as to be adjustable to and from the vibrating rolls for varying their pressure thereagainst.

It will be seen by the construction described that a very simple, compact and efficient mechanism is provided by the present invention for vibrating the vibratory rolls in an inking mechanism of this class, in which the use of long and short levers is done away with and the levers are interchangeable through any part of the machine.

While the construction shown and described is a preferred one, it will be understood that certain changes and variations may be made as to the details without departing from the invention.

What is claimed is:

1. In an inking mechanism for printing machines, the combination of a distributing cylinder, a plurality of vibrating rolls disposed around the cylinder, a single operating cam driven from the cylinder, means operated from the cam for giving the rolls a vibratory motion, rider rolls coöperating with the vibrating rolls, and a pivoted frame in which the rider rolls are carried for adjusting their pressure on the vibrating rolls.

2. In an inking mechanism for printing machines, the combination of a frame, a distributing cylinder mounted in the frame, a single track cam in line with the cylinder, a hub for the cam mounted on the frame, a gear on the hub, a gear on the cylinder shaft, reducing gearing from the shaft gear to the hub gear, a plurality of longitudinally vibrating rolls disposed around the cylinder, a plurality of similar levers disposed between the cam and the rolls and carried by the frame, a vertical arm on each lever having a roller coöperating with the cam and a roller coöperating with the vibratory roll, an arm on each lever at right angles to the first arm, a roller carried thereby for operating an adjacent vibrating roll, and a pivot point located between the arms around which each lever is swung by the cam to vibrate two adjacent rolls in opposite directions simultaneously.

In testimony whereof, I have hereunto set my hand.

LOUIS A. SCHMIDT.