

F. WAITE.
 MEANS FOR DRIVING THE INKING MECHANISM OF ROTARY LITHOGRAPHIC PRINTING MACHINES.
 APPLICATION FILED NOV. 25, 1910.

996,438.

Patented June 27, 1911.

2 SHEETS—SHEET 1.

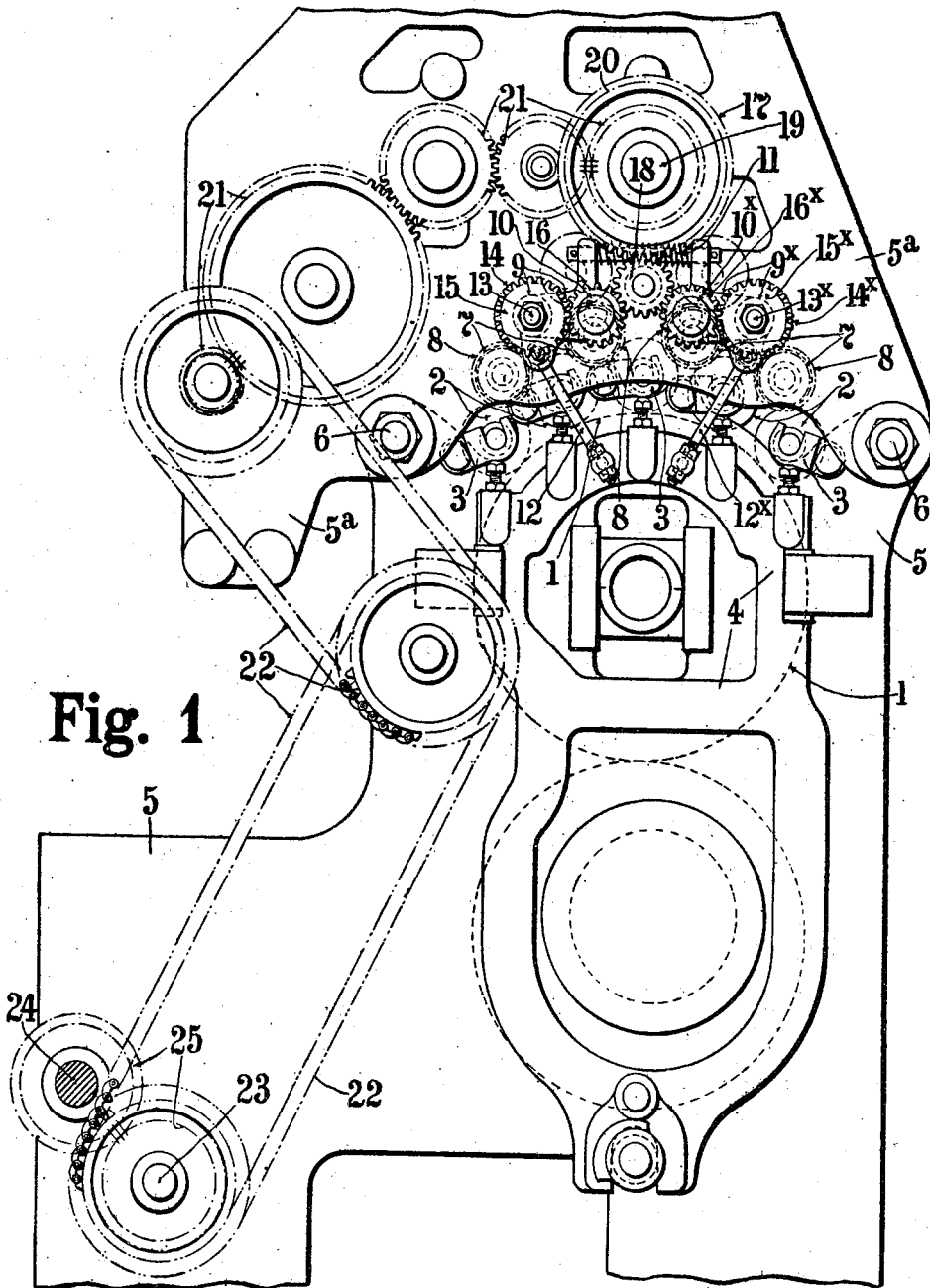


Fig. 1

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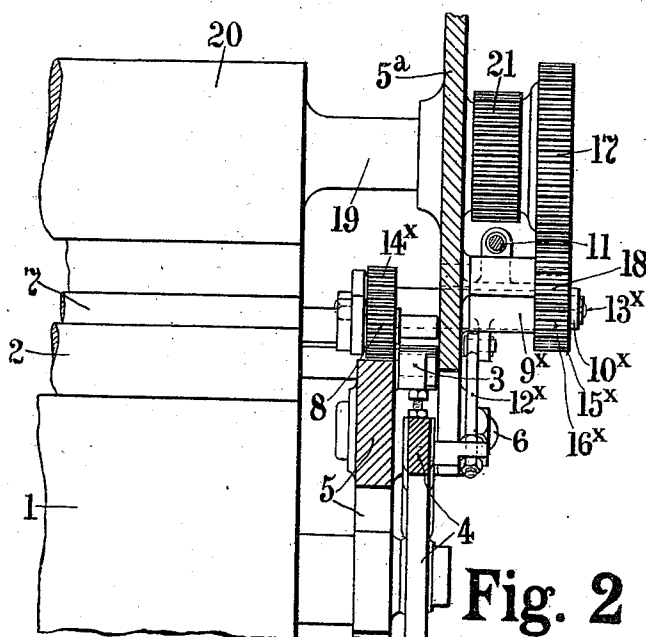


Fig. 2

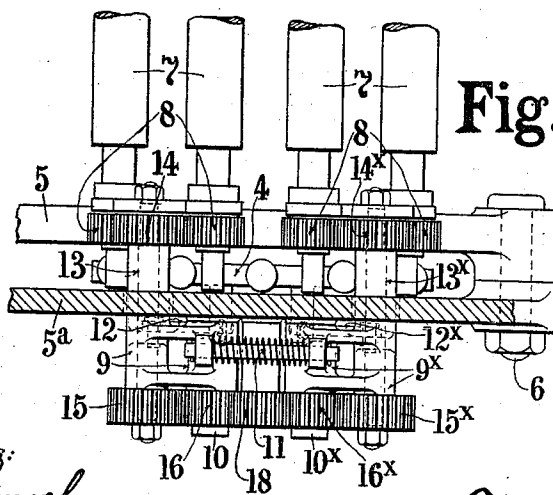


Fig. 3

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UNITED STATES PATENT OFFICE.

FRED WAITE, OF OTLEY, ENGLAND.

MEANS FOR DRIVING THE INKING MECHANISM OF ROTARY LITHOGRAPHIC-PRINTING MACHINES.

996,438.

Specification of Letters Patent. Patented June 27, 1911.

Application filed November 25, 1910. Serial No. 594,186.

To all whom it may concern:

Be it known that I, FRED WAITE, a subject of the King of Great Britain, residing at Otley, in the county of York, England, have invented certain new and useful Improvements in the Means for Driving the Inking Mechanism of Rotary Lithographic-Printing Machines, and of which the following is a specification.

10 This invention relates to the means for driving the inking mechanism of rotary lithographic printing machines, and particularly to that type of machine wherein the ink distributing rollers are adapted to be raised from the plate or printing cylinder when desired through the medium of vertically sliding end frames; and my object is to drive the entire inking mechanism of the machine separately from the cylinder gears so as to increase the life of the latter.

According to this invention the whole of the inking rollers are driven by spur gearing arranged on one of the side frames of the machine from a shaft in advance of the printing cylinders through the medium of chain or other suitable intermediate gearing so as to rotate the various inking rollers at the desired speed and independently of the cylinder gear wheels.

30 In order that my invention may be clearly understood, I will proceed to describe the same with reference to the example of construction shown in the accompanying drawings, in which similar reference numerals indicate like parts in all the figures; wherein:—

40 Figure 1 is a side elevation of the gearing end of a rotary printing machine, arranged or constructed in accordance with my invention; and Figs. 2 and 3 are respectively a sectional front elevation and a sectional plan, of a portion of the same end of the machine.

Referring to the drawings, 1 is the plate or printing cylinder which is mounted between two side frames of the machine in the ordinary way, and 2 are the ink distributing rollers which run in contact with the plate

or printing cylinder 1 to be inked; which rollers 2 are adapted to be raised from the plate or printing cylinder 1 when desired by being mounted in pivoted end bearing arms 3 actuated through the medium of vertically sliding end frames 4 in the manner described in the specification of my Patent No. 970,000.

The two side frames of the machine (one of which only is shown) are each made in two parts, *i. e.* a lower or main portion 5 carrying the plate or printing cylinder 1 and an upper or auxiliary portion 5^a carrying the inking mechanism; the two portions of each side frame being secured together by bolts 6, so that the upper portions 5^a are made to overhang the lower or main portions 5 and thus give the necessary increased width for enabling the ink distributing and rider rollers to be lifted in and out of the machine, instead of being inserted and withdrawn endwise; and for accommodating inside the upper main portion 5^a, at the gearing end of the machine, certain spur gearing hereinafter described. Compare Figs. 2 and 3.

7 are the metal rider rollers which rest upon and drive by surface contact the leather or rubber coated ink distributing rollers 2 running in contact with the plate or printing cylinder 1 to be inked, in the ordinary way.

Now according to this present invention, each of the rider rollers 7 is provided at one end thereof and inside the upper portion 5^a of the side frames with a spur pinion 8, while on the outside of the said frame portion 5^a of the machine are provided two oppositely situated arms 9, 9^x pivoted on independent studs 10, 10^x fixed to the frame 5^a, which pivoted arms 9, 9^x are elastically connected together by a central spring device 11 which tends to force their outer or free ends downward toward the vertically sliding end frame 4, with which latter the said pivoted arms 9, 9^x are connected by rods 12, 12^x and by which they are caused to rock on their pivots 10, 10^x in accordance with the rising

and falling movements imparted to the vertically sliding end frames 4 of the machine.

The free end of each rocking arm 9, 9^x respectively carries a short shaft 13, 13^x which passes through the upper portion 5^a of the side frame of the machine, and on the inner end of each short shaft 13, 13^x respectively is mounted a spur wheel 14, 14^x, the left-hand side spur wheel 14 being meshed with the spur pinions 8 of the two rider rollers 7 situated on the same side of the center and the right-hand side spur wheel 14^x being meshed with spur pinions 8 of the two rider rollers 7 situated on that side of the center, while on the outer end of each short shaft 13, 13^x of the rocking arms 9, 9^x respectively is mounted a spur wheel 15, 15^x. These spur wheels 15, 15^x carried by the rocking arms 9, 9^x on the outside of the upper portion 5^a of the side frames are respectively meshed with spur pinions 16, 16^x mounted on the pivot studs 10, 10^x of the said rocking arms, and the said spur pinions 16, 16^x in turn are meshed with a superposed spur wheel 17 through the medium of an intermediate central idle wheel 18.

The superposed spur wheel 17 is mounted on a shaft 19 of one of the main inking rollers 20, and the said shaft 19 is driven by a train of spur gear wheels 21 and chain gearing 22 from a shaft 23 situated in advance of the printing cylinder 1 and which is rotated from a main shaft 24 by spur gearing 25, so as to rotate the various inking rollers at the desired speed and independently of the cylinder gear wheels.

By driving the inking rollers in the manner above described, the distributing rollers 2 can be raised away from the plate or printing cylinder 1 when desired without seriously disturbing the relative positions of the rider rollers 7 by reason of the fact that the rocking arms 9, 9^x carrying the driving wheels of the said rollers 7 are raised and lowered in accordance with the movement of the vertically sliding end frames 4; while by arranging practically the whole of the driving mechanism on the outside of the side frames of the machine, increased facility is provided for the lifting in and out of the inking rollers. Further, the entire inking mechanism of the machine is driven separately from the cylinder gears, and thus the life of the latter is considerably increased.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a rotary lithographic printing machine, the combination with main side frames, a printing cylinder and its gears supported by said main frames, and a shaft in advance of said cylinder, of auxiliary side frames, inking mechanism supported by said auxiliary frames and including spur gearing arranged at and adjoining one of

said auxiliary side frames, and intermediate chain gearing connecting said shaft with said spur gearing; whereby the entire inking mechanism may be driven at the desired speed by gearing arranged on one of the side frames of the machine and independently of the cylinder gears.

2. In a rotary lithographic printing machine, the combination with the printing cylinder, ink distributing rollers, rider rollers, and lifting mechanism adapted to raise said rollers away from said cylinder when desired, of two pivoted arms, means elastically connecting said arms, means connecting said lifting mechanism and arms, short shafts carried by said arms, side frames by which said arms are supported and through which said shafts extend, spur wheels on the inner ends of said shafts, pinions on said rider rollers in mesh with said wheels, and means on the outside of said supporting frame for driving said short shafts without obstructing the movement of said pivoted arms, substantially as described.

3. In a rotary lithographic printing machine, the combination with the printing cylinder and its gears, ink-distributing rollers, rider rollers and lifting mechanism adapted to raise said rollers away from said cylinder when desired, of two pivoted arms, means elastically connecting said arms, means connecting said lifting mechanism with said arms, short shafts carried by said arms, a side frame having studs on which said arms are pivoted and openings through which said shafts extend, spur wheels on the inner ends of said shafts, pinions on said rider rollers in mesh with said wheels, spur wheels on the outer ends of said shafts, pinions on said pivotal studs in mesh with the wheels last named, and means on the outside of said side frame adapted to drive said ink-distributing rollers, through the medium of said pivot-stud pinions, independently of the cylinder gears, substantially as described.

4. In a rotary lithographic printing machine, the combination with the printing cylinder and its gears, a shaft in advance of said cylinder, the ink-distributing rollers, rider rollers, and lifting mechanism adapted to raise said rollers away from said cylinder when desired, of two pivoted arms, means elastically connecting said arms, means connecting said lifting mechanism with said arms, short shafts carried by said arms, a side frame having studs on which said arms are pivoted and openings through which said shafts extend, spur wheels on the inner ends of said short shafts, pinions on said rider rollers in mesh with said wheels, spur wheels on the outer ends of said short shafts, pinions on said pivotal studs in mesh with the wheels last named, and a train of chain gearing and spur gearing situated on

the outside of said frame and connecting
said shaft in advance of the printing cylin-
der with said pivotal stud pinions and there-
through with the several distributing rollers,
5 for driving the latter independently of the
cylinder gears in the manner and for the
purpose hereinbefore specified.

In witness whereof I have hereunto set my
hand in the presence of two witnesses.

FRED WAITE.

Witnesses:

FREDERIC THOMAS HUNTER,
WILLIAM STEAD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
