

(No Model.)

3 Sheets—Sheet 1.

D. WECKERLIN.
PRINTING MACHINE.

No. 263,004.

Patented Aug. 22, 1882.

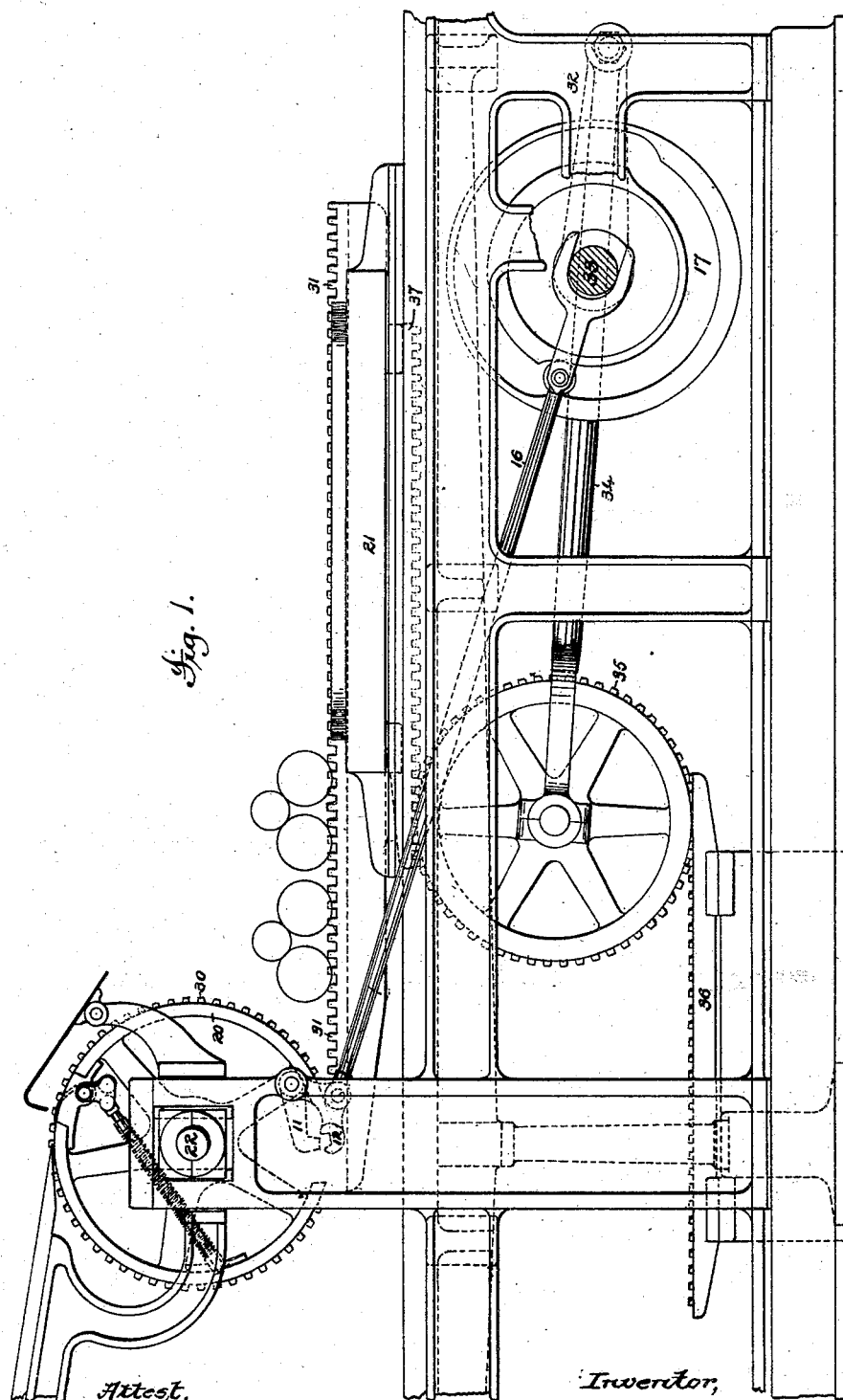


Fig. 1.

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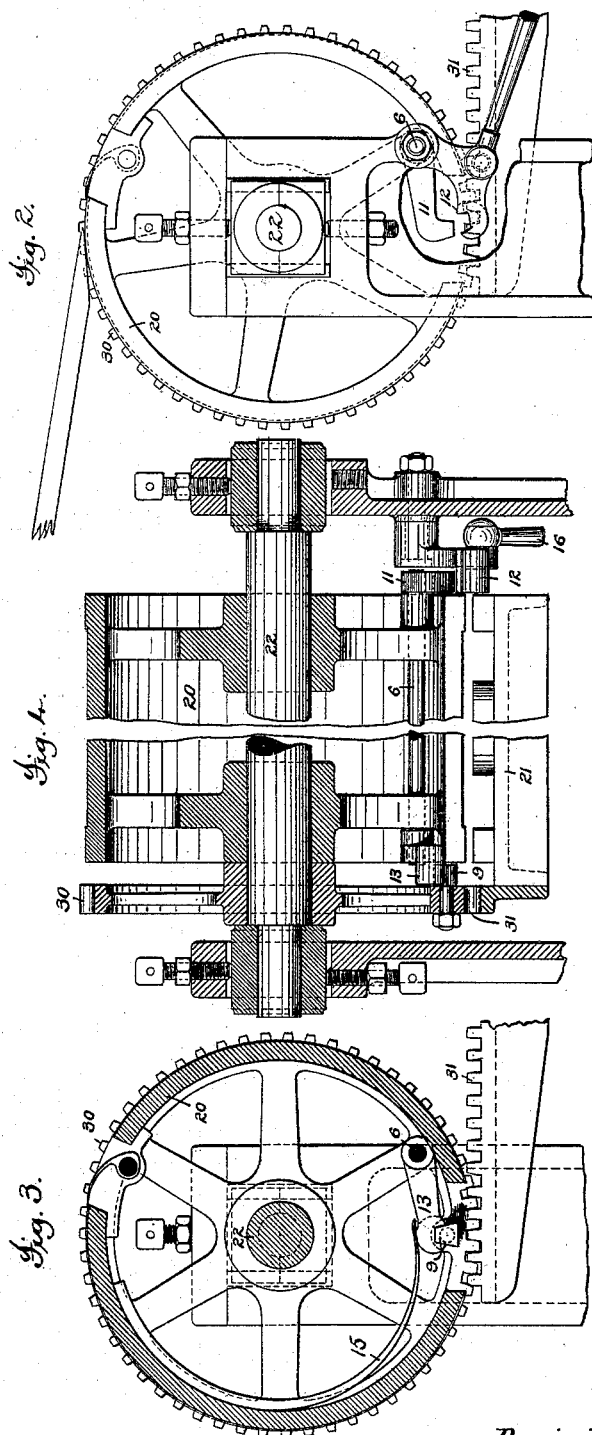
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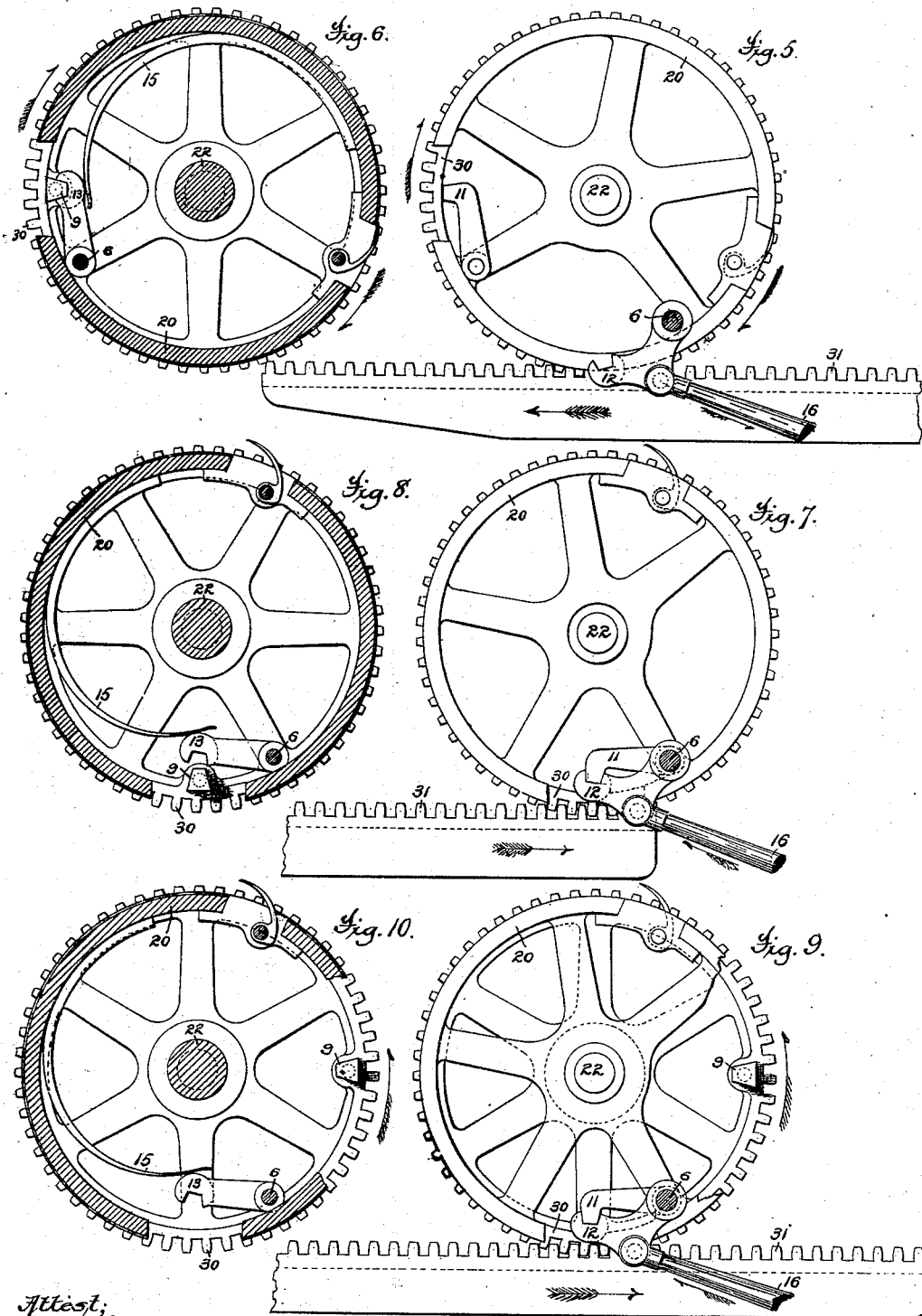
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UNITED STATES PATENT OFFICE.

DOMINICK WECKERLIN, OF BROOKLYN, ASSIGNOR TO R. HOE & CO., OF
NEW YORK, N. Y.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 263,004, dated August 22, 1882.

Application filed March 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, DOMINICK WECKERLIN, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Printing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of printing-machines known as "stop-cylinder presses," or such as are provided with an impression-cylinder which is driven in unison with the bed by means of a rack carried thereby, and gearing with a toothed wheel secured to the cylinder-shaft during the printing operation, but which wheel is disconnected from the rack, so as to allow the cylinder to remain stationary while the type-bed runs back to have the form it carries inked.

The invention consists in a novel construction and arrangement of devices, whereby a toothed wheel running loose upon the impression-cylinder shaft may remain constantly geared with and turned by the bed-rack, and with which the cylinder may be connected, so as to turn during the printing operation, (which we shall call the "printing-run,") and from which it may be disconnected, so as to remain stationary during the run of the bed, during which its type or form is inked, (which we shall call the "inking-run,") all of which is too particularly hereinafter set forth to need further preliminary description.

Figure 1 is a side elevation of a printing-press, and Fig. 2 a side elevation of the cylinder, its wheel, and one end of the bed and rack. In these views the bed is shown as having finished its outward stroke or inking-run, at which time the cylinder-wheel has just been coupled to the cylinder, so that the cylinder may revolve during the reverse, forward, or printing run of the bed, when the cylinder and type-bed coact to perform the printing operation. Fig. 3 is a transverse sectional elevation, and Fig. 4 a longitudinal sectional elevation, of the parts shown in Fig. 3 in like adjusted positions. Fig. 5 is a side elevation, and Fig. 6 a cross-sectional elevation, showing the relation of parts during the printing-run of the bed,

and particularly the position of the coupling devices during such operation. Fig. 7 is a side elevation, and Fig. 8 a cross-sectional elevation, illustrating the action of the coupling devices and their position at the moment of accomplishing the stopping of the cylinder and uncoupling the wheel therefrom. Fig. 9 is a side elevation, and Fig. 10 a cross-sectional elevation, partly showing the relation and position of the coupling devices during the inking-run of the bed when the cylinder is stopped, and its wheel runs in a reverse direction, still geared to the bed-rack.

The printing-machine illustrated in the drawings has an impression-cylinder, 20, whose shaft 22 is mounted to turn in journals adjustably secured in the side frame, (see Fig. 4,) which cylinder co-operates with a reciprocating type-bed, 21, and though this type-bed is shown as driven by means of a crank, 32, on the driving-shaft 33 and a rod, 34, that carries a toothed wheel, 35, which gears with a stationary rack, 36, secured to the bed-plate, and in a rack, 37, secured to the under side of the type-bed. It is to be understood that this method of reciprocating the type-bed is a common one, and is only used here as illustrating one of the many common mechanisms for producing the reciprocatory movements of a type-bed.

As ordinarily constructed stop-cylinder printing-machines have their impression-cylinders provided with a mutilated gear-wheel secured to the cylinder, which wheel passes out of gear with the bed-rack at the end of the printing-run of the latter, and is automatically re-engaged with said rack at the beginning of the printing-run of the bed, and said cylinder is held stationary during the inking-run of the bed when its rack travels past the mutilated portion of the cylinder-wheel, and this is accomplished by mechanism which not only arrest the movement of the cylinder, but operates to start the cylinder-wheel and throw its teeth into gear with those of the bed-rack. This operation necessitates the ungearing and regearing of the cylinder-wheel and rack, which operation requires nice adjustment, accurate operation, and is practically injurious, not only from the wear of the parts it occasions, but by reason of the jarring action it

causes to the machine. These defects are all remedied by the present improvements, which are to be understood as applicable to all stop-cylinder presses, without regard to the structure of mechanisms reciprocating the bed, which improvements will now be particularly described.

The cylinder-wheel 30 is mounted upon the cylinder-shaft 22 of the machine so as to run loosely thereon, and meshes with the bed-rack 31. This cylinder-wheel is a perfect wheel, and its teeth remain at all times in gear with the bed-rack, and consequently, since the rack reciprocates, it turns back and forth, as the case may be.

The impression-cylinder 20 is fast upon its shaft 22, and is provided with a peculiar mechanism for coupling it to the side frame when it is desired to arrest its movement, and for coupling it to the cylinder-wheel when it is desired that it shall rotate. To this end the cylinder 20 is provided with a longitudinal shaft, 6, mounted to rock in proper bearings in the cylinder, which shaft carries at one end a hooked arm, 11. This shaft is held normally in the position shown in Figs. 2 to 6 by means of a spring, 15, that bears upon the jawed clasp 13. When in this position said jawed clasp engages with the stop 9, projecting inwardly from the wheel 30, (see Fig. 4,) and when so engaged it is obvious that the cylinder 20 and its wheel 30 will be coupled together and cause both to move in unison, as in Figs. 5 and 6. The hooked arm 11 co-operates with a swinging jaw, 12, that is pivoted to the side frame (see Fig. 4) and provided with a connecting-rod, 16, that is reciprocated by means of a cam, 17, mounted upon the driving-shaft 33, or otherwise properly rotated to reciprocate said rod 16, and thus swing said jaw 12 from the position shown in Fig. 5 to that shown in Figs. 7 and 9. When this jaw 12 is raised, as in Fig. 7, it engages the arm 11 and raises the same, thereby rocking the shaft 6 against the pressure of the spring 15, and raises the jaw-clasp 13 out of engagement with the stop 9, as in Fig. 8, thereby simultaneously arresting the movement of the cylinder 20 and uncoupling the wheel 30 therefrom, so as to permit its idle rotative movement, as in Figs. 9 and 10. When the bed and cylinder, after giving an impression, have about arrived at the end of their printing movement, as in Figs. 2 to 4, the high part of the cam 17 comes into operation to reciprocate the rod 16, and thereby swing the jaw 12 upward to engage the hooked arm 11, which travels with the cylinder, thus stopping the cylinder and lifting said arm 11, rocking the shaft 6, thereby raising the jawed clasp 13 from engagement with the stop 9, as in Figs. 7 and 8, thus simultaneously stopping the cylinder and uncoupling the cylinder-wheel, so that while the cylinder is caused to remain

at rest its wheel 30 is free to rotate, driven by the rack 31, as in Fig. 9, during the inking-run of the bed. At the end of this inking-run or return-stroke of the bed the low part of the cam 17 causes the jaw 12 to swing downward, as in Fig. 2, thus disengaging the hooked arm 11 and permitting the jawed clasp 13 to drop under the impulse of the spring 15 and engage the stop 9, as in Fig. 3, by which action the cylinder 20 will be unlocked, and the wheel 30 will be simultaneously coupled thereto, so that during the printing-run of the bed then taking place said cylinder and wheel will be concertedly driven by the rack 31, as in Figs. 5 and 6, and perform the printing operation.

By this construction of devices the cylinder-wheel and type-bed rack are maintained constantly in gear, so that no engaging and disengaging of their teeth is necessitated, whereby accurate-fitting adjustment of the mechanisms throwing the two into and out of gear would be required, and from which gearing and ungearing a jarring action of the machine results. An even and regular movement of the parts is thus maintained, and no jarring or other irregular movement injurious to the production of fine printing is imparted by the gearing, which drives the impression-cylinder and type-bed in unison during such operation, and the wear of the gearing resulting from the old constructions, which interfered with the accuracy of such united movement of the impression-cylinder and bed, is avoided.

It will be apparent that the loosely-running cylinder-wheel and cylinder may be provided with other equivalent constructions of devices for coupling and uncoupling the same, and for arresting the movement of the cylinder, and it is therefore to be understood that the same is embraced by this invention.

What I therefore claim is—

1. The combination, with the type-bed and its rack, and the impression-cylinder and its loosely-running toothed wheel provided with the stop, as 9, of the clasp, as 13, cam, as 17, and connecting devices, all substantially as described.

2. The combination, with the type-bed and its rack, and the impression-cylinder and its loosely-running toothed wheel provided with a stop, as 9, of the clasp, as 13, jaw, as 12, hook, as 11, and means for simultaneously operating said clasp and jaw to uncouple and arrest and to release and couple said cylinder and wheel, all substantially as described.

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

D. WECKERLIN.

Witnesses:

CHAS. W. CARPENTER,
ERNEST VOORHIS.