

J. E. DOYLE,
PRINTING PRESS APPLIANCE.
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1,043,812.

Patented Nov. 12, 1912.

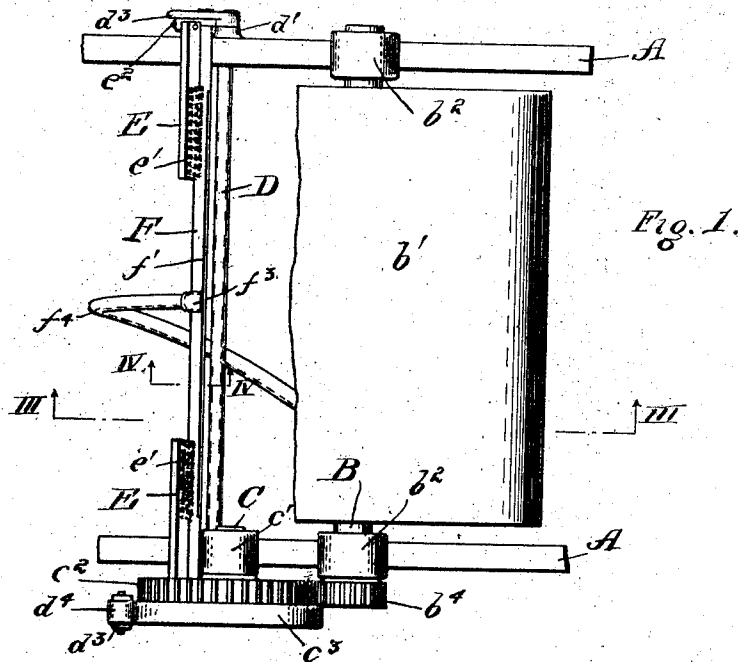


Fig. 1.

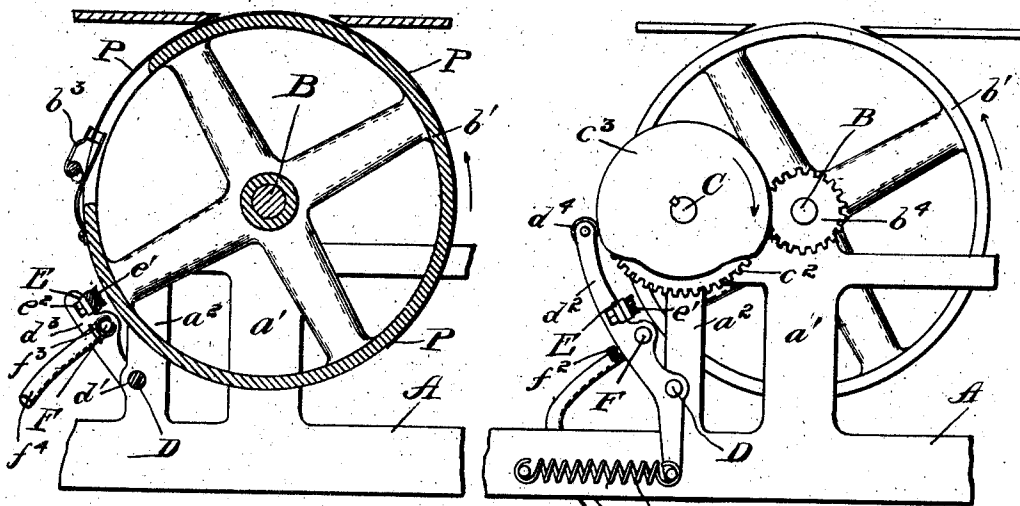


Fig. 3.

Fig. 2.

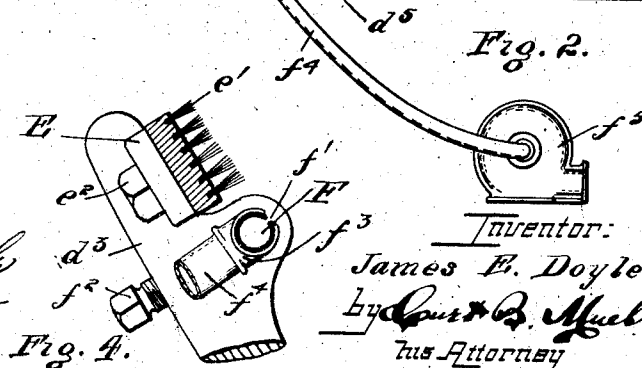


Fig. 4.

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UNITED STATES PATENT OFFICE.

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PRINTING-PRESS APPLIANCE.

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Specification of Letters Patent.

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REISSUED

To all whom it may concern:

Be it known that I, JAMES E. DOYLE, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Printing-Press Appliances, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention is associated with a printing press, while its more specific nature is an improvement with an appliance calculated to perfect the finished impression.

The object is the provision of means which will positively and continuously remove even minute sediment from the sheet just prior to its contact with the ink and so insure solidly inked areas and half tones which will be uniformly unspeckled.

The said invention consists of means hereinafter fully described and particularly set forth in the claims.

The annexed drawing and the following description set forth in detail certain means embodying my invention, the disclosed means, however, constituting but one of various mechanical forms in which the principle of the invention may be applied.

Figure 1 is a plan of a two-revolution cylinder-press, a portion of the cylinder being cut away to better disclose the application of my inventive appliance. Fig. 2 is an end elevation of Fig. 1. Fig. 3 is a vertical section on line III—III of Fig. 1 looking in the direction of the arrows. Fig. 4 is an enlarged section of line IV—IV of Fig. 1, likewise looking in the direction of the arrows.

The construction shown, as sufficient for the purpose in hand, comprises the frame A upon which are mounted preferably integral standards the rear and forward pairs being respectively designated a^1 and a^2 . Mounted across the frame in suitable bearings b^2 , directly above the standards a^1 , is a primary shaft B and rotatably mounted upon this shaft is an improved type of cylinder press proper b^1 about which the paper sheets to be printed are intended to be twice revolved. The successive sheets are automatically compelled to travel with the periphery of the cylinder through the medium of gripping mechanism which, since it forms no part of

this invention is designated entire as b^3 . The direction of movement of the paper which has been marked by the reference character P is contra-clockwise according to the direction of vision in Figs. 2 and 3 after approaching from the right and continuing again horizontally to the left. Mounted upon one extremity of the shaft B is a driving pinion b^4 .

A stub shaft C is mounted in suitable bearings c^1 situated approximately over the standards a^2 . Fixed in turn near the outer end of the shaft C and in fact so as to intersect the same vertical plane as the pinion b^3 is a gear c^2 which is adapted to mesh therewith as clearly seen in Fig. 1. A cam c^3 the operative purpose of which will be directly manifested is keyed to the shaft C exteriorly adjacent the gear c^2 . A rod D is also mounted for movement across the standards a^2 within suitable bearings d^1 . A pair of actuating levers d^2 d^3 are keyed immediately of their lengths to opposite ends of the rod D. The lever d^2 is somewhat longer than the lever d^3 , and rests within substantially the same vertical plane as the cam c^3 . Secured to the upper extremity of the lever d^3 is a roller d^4 whose lower extremity is yieldingly attached to the frame A through the agency of the tension spring d^5 whereby the roller is normally held in engagement with the surface of the cam. As should now be apparent the movement of the cylinder b^1 is transmitted in sequence to the pinion b^3 , gear c^2 and cam c^3 and hence to both the levers d^2 and d^3 in the form of intermittent oscillatory movement toward and away from its own surface.

Fixedly mounted upon the two levers d^2 d^3 is a member E to which a plurality of brushes e^1 are removably attached by means of screws e^2 . The brushes e^1 project toward and are adapted to intermittently contact with the surface of the cylinder b^1 . The periods of contact are necessarily determined by the oscillation of the levers d^2 d^3 and agreeably predetermined by the peripheral contour of the cam in order to insure the operative results which are sought. Also mounted in bearings d^6 upon the levers d^2 d^3 and likewise and necessarily extending across the frame, though, below the brushes e^1 , is a pipe F. This pipe is provided with a longitudinal slot f^1 and is capable of being fixed in various positions about its own axis

through the medium of set screws f^2 whereby the location of the slot with respect to both the cylinder b' and brushes e' may be altered at will. In the exemplification shown the central part of the pipe is provided with a T f^3 with which a flexible tube f^4 communicates, and with which latter an electrically operated suction fan f^5 is connected.

10 The operation of my appliance is as follows: It being necessary in the exemplification shown, in order to avoid interference of delivery of successive sheets to have the cylinder revolve twice for each sheet that is to be printed, and furthermore to have the brushes e' held out of engagement with the surface of the cylinder until immediately after the front edge of the sheet with its attached and outwardly projecting gripping mechanism b^3 has passed, and since no novelty is alleged as regards such arrangement; the peripheral surface of the cam c^3 will be presumed as of a contour to meet the above requirements. Any individual sheet on approaching as already stated from the right, will be gripped and drawn diagonally downward to the left as appears in Fig. 3. Just prior to the passage of its front edge beyond and below the arc of oscillation of the brushes e' the contact of the roller d^4 will be with that part of the peripheral surface of the cam c^3 which is immediately in advance of its depressed portion as clearly indicated in Fig. 2. Consonantly, immediately after such front edge has passed the brushes, they will be permitted to contact the remaining area of the sheet and so perform their function. In the meantime all particles of sediment will be continuously removed by enforced passage through the pipe F and the sheet presented to the ink as required for consummate neatness.

Having thus described my invention what I claim is:

45 1. A printing press appliance comprising the combination of sheet conveying means, a slotted duct movably mounted across said conveying means, means for reciprocating said duct toward and away from said conveying means, means for adjusting the disposition of said slot with respect to said conveying means, and suction means operatively connected with said duct.

2. A printing press appliance comprising the combination of sheet conveying means, 55 a movable supporting member, a brush mounted thereon, a duct adjustably mounted upon said member and provided with a slot extending transversely of the movement of said sheet, means for effecting the movement of said supporting member, means for fixing said duct in various positions upon said supporting member, and means for establishing a suction within said duct.

3. A printing press appliance comprising 65 the combination of a cylindrical sheet conveyor, a movable brush adapted to intermittently contact across said sheet, a movable suction duct provided with a slot in intermittent operative proximity to said sheet, means for simultaneously controlling the movement of said brush and duct, said duct being positioned beyond said brush, and means for establishing a suction within said duct. 75

4. A printing press appliance comprising the combination of a sheet conveyor, a pair of levers positioned laterally thereof, a brush mounted upon said levers and adapted to contact with said sheet, a suction duct 80 having a slot and adjustably mounted upon said levers, means for effecting the movement of said levers relative to said conveyor, means for fixing said duct, and suction means communicating with the latter. 85

5. A printing press appliance comprising the combination of a frame, a cylindrical sheet conveyor mounted for movement thereon, a lever upon said frame, means for moving said lever, a brush removably secured to the latter and adapted to engage said sheet, a duct rotatably mounted upon said lever and having a slot extending across said conveyor, said duct being positioned beyond said brush, with reference to the direction of movement of said conveyor, means for fixing said duct in various positions about its axis, and means for establishing a suction within said duct. 95

Signed by me, this 29th day of February, 1912. 100

JAMES E. DOYLE.

Witnesses:

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