E. G. ROBB.

ATTACHMENT FOR PRINTING PRESSES.

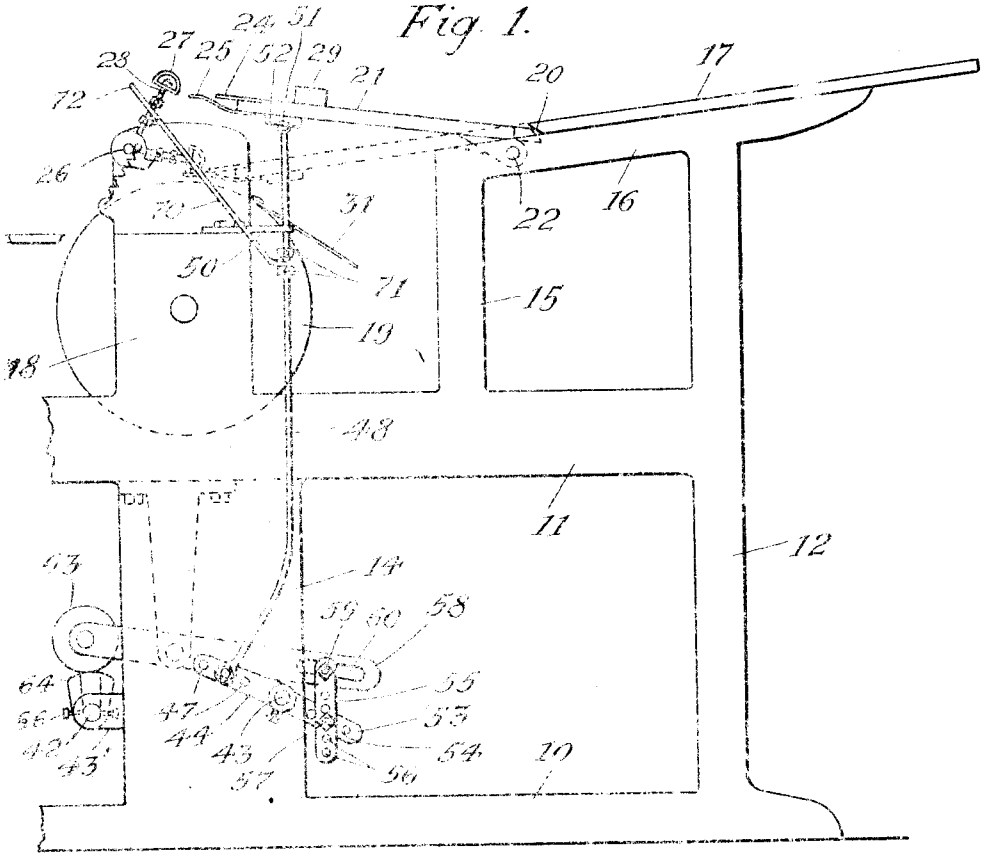
APPLICATION FILED SEPT. 23, 1911.

1,026,606.

Patented May 14, 1912

2 SHEETS—SHEET 1.

Fig. 1.



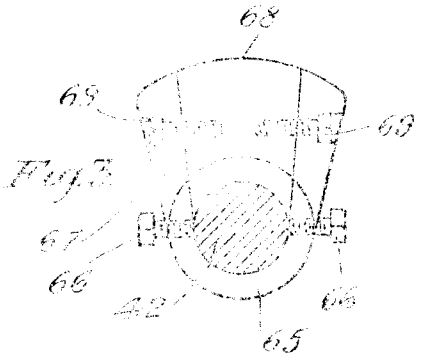


Fig. 3.

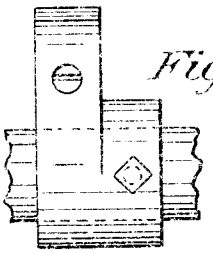


Fig. 4.

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2 SHEETS—SHEET 2.

Fig. 2.

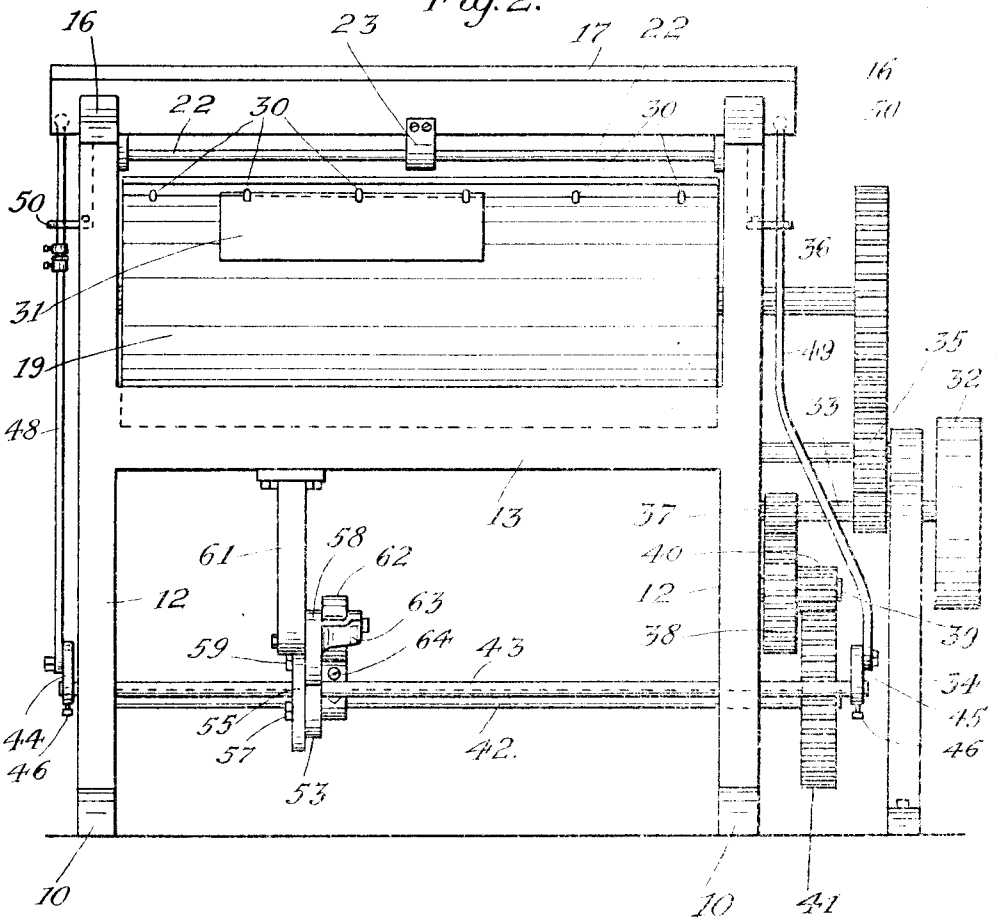
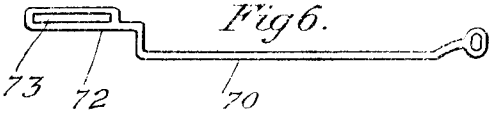


Fig. 5



Fig 6.



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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR PRINTING-PRESSES.

1,026,606. Specification of Letters Patent. Patented May 14, 1912.

Application filed September 23, 1911. Serial No. 650,966.

To all whom it may concern:

Be it known that I, EDWIN G. ROBB, a citizen of Canada, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Attachments for Printing-Presses, of which the following is a specification.

My invention relates to printing presses of the reciprocating bed and cylinder type and consists primarily in means for oscillating the feed table of such a press so as to take the same entirely out of the way of a card on the cylinder after the same has been printed.

In printing presses of the above indicated type the blank cards, which may be of any size and are usually formed of comparatively stiff cardboard, are fed singly by hand down an inclined feed table the surface of which is normally in a plane substantially tangent to the periphery of the feeding cylinder, which is provided with grippers for seizing the lower edge of the card and feeding it around over the printing bed which reciprocates in timed relation beneath the feeding cylinder. After printing of the card, the same is carried by the feeding cylinder beneath the feeding table and discharged to suitable conveying means. Since the cards are relatively stiff and unyielding they are carried by the cylinder at an angle to the periphery thereof and will wipe across the end surface of the feed table as they are carried beneath the same. It is the printed side which is thus wiped and, as the ink is of course wet, it frequently happens that smutching and faulty work results. It is the primary object of my invention to lift the feed table at the moment that the card is carried beneath the same, and to lower said feed table to working position immediately thereafter.

A further object of my invention is to provide a device of the above character which may readily be attached to printing presses of common use and construction with the addition of practically no operating parts.

A further object of my invention is to make the lift of the feed table adjustable to the minutest degree so as to readily adapt the movement of the feed table to the size of the cards being printed.

A further object of my invention is to provide means for lifting and returning the oscillating guide heads of the press which will permit oscillation thereof by the normal action of the machine and at the same time will lift said guides in accordance with the lift of the feed table, where the same is extensive, restoring the guides to normal operative position with the return of the feed table.

Other objects and advantages of my invention will appear in connection with a detailed description thereof and are particularly pointed out in the claims.

In the drawings, representing the application of my invention in usual form,—Figure 1 is a side elevation of a portion of a bed and cylinder printing press showing so much of such machine as is necessary to an understanding of my invention with my improvements attached thereto. Fig. 2 is an end elevation of similar parts taken from the rear of the machine. Figs. 3 and 4 are front and side elevations of a specially constructed cam employed in connection with my invention. Figs. 5 and 6 are detailed views of a connecting rod.

The frame of the printing press comprises longitudinal frame members 10 and 11, rear uprights 12, a transverse frame member 13, intermediate uprights 15 supporting oblique frame pieces 16 upon which rests the feeding table 17, and central upright brackets 18 providing journals for the feeding cylinder 19 below which reciprocates the printing bed not shown. The rear portion of the feed table 17 is normally stationary. Said printing table is cut across by a beveled joint 20 as shown in Fig. 1, the forward portion of the table 21 being pivoted to a rod 22 journaled in the uprights 12 and a hanger 23 depending from the lower side of stationary feed table 17, this construction permitting the forward part 21 of the feed table to be swung back so that access may be had to the printing bed when same is in its rearward position. The front edge of feed table 21 is provided with a lip 24 and with spring fingers 25 which as shown in dotted lines in Fig. 1 come into close proximity to the periphery of cylinder 19 when movable table 21 is in its lower or operative position, said movable table then having its surface in the same plane with that of stationary table 17, said plane being approximately tangent to the periphery of cylinder 19. The spring fingers 25 extend beyond plate 24 and are spaced from one another.

A rock shaft 26 is journaled in central upright brackets 18 above cylinder 19 and is provided with a series of guide heads 27 carried by spindles 28, said guide heads being spaced and positioned so that when in their normal operative position they will rest upon spring fingers 25, as shown in dotted lines in Fig. 1. In this position a card will be fed by hand down the feed table 21 so that the lower edge thereof will contact with heads 27, a side edge contacting with a drive 29 on the feed table. Gripping fingers 30 on cylinder 19, operated by mechanism not shown, seize the forward edge of the card as said fingers are carried past the same by the cylinder, the shaft 26 is simultaneously rocked by mechanism not shown, to lift guide heads 27 out of the path of the card, and the card is carried around by the cylinder over the synchronously reciprocated printing bed and up again to the position indicated at 31.

All of the above parts are, or may be, of well known construction and form no part of my invention, the drive of cylinder 19 and other parts of the machine being from a pulley 32 on a short shaft 33 journaled in one of uprights 12 and an auxiliary upright 34, shaft 33 driving through intermediate gearing 35 the shaft 36 of cylinder 19.

A pinion 37 on shaft 33 meshes with a gear 38 on a short shaft 39, said gear 38 having fast thereon a pinion 40 meshing with a gear 41 on a transverse shaft 42 journaled in brackets 43' secured to central uprights 14. The ratio of the gearing driving cylinder 19 with that of driving shaft 42 is such that cylinder 19 will make two revolutions while shaft 42 makes one.

Journaled in uprights 14 is a transverse rock shaft 43 provided at the ends thereof outside of uprights 14 with arms 44 and 45 which may be secured to rock shaft 43 by means of set screws 46. Each of arms 44 and 45 is provided with a series of apertures 47 by means of which are secured to said arms upright rods 48 and 49 respectively, rod 49 being bent as indicated in Fig. 2 to bring the same out of the way of the machine gearing on that side.

Guide brackets 50 are secured to upright brackets 18 and rods 48 and 49 are fitted to slide in apertures in the extended portions of said brackets. Secured to the upper ends of rods 48 and 49 by means of ball and socket or other universal joints 51 are bearing blocks 52 which contact with the under surface of movable feed table 21 but are not connected thereto, the universal joint connection of said bearing blocks insuring perfect supporting contact with said table in whatever position it may be without causing any friction or wear on said table.

Fast on rock shaft 43 is an arm 53 provided with a series of apertures 54, a link 55 having similar spaced apertures 56 being pivotally secured to said arm 53 by means of bolt 57, said link in turn being secured to a rocking lever 58 by means of a bolt 59 extending through a longitudinal slot 60 in said rocking lever 58. The rocking lever 58 is pivoted at one side of the center thereof to a hanger 61 depending from a central transverse frame member, the end of lever 58 extending above shaft 42 and being provided with a roller 62 journaled between said lever and a bracket arm 63 thereon.

Fast on shaft 42 beneath roller 63 is a cam 64 of the form shown in Figs. 1, 3 and 4, said cam comprising a collar portion 65, adapted to be secured by means of set screws 66 to shaft 42, and a cam body proper 67. As shown in Fig. 3, both the cam body 67 and the collar 65 are cut through in diverging tangential lines to provide an inner removable block 68 which, after assembly of the cam upon its shaft, is secured to the body 67 by means of screw bolts 69 countersunk as shown. This arrangement gives a cam which may readily be assembled upon its shaft in any position thereon and which will be securely held under all conditions of work.

A rod 70 is swiveled to rod 43 and held in adjusted position thereon by means of collar blocks 71. This rod is of the shape shown in Fig. 6, having a head 72 provided with a slot 73 encompassing the outside spindle 28 on rock shaft 26. The slot 73 permits the oscillation of shaft 26 effected in the normal operation of the machine. When, however, feed table 21 is lifted by my novel attachment, guide heads 27 will be correspondingly lifted and upon return of feed table to normal position, said guide heads will also be brought back to rest upon spring fingers 25.

The operation of my improvements will be readily understood. The cam 64 is so positioned and formed that the high portion thereof engages roller 63 after the card has been gripped and carried to printing position. The oscillation of lever 58 operates, through link 55 and arm 53, to rock shaft 43 which through arms 44 and 45 will slide rods 48 and 49 upwardly, thus, through engagement of blocks 52 with the underside of feed table 21, lifting said feed table upwardly, and simultaneously through link connection 70 raising the guide heads 27. The high portion of cam 64 is of length sufficient to hold feed table 21 raised until after the printed card has passed beneath the same and been delivered from the cylinder, after which feed table 21 will be lowered to its normal operative position where it remains during the succeeding revolution of cylinder 19 and until said cylinder has again gripped and carried a card to printing position. The arrangement of connect-

ing holes in arms 44 and 45, link 55 and arm 53, as well as the bolt and slot connection of link 55 to lever 58 makes it possible readily to adjust the swing of arms 44 and 45 and consequent lift of table 21 to meet the requirements of any size of cards being printed. The exact lift of the edge of the pivoted table may be varied from one inch to ten inches or a foot. Therefore, it will be unnecessary in any case to lift the table more than just enough to provide clearance for the particular type of card operated upon by the press.

I claim:

1. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a superposed feed table having the face thereof in a plane normally tangent to the periphery of said cylinder, means for continuously rotating the cylinder in one direction to carry the cards from said table a complete revolution and beneath said table to discharging position, and means for periodically lifting said table to permit the printed card to pass therebeneath without contacting.

2. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a pivoted feed table the free end of which extends into close proximity to the periphery of said cylinder, means for continuously rotating the cylinder in one direction to carry the cards from said table a complete revolution and beneath said table to discharging position, a series of fingers extending from said edge above the cylinder, a series of pivotally mounted guide heads normally resting upon said fingers, and means periodically oscillating said feed table and said guide fingers simultaneously to provide clearance for the printed card.

3. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a pivoted feed table extending into close proximity to the periphery of the cylinder, means for continuously rotating the cylinder in one direction to carry the cards from said table a complete revolution and beneath said table to discharging position, and means including sliding rods for periodically oscillating said table to provide clearance for the printed card.

4. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a pivoted feed table extending into close proximity to the periphery of the cylinder, sliding rods, bearing blocks freely movable on the ends of said rods and engaging the underside of said feed table, and means for operating said rods to cause the same periodically to lift said table to provide clearance for the printed card.

5. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a pivoted feed table extending into close proximity to the periphery of the cylinder, means engaging the underside of the feed table and adapted to lift the same, and means operative once for each two revolutions of the cylinder for actuating said lifting means to lift the table and provide clearance for the printed card.

6. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a pivoted feed table extending into close proximity to the periphery of the cylinder, means engaging the underside of said table and adapted to lift the same, a cam and means for rotating said cam once for each two revolutions of the cylinder, and means engaging said cam having connection with said lifting means for actuating same to lift the table to provide clearance for the printed cards.

7. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a pivoted feed table extending into close proximity to the periphery of the cylinder, means engaging the under-side of said table and adapted to lift the same, a cam and means for rotating said cam once for each two revolutions of the cylinder, and a rock shaft having operative connection with said cam, said rock shaft being connected to and actuating said lifting means to cause the same to lift said table.

8. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a pivoted feed table extending into close proximity to the periphery of the cylinder, means for continuously rotating the cylinder in one direction to carry the cards from said table a complete revolution and beneath said table to discharging position, means engaging the under-side of said table and adapted to lift the same to provide clearance for the printed card, and means for adjusting said lifting means to vary the extent to which the table will be lifted.

9. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a pivoted feed table the free end of which extends into close proximity to the periphery of said cylinder, a series of fingers extending from said edge above the cylinder, a series of pivotally mounted guide heads normally resting upon said fingers, sliding rods engaging the under-side of said table, links having connection with said rods and said guide heads, and means for periodically actuating said rods, whereby the table and the guide heads will be simultaneously oscil-

lated to provide clearance for the printed card.

10. In combination with the feeding cylinder of a printing press having means for gripping and holding the edge of a card, a pivoted feed table the free end of which extends into close proximity to the periphery of said cylinder, a series of fingers extending from said edge above the cylinder, a series of pivotally mounted guide heads normally resting upon said fingers, sliding rods engaging the under-side of said table, links having connection with said rods and said guide heads, and means for periodically actuating said rods, whereby the table and the guide heads will be simultaneously oscillated to provide clearance for the printed cards, said link connection with the guide heads being such as to permit independent oscillation of said guide heads.

In testimony whereof I affix my signature in presence of two witnesses.

EDWIN G. ROBB.

Witnesses:
LAURA ROBB,
F. A. WHITELEY.