M. A. DROITCOUR.

PRINTING PRESS.

APPLICATION FILED DEC. 12, 1917.

1,380,469.

Patented June 7, 1921.

2 SHEETS—SHEET 1.

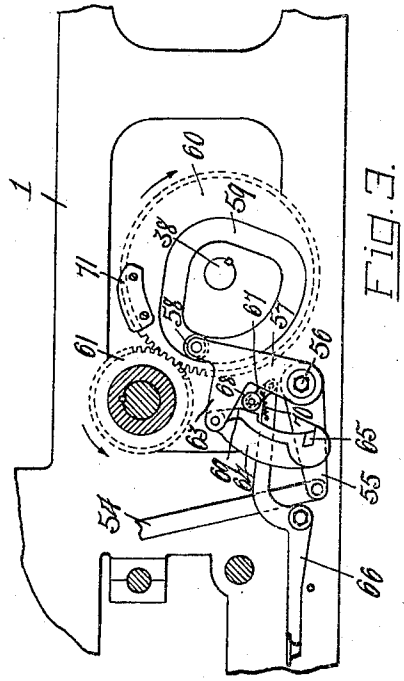


Fig. 3.

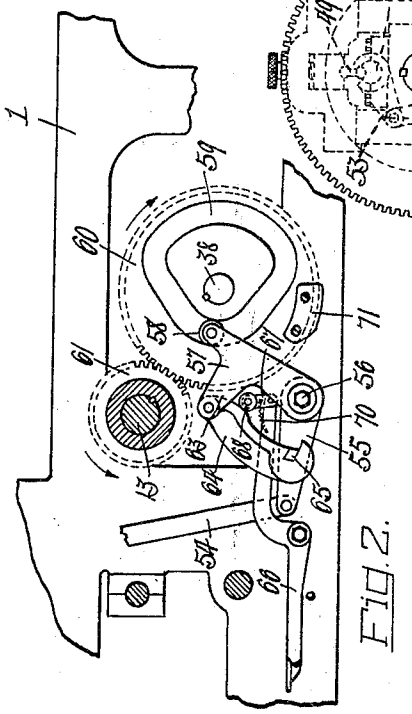


Fig. 2.

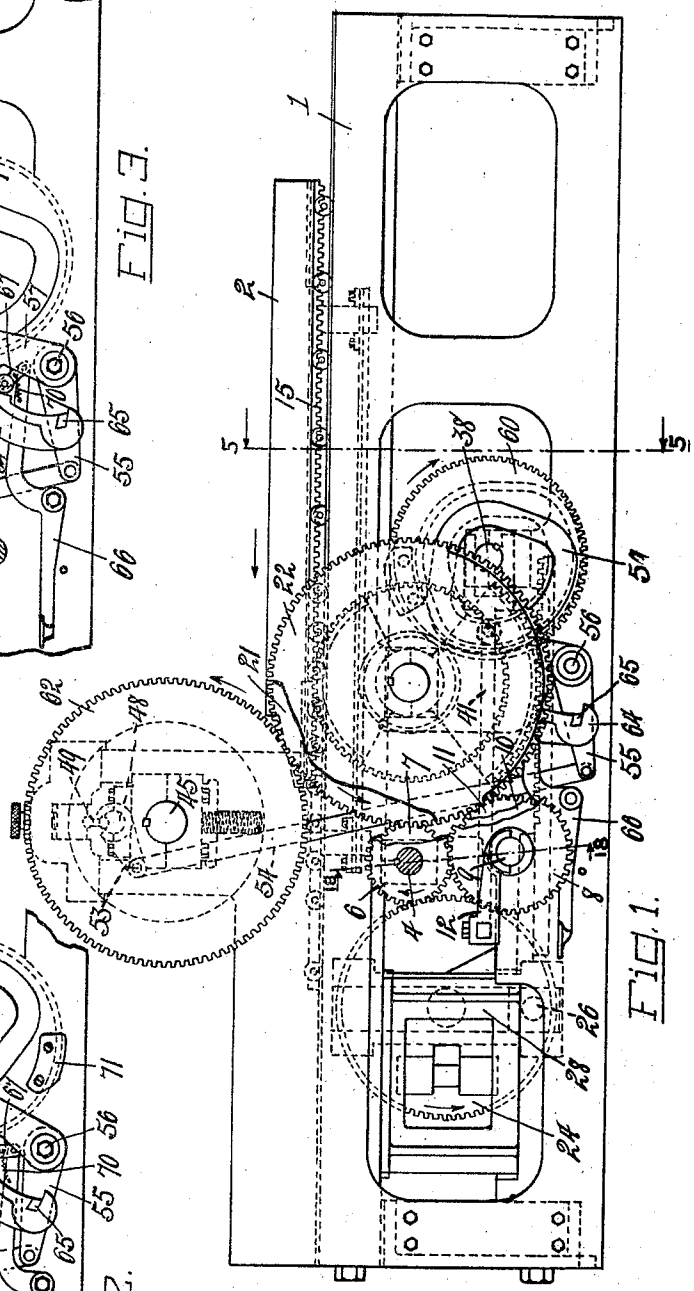


Fig. 1.

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2 SHEETS—SHEET 2.

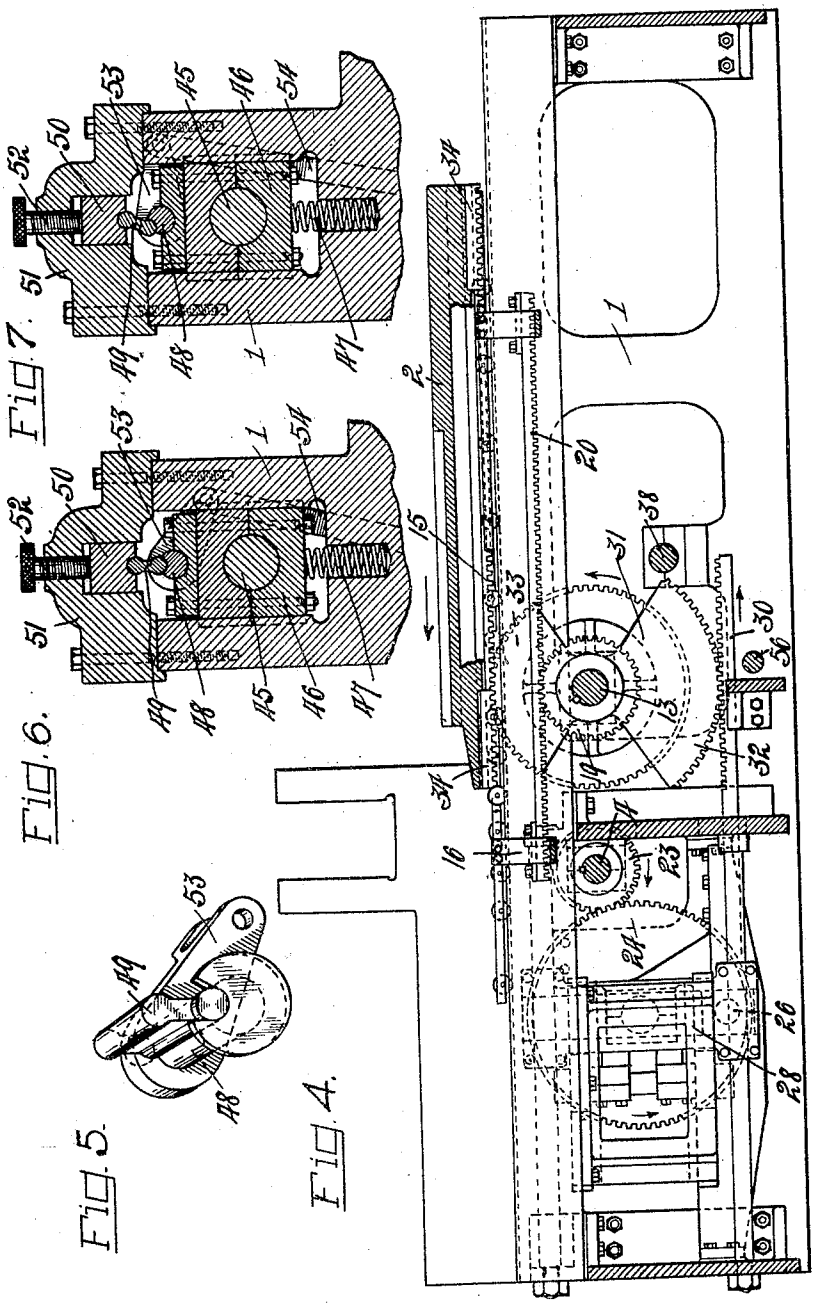


Fig. 7.

Fig. 6.

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

MICHAEL A. DROITCOUR, OF DELPHOS, OHIO.

PRINTING-PRESS.

1,380,469. Specification of Letters Patent. Patented June 7, 1921.

Original application filed April 11, 1917, Serial No. 161,338. Divided and this application filed December 12, 1917. Serial No. 206,754.

To all whom it may concern:

Be it known that I, MICHAEL A. DROITCOUR, a citizen of the United States, and a resident of Delphos, in the county of Van Wert and State of Ohio, have invented a certain new and useful Printing-Press; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates particularly to printing presses of the flat-bed and cylinder type, and is divided out of my co-pending application, Serial No. 161,338, filed April 11, 1917.

The primary object of my invention is the provision, in an apparatus of the class described, of improved mechanism for throwing the cylinder on and off impression, and a preferred embodiment thereof is illustrated in the accompanying drawing, in which,

Figure 1 is a side elevation of a press embodying my invention, with parts broken away. Figs. 2 and 3 are different fragmentary detailed views of the impression control means, with parts in section; Fig. 4 is a longitudinal section with parts removed and parts broken away. Fig. 5 is an enlarged perspective view of a part of the impression control means. Figs. 6 and 7 are enlarged detail sections of the cylinder supporting devices.

Referring to the drawings, 1 designates the press frame, of any suitable construction, and 2 the customary bed, which is mounted for reciprocatory movements under a continuously driven impression cylinder 3, as is well understood in the art.

The main drive shaft 4 of the press is mounted transversely in the frame 1 below the bed 2 and from the shaft reciprocatory movement may be imparted to the bed as set forth in my aforesaid application.

The crank-gear 24 is geared to the shaft 4 to have three revolutions for each cycle of operations of the press or for each single revolution of the impression cylinder, one revolution of the crank gear taking place at each impression and return stroke of the bed and a half revolution of such gear taking place at each reverse stroke.

The journals 45 of the cylinder 3 are carried by bearing blocks 46 (Figs. 6 and 7), which are mounted in vertical guide-ways in the frame 1 for vertical reciprocatory movements. The blocks 46 are yieldingly supported by coiled compression springs 47, which normally act to support the cylinder in raised position with respect to the bed. Each block 46 has a short rock-shaft 48 mounted on the top thereof, being partially seated in a depression provided therefor in the top of the block. The top side of the rock-shaft 48 is recessed longitudinally thereof to form a seat for the lower end of an impression knuckle 49, which rests for pivotal rocking movements on said rock-shaft and has its upper end seating against the under side of a thrust block 50 in pivotal engagement therewith (Figs. 5, 6 and 7). When the knuckle 49 is in vertical position or in radial relation to the rock-shaft 48, the journal block 46 is lowered against the tension of the springs 47 to effect a lowering of the cylinder to impression position, and when the shaft 48 is rocked slightly in one direction or the other the inner end of the knuckle 49 is swung laterally, thereby shortening the distance between the shaft 48 and thrust-block 50 and permitting a raising of the cylinder from impression position. The shaft 48 and knuckle 49 act in the manner of a toggle. The thrust-block 50 is mounted in a head-piece 51 of the frame and is adjusted by means of a screw 52. The ends of the knuckle 49 are provided with trunnions which project into recesses in the flanges provided at the opposite end portions of the rock shaft, as best shown in Fig. 7.

Each rock shaft 48 has a crank arm 53 projecting laterally therefrom and connected by a link 54 to a subjacent rocker arm 55 on the adjacent end of a rock shaft 56, which is journaled in the base portion of the frame 1 transversely thereof (Figs. 1, 2 and 3). The shaft 56 is provided at one end thereof without the frame 1 with a loose rocker arm 57, which is upwardly directed and carries at its free end a roller 58, which travels in a cam-groove 59 in the side of a gear wheel 60 that is mounted on the outer adjacent end

of the shaft 38. The gear wheel 60 is continuously driven by a pinion 61, that is fixed to the continuously driven loose gear 21, the ratio of the gears being such as to cause the gear 60 to make one revolution to each two revolutions of the cylinder 3, which is driven by the gear 21 through a gear 62 of the same size. The rocker-arm 57 has a finger 63 projecting therefrom transversely of its rocking axis and away from the wheel 60, and this finger has a catch or dog 64 pivotally depending therefrom and provided at its lower end with a notch for receiving a stud 65 on a side of the adjacent rocker arm 55. The dog 64 normally engages said stud so that the rocker arms 55 and 57 are locked together for unitary movements in the manner of a bell-crank lever. It is thus evident that during an impression stroke of the bed the cylinder is held in lowered position by reason of the roller 58 traveling in the outer neutral portion of the cam-way 59, as shown in Figs. 1 and 3, and that said roller when traveling in the remaining portion of the cam-way permits the cylinder to move to and remain in impression released position.

An impression trip lever 66 (Figs. 2 and 3), is pivoted to the side of the frame 1, at which the catch 64 is disposed, and has a finger 67 pivotally projecting upward from the outer end of its free arm and carrying a roller 68. This roller is yieldingly held in rolling contact with a cam surface 69 at the upper inner side edge of the catch 64 by a spring 70, and upon a depression of the outer end of the lever 66 the roller 68 is caused to travel up the cam surface 69 and approach the periphery of the cam-wheel 60, and to stand in position for a cam-block 71 on the peripheral portion of the wheel 60 to strike said roller and communicate a trip movement through it to the catch 64 to throw it outward from engagement with the catch-stud 65. This trip can only take place when the roller 58 is in the inwardly retracted portion of the cam-way 59, as is apparent by reason of the position of the parts in Figs. 2 and 3, and the cam-plate 71 is positioned to effect a tripping of the catch 64 shortly before the entrance of the roller 58 into the outer neutral portion of the cam-way 59. It is evident that when the catch 64 is released from the catch lug 65 the rocker arm 57 is permitted to have free rocking movements relative to the shaft 56 and rocker arm 55.

The normal inactive position of the roller 68 with the trip lever raised is shown in Figs. 2 and 3, and a depression of the trip lever from this position with the parts in the positions shown in Fig. 2 will cause a sufficient movement of the roller 68 by the cam surface 69 to place said roller in position to be engaged and moved outward by the block 71 a sufficient distance to disengage the catch 64 from the lug 65.

During each impression stroke of the bed the cylinder 3 is lowered to impression position by reason of the roller 58 on the rocker arm 57 (Figs. 2 and 3) then traveling in the outer neutral portion of the cam-way 59, thus causing the rocker arm 57 to effect a depression of the rocker arms 55 through the medium of the catch 64 which is in engagement with the catch lug 65 on one of said arms 55. The depression of the arms 55 communicates a downward rocking movement to the rocker arms 53 (Figs. 1, 6 and 7) and a consequent rocking of the shafts 48 to move the knuckles 49 to vertical or cylinder depressing position, as shown in Figs. 1 and 7. After the impression stroke, the roller 58 moves to the radially restricted portion of the cam-way 59 and permits a raising of the cylinder to inoperative position. Should it be desired to prevent an impression taking place at any cycle of operations, the operator depresses the foot pedal 66 from the position shown in Fig. 2, thereby throwing the roller 68 upward into position to be engaged by the cam-plate 71 at a predetermined point in its revolution. The engagement of said roller by the cam-plate causes an outward swinging of the catch 64 from stud engaging position, so that a rocking movement of the rocker arm 57 will not be communicated to the rocker arms 55. The cylinder will continue to miss impressions so long as the foot pedal 66 remains depressed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a printing press; an impression cylinder; a rotatable cam; a rocker arm actuated by said cam and having a finger; a second rocker arm below the finger: means controlled by said second rocker arm to move said cylinder on and off impression; a catch carried by the said finger and releasably engaged with said second rocker arm to lock the arms together, said catch having a cam surface; a manually operable lever, a trip member movably carried by said lever adapted when the lever is depressed to be thereby positioned against the cam surface of said catch; and a cam member moving with said cam and adapted to directly engage said trip member and force it to disengage the catch from said second rocker arm when the cam reaches a predetermined point in its revolution.

2. In a printing press, an impression cylinder; a rotatable cam; a rocker arm actuated by said cam; a second rocker arm having a stud; means controlled by said second rocker arm to move said cylinder on and off impression; a catch pivotally hung on said first rocker arm and releasably engaged with said stud to lock the rocker arms together, said catch having a cam surface; an

impression trip lever, a trip member pivotally mounted on said lever and adapted to be positioned thereby against the cam surface of said catch; and a cam member moving with said cam adapted to engage said trip-member and cause it to force the catch out of engagement with said stud when the trip lever is shifted to tripping position, and the cam reaches a predetermined point in its revolution.

In testimony whereof, I have hereunto signed my name to this specification.

MICHAEL A. DROITCOUR.