Oct. 9, 1923. 1,470,588

C. M. KIRKLAND

PAPER FEEDING DEVICE FOR PRINTING PRESSES

Filed Feb. 23, 1922

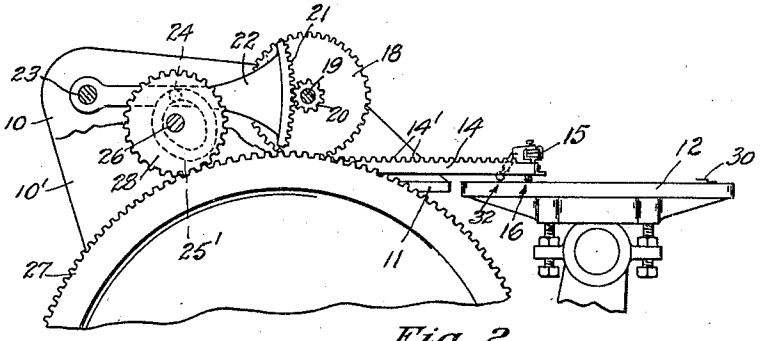


Fig. 2.

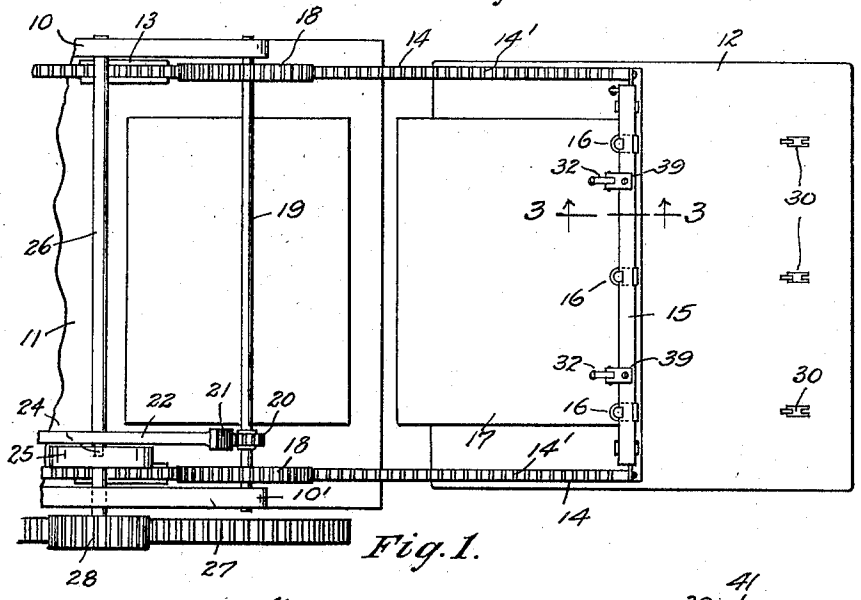


Fig. 1.

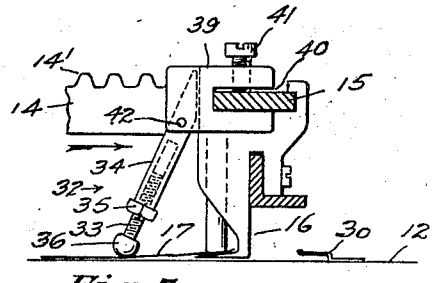


Fig. 3.

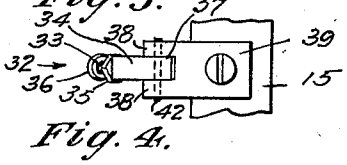


Fig. 4.

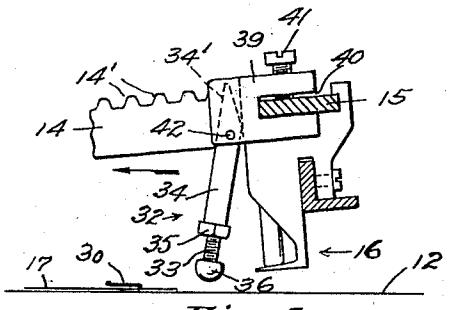


Fig. 5.

INVENTOR:
Carroll M. Kirkland
BY
Pierre Barnes
ATTORNEY

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UNITED STATES PATENT OFFICE.

CARROLL M. KIRKLAND, OF SEATTLE, WASHINGTON, ASSIGNOR TO MILLER SAW TRIMMER COMPANY, OF PITTSBURGH, PENNSYLVANIA.

PAPER-FEEDING DEVICE FOR PRINTING PRESSES.

Application filed February 23, 1922. Serial No. 538,472.

To all whom it may concern:

Be it known that I, CARROLL M. KIRKLAND, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Paper-Feeding Devices for Printing Presses, of which the following is a specification.

This invention relates to printing presses and more especially to job-printing presses.

My invention has, primarily, for its object the provision of devices which will serve to prevent sheets of paper being deposited upon the machine platen from becoming displaced or wrinkled when encountering the stops or guides thereon.

Another object of the invention is to provide devices having the characteristics above noted and which will serve supplementary to the usual or suitable type of paper grippers to facilitate the transfer of sheets of paper successively from the supply table into printable position upon the platen of the machine.

With these ends in view and others as will appear in the following specification, the invention consists in the novel construction, arrangement and combination of parts hereinafter described and claimed.

In the accompanying drawings,—

Figure 1 is a plan view of portions of a job-printing press with devices embodying my invention applied thereto. Fig. 2 is a side elevational view of Fig. 1, with parts broken away to better disclose the feed bar operating mechanism. Fig. 3 is a detail sectional view through 3—3 of Fig. 1. Fig. 4 is a plan view of tracker attachment shown in Fig. 3. Fig. 5 is a view similar to Fig. 3, with the reciprocatory parts therein occupying the position which they assume in the retractile movements of the same with respect to the platen.

As illustrated in the drawings, 10 and 10^1 designates the side members of the frame of a printing press which may be of any usual or suitable construction. This frame is provided between said members with a table 11 upon which is supported a supply of paper, and 12 is the platen to receive the paper to be printed.

Above the table 11 in said frame members are mounted oscillating blocks 13, 13 which are provided with guide-ways for the side bars 14, 14 of a horizontally reciprocating frame, conventionally known as the "bail" and provided at their forward ends with a transverse tie bar 15. Said bail carries upon its bar element 15 paper grippers 16 of usual construction which are engageable with the paper 17 upon the table 11 and by which sheets of paper are transferred from said table to the platen in the successive forward strokes of the bail. As illustrated, the bail is reciprocated in substantially a horizontal direction by means of spur gears 18 on a rocker shaft 19 engaging rack teeth 14^1 provided on the bail members 14. The shaft 19 is journaled in bearings provided in the frame members 10, 10^1, said shaft having mounted thereon a spur pinion 20 in mesh with gear teeth 21 provided upon a segment 22 which is arranged for substantially vertical oscillatory movements about a pivot shaft 23.

The up and down movements of the segment 22 is attained by means of a stud 24 projecting from the segment 22 into a cam groove, such as indicated by dotted lines 25^1 in Fig. 2, of cam 25 mounted upon a shaft 26 which is continuously rotated during the operation of the press as by means of a power driven spur gear 27 driving a gear 28 provided upon the cam shaft 26.

Secured to the bail bar 15 is a plurality of grippers, indicated generally by 16, which serves to engage by suction, or otherwise, sheets of paper adjacent to their forward edges to convey the same successively from the table 11 onto the platen until the paper encounters positioning stops 30 provided on the platen, which stops arrest the travel of the paper while the grippers are carried with the bail for a short distance beyond said stops.

At or about the end of its forward travel the blocks 13 are affected to raise the front end of the bail, see Fig. 5, and in which elevated position the bail is returned to receive the next sheet of paper.

All of the above mentioned parts are or may be with respect to their construction, arrangement and manner of operation similar to what are now employed in the feed mechanism of well konwn types of job printing presses.

The principal objection to the above described feeding mechanism is due to the arresting of the travel of the paper sheets by the stops 30 prior to the paper being

released from the grippers whereby the inertia of the paper and the drag, so to speak, of the grippers subsequent to the stopping of the paper acts to cause the latter to become wrinkled or bulged, which is not conducive to good printing.

My invention serves to overcome the objection to wrinkling above referred to by the provision of trackers depending from the bail bar 15 so as to follow the grippers in the paper feeding movements thereof and act to prevent or eliminate wrinkling of the paper when deposited upon the platen in position to be printed.

Each of said trackers consists of a finger 32 which is desirably made extensible by the provision of a screw threaded stem 33 taking in a threaded socket of a complementary element 34.

A lock nut 35 may advantageously be employed on the stem 33 in juxtaposition with the end of the part 34 to secure the tracker parts in adjusted relations with respect to each other.

The lower extremity of said stem is preferably formed to provide a relatively large foot 36 of a rounded or semi-globular shape to enable the same to travel over paper without injury thereto.

The upper portion of the tracker part 34 extends into a vertical slot 37 afforded between two lugs 38 provided at the rear side of a bracket block 39 having at its front side a horizontal slot 40 to receive the bail bar 15 and to which the bracket block is rigidly secured as by means of a clamping screw 41.

A tracker, furthermore, is pivotally connected to the associated block 39 by means of a pin 42 engaging in the bracket lugs 38.

This pin is located at a short distance below the upper end of the tracker part 34 to provide an arm 34^1 which is arranged to engage against the block between the lugs 38 to limit the rearward swing of the tracker when traveling forward with or upon the paper as indicated by direction arrow in Fig. 3. When thus traveling the foot 36 of the tracker serves to hold down upon the platen the sheet of paper being fed thereto and subsequent to the paper being arrested by the stops 30, the tracker foot serves to press out any hummocks or wrinkles at or near the front edge of the paper.

What I claim, is,—

1. In a printing-press, the combination with paper feeding mechanism including a bail provided with gripper devices for conveying successive sheets of paper onto the platen of the press, and stops secured to said platen for arresting the paper at a printing position on the platen, of trackers depending from said bail and arranged to press downwardly upon each sheet of paper after the same has engaged said stops.

2. In a printing-press, the combination with the work-feeding bail and the gripper devices thereon, of means depending from said bail and adapted to bear downwardly upon the work after said gripper devices have left the same.

3. In a printing-press, the combination with the work-feeding bail and the gripper devices thereon, of gravity actuated means carried by said work-feeding bail and adapted to bear downwardly upon the work after said gripper devices have left the same.

4. In a printing-press, the work-feeding mechanism including a reciprocating bail and paper-grippers provided thereon for conveying successive sheets of paper into printing position on the press, of brackets attached to said bail, and finger devices depending from the respective brackets and pivotally connected thereto for oscillatory movements said fingers being extensibly adjustable.

5. In a printing-press, work-feeding mechanism having a bail arranged for substantially horizontal reciprocatory travel, said bail being provided at its front end with a transverse bar member, work grippers connected to said bar member for conveying sheets of paper successively to the printing position therefor on the press, a plurality of brackets connected to said bar member, a work engaging finger connected by pivot pins to the respective brackets and depending therefrom, and means to limit the swinging movements of said fingers with respect to said grippers.

Signed at Seattle, Washington, this 11th day of February, 1922.

CARROLL M. KIRKLAND.

Witnesses:

PIERRE BARNES,

MARGARET G. SUPPLE.