

July 26, 1938.

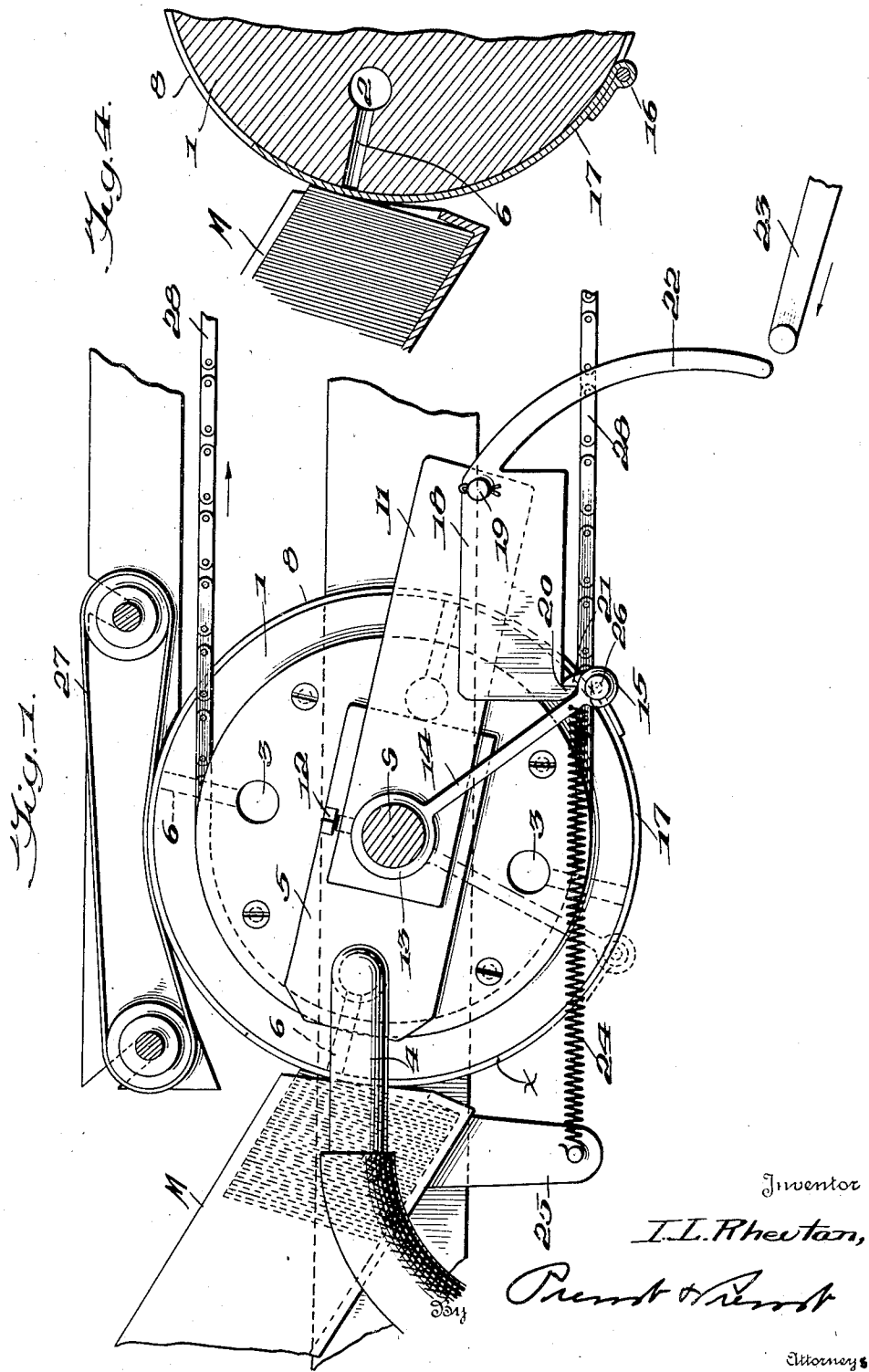
I. L. RHEUTAN

2,125,199

FEEDING MECHANISM FOR PRINTING PRESSES

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2 Sheets-Sheet 1



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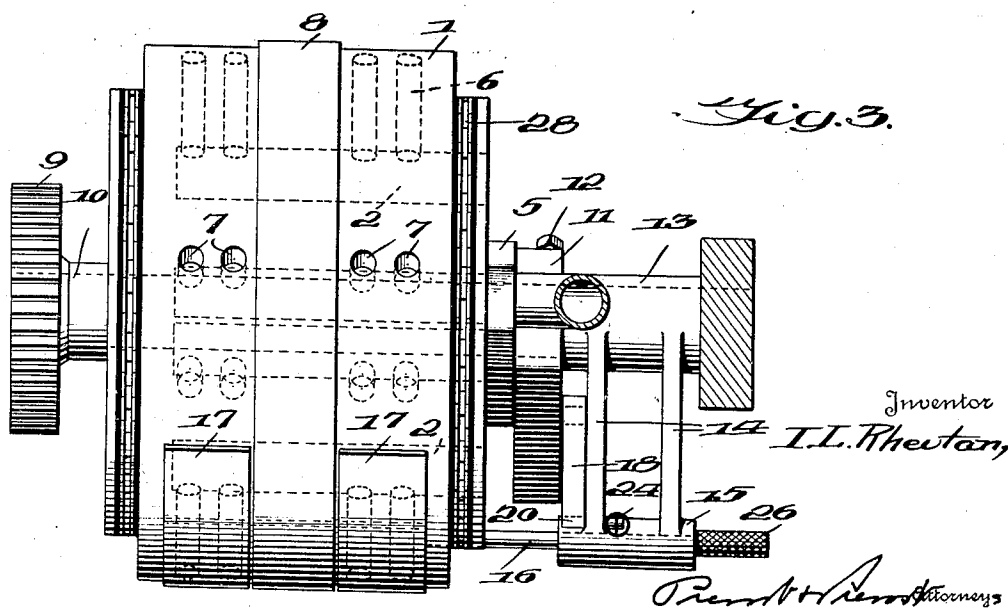
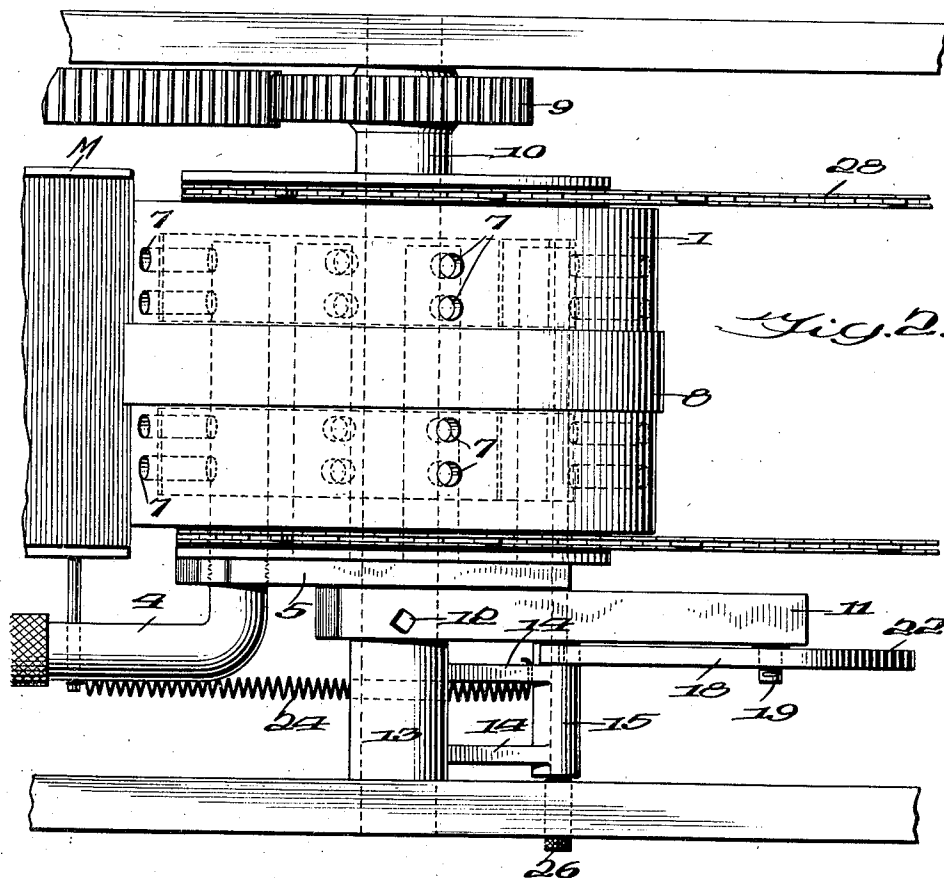
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UNITED STATES PATENT OFFICE

2,125,199

FEEDING MECHANISM FOR PRINTING PRESSES

Isaac L. Rheutan, Richmond, Va.

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9 Claims. (Cl. 271—56)

My invention consists in new and useful improvements in feeding mechanism for printing presses and relates more particularly to that type of printing press employing a rotary suction head which successively removes articles to be printed from a magazine and delivers them to the printing mechanism.

In printing machines it is customary to employ a feeler device in connection with the feed rollers to the printing mechanism whereby upon the failure of an article to properly feed to the printing cylinders, a train of mechanism becomes operative to shut off the motive power of the press and at the same time to operate a valve for shutting off the suction to the suction head so that no further articles will be fed.

There are certain disadvantages in this type of equipment due to the fact that the valves and operating parts therefor are complicated in structure and require extreme accuracy in construction and operation in order to be effective. Furthermore, the momentum of the rotary head is ordinarily sufficient to carry articles along with it even after the motive power has been shut off, thus causing a waste of articles.

It is an object of my invention to provide in connection with a rotary suction head, means operable by the conventional trip or throw-off mechanism for interrupting the feed of articles from the magazine by intercepting the suction between the article and the periphery of the suction head, simultaneously acting as a brake on the head under the influence of said suction.

A further object of my invention is to provide a device of this character which is simple in construction and easily adaptable to conventional rotary suction heads without material alteration.

A still further object of my invention is to provide an interrupter mechanism of this nature which will eliminate the necessity of an emergency valve which is usually required for shutting off suction to the suction head upon failure of an article to feed properly to the printing mechanism.

Finally, it is an object of the present invention to provide an interrupter which is entirely automatic and positive in its operation.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel features hereinafter set forth, illustrated in the accompanying drawings and more particularly pointed out in the appended claims.

Referring to the drawings in which numerals

of like character designate similar parts throughout the several views,

Fig. 1 is a transverse section through the supporting shaft, showing the rotary head and interrupter in side elevation, the latter being in inactive position.

Fig. 2 is a plan view of the same.

Fig. 3 is a view at right angles to Fig. 2, looking from the direction of the magazine, and

Fig. 4 is a fragmentary section showing the active position of the interrupter.

In the drawings, 1 represents a conventional rotary suction head mounted on a stationary shaft S, said head being provided with a series of transverse conduits 2 drilled from one end of said head to a predetermined depth, terminating outwardly in end ports 3 adapted to successively register with a suction coupling 4 secured to and extending through a suction plate 5 fixed on the stationary shaft S in abutting engagement with the port end of the head. Each of the conduits 2 is in communication with the periphery of the suction head through radially extending passages 6 which terminate in peripheral ports 7. For the purpose of illustration, I have shown the suction head 1 of the type having a peripheral rib 8 to facilitate the separation of the lowermost article to be printed as it is removed from the magazine M, the radial passages and ports 6, 7 being arranged in pairs on either side of said rib so as to equalize the suction grip on the article.

Any suitable mechanism may be employed for causing the rotation of the suction head 1; for example, a gear 9 fixed to the hub 10 of the suction head may be operated by a train of gears from the source of power for the printing press.

In close engagement with the suction plate 5, I provide a supporting plate 11 mounted on the shaft S and secured thereon by a set-screw 12, the purpose of said supporting plate being hereinafter set forth.

Adjacent the supporting plate 11 and rotatably embracing the shaft S is a sleeve 13 from which depend two arms 14, the lower ends of which terminate in an integral boss 15. The boss 15 supports a transverse bar 16 which extends across a portion of the periphery of the head and to which is secured by welding or other suitable means, a pair of resilient spring steel strips 17, the latter being curved to conform to the curvature of the periphery of the head 1. The spring strips 17 are arranged one on either side of the peripheral rib 8 in the line

of rotation of the ports 7, there being a slight clearance between their inner surfaces and the periphery of said head.

The free ends of the strips 17 normally terminate preferably at a point just below the magazine M (as shown at x in Fig. 1) and are retained in this position by means of a latch member 18 pivoted at 19 on the supporting plate 11. This latch member is provided with a lug 20 which engages a complementary lug 21 on the boss 15, the member 18 being pivoted off-center as shown in Fig. 1 so that its weight normally retains the latch in locking position. The other end of member 18 carries a depending arm 22 which is arranged in line for engagement by a thrust rod 23 operatively connected to the conventional trip mechanism of the printing press (not shown). This thrust rod 23 is actuated in the direction of the arrow (Fig. 1) by the trip mechanism of the press upon the failure of an article to properly feed to the printing mechanism, which structure is well known in the art.

A spring 24 extends preferably from one of the arms 14 to a bracket 25 on the magazine M or to any other suitable point on the frame of the machine whereby upon release of the latch plate 18, the arms 14 and the spring strips 17 will be caused to rotate about the shaft S, bringing the ends of the strips 17 between the lowermost article in the magazine M and the periphery of the head 1 as shown in Fig. 4. Thus, when the strips are in this position, they serve to intercept the feed of articles from the magazine and at the same time are brought adjacent the active suction ports 7 which tend to draw them against the periphery of the head 1, rendering the suction ineffective and serving as a brake to retard the rotation of the head.

The arms 14 and strips 17 may be returned to normal locked position by a suitable handle 26 secured to the boss 15 as shown in Figs. 2 and 3, whereupon the latch plate 18 resumes its locked position until again released by the thrust rod 23.

A conventional endless belt and roller mechanism 27 (Fig. 1) may be employed as a hold-down means for articles being fed, the belt engaging the periphery of the rotary head 1 so as to retain the articles in place until they are deposited on the spaced conveyor chains 28, also of conventional design, by means of which they are fed to the printing mechanism.

In operation, suction is applied continuously through the suction line and coupling 4, and as the drum is rotated by the train of gears from the power source, the end ports 3 are successively brought into register with the opening in the suction plate 5, thereby applying suction to the respective peripheral ports 7 as they approach the article magazine M. The lowermost article is withdrawn as each set of peripheral ports becomes active, the suction remaining effective until the edge of the article is engaged between the endless belt 27 and the periphery of the head 1. The continued rotation of the head breaks the suction and deposits the articles on the spaced conveyors 28 in the usual manner.

In the event an article fails to feed properly to the printing mechanism, the conventional feeler device (not shown) becomes effective to shut off the motive power to the head and force the thrust rod 23 rearwardly into engagement with the latch arm 22, tripping the latch plate 18 as heretofore pointed out, and releasing the arms 14 and spring strips 17 which, under the force of the spring 24, are caused to rotate on the shaft

S to the position shown in Fig. 4. In this position, the articles in the magazine M are intercepted, the suction is rendered ineffective, and the strips under the suction of the head, act as a brake to retard the rotation of the head.

From the foregoing it is believed that the construction and advantages of my invention may be readily understood by those skilled in the art without further description, it being borne in mind that numerous changes may be made in the details disclosed without departing from the spirit of my invention as set out in the following claims.

What I claim and desire to secure by Letters Patent is:

1. In feeding mechanism for printing presses, the combination with an article magazine and a suction head for successively withdrawing articles therefrom, of an intermittently operable interrupter adapted to intercept the suction between the lowermost article in said magazine and the suction face of said head, and means for controlling the operation of said interrupter.

2. In feeding mechanism for printing presses, the combination with an article magazine and a rotary suction head for successively withdrawing articles from said magazine, of an intermittently operable interrupter adapted to intercept the suction between the lowermost article in said magazine and the periphery of said rotary head, and means for controlling the operation of said interrupter.

3. In feeding mechanism for printing presses, the combination with an article magazine and a rotary suction head for successively withdrawing articles from said magazine, of an intermittently operable interrupter adapted to intercept the suction between the lowermost article in said magazine and the periphery of said rotary head, and a latch member releasable upon the operation of the throw-off mechanism of the press for controlling the operation of said interrupter.

4. In feeding mechanism for printing presses, the combination with an article magazine and a cylindrical suction head rotatably mounted on a supporting shaft, arranged with its periphery adjacent the lowermost article in said magazine, of an interrupter comprising a supporting yoke rotatably mounted on said shaft, an interrupter strip carried by said yoke and disposed adjacent the periphery of said head, said strip conforming substantially to the curvature of said periphery and lying normally in axially spaced relation thereto, a latch member for normally retaining said yoke and strip in inoperative position, spring means for rotating said yoke upon the release of said latch, whereby said strip intercepts the suction between the lowermost article in said magazine and the periphery of said head, and means controlled by the printing press for controlling said latch.

5. In feeding mechanism for printing presses, the combination with an article magazine and a cylindrical suction head rotatably mounted on a supporting shaft, arranged with its periphery adjacent the lowermost article in said magazine, of an interrupter comprising a supporting yoke rotatably mounted on said shaft, an interrupter strip carried by said yoke and disposed adjacent the periphery of said head, said strip conforming substantially to the curvature of said periphery and lying normally in axially spaced relation thereto, a latch member for normally retaining said yoke and strip in inoperative position, spring means for rotating said yoke upon the release of

said latch, whereby said strip intercepts the suction between the lowermost article in said magazine and the periphery of said head, means controlled by the printing press for controlling said latch, and means for returning said interrupter to inactive position.

5 6. A feeding mechanism for printing presses including an article magazine, a cylindrical suction head rotatably supported on a shaft with its 0 periphery adjacent the lowermost article in said magazine, peripheral suction ports in said head, means for applying suction thereto, an interrupter slidable to a position between the lowermost 5 article in said magazine and the periphery of said head, and means for controlling the operation of said interrupter.

7. A feeding mechanism for printing presses including an article magazine, a cylindrical suction head rotatably supported on a shaft and provided with a plurality of rows of peripheral suction ports, means for applying suction thereto, 0 an interrupter including a plurality of resilient curved strips movably supported adjacent the periphery of said head in line with respective rows 5 of suction ports, means for normally retaining said strips in inactive position, means for moving said strips to a position between the lowermost article in said magazine and the active suction

ports, and means for controlling the release of said retaining means.

8. A feeding mechanism for printing presses including an article magazine, a cylindrical suction head rotatably supported on a shaft and 5 provided with a plurality of rows of peripheral suction ports, means for applying suction thereto, an interrupter including a plurality of resilient curved strips movably supported adjacent the 10 periphery of said head in line with respective rows of suction ports, a latch for normally retaining said strips in inactive position, spring means for moving said strips to a position between the lowermost article in said magazine and 15 the active suction ports, and means for controlling the release of said latch.

9. In a feeding mechanism for printing presses including an article magazine, a suction head adapted to successively remove articles from said magazine, means for applying suction to said 20 head, an interrupter plate movable into a position between the lowermost article in said magazine and the suction face of said head, means for normally locking said plate in inactive position, and means operable upon the release of said 25 locking means for moving said plate into intercepting position.

ISAAC L. RHEUTAN.