Aug. 16, 1932. W. FRIEDRICHS 1,871,506

MAIL STAMPING MACHINE AND THE LIKE

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Fig. 1

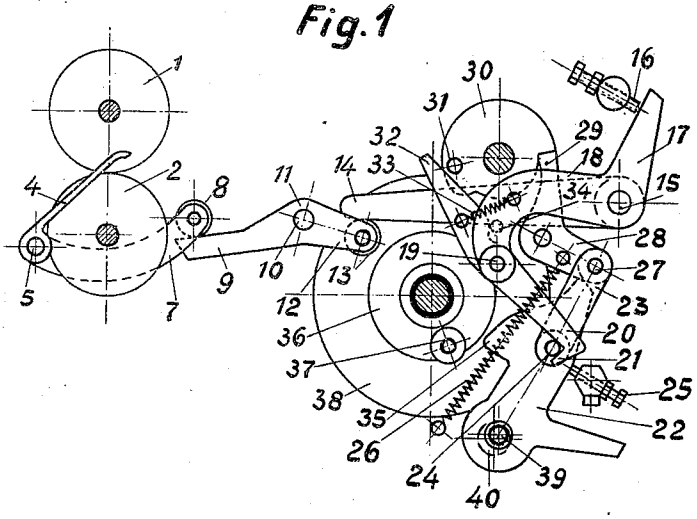

Fig. 2

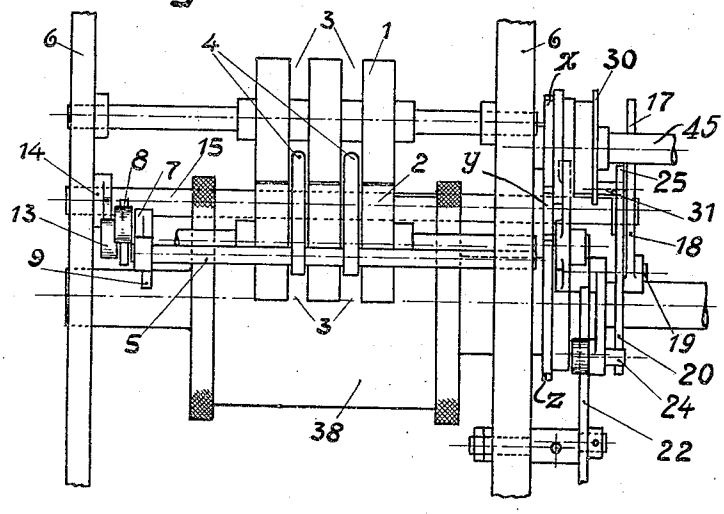

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Fig.3

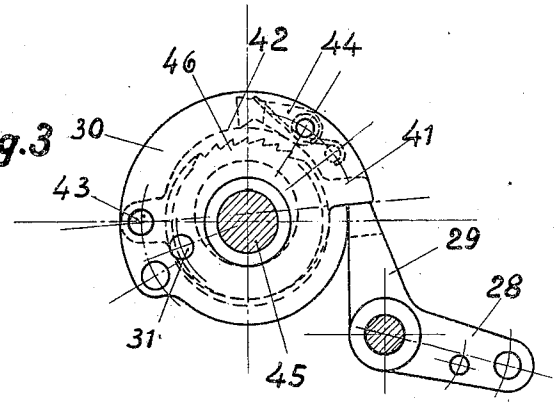


Fig.4 (A-B)

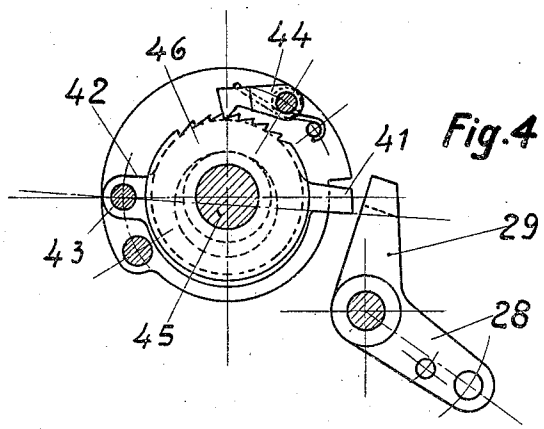
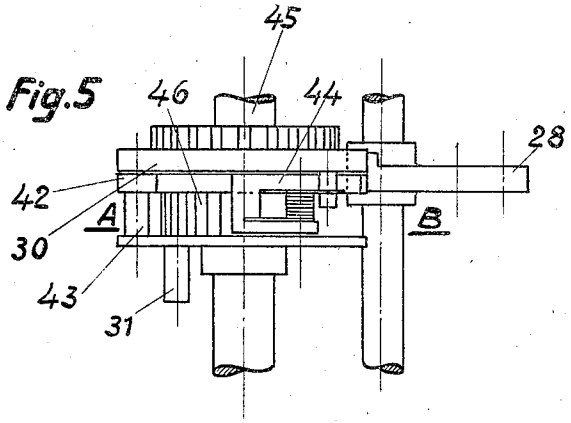


Fig.5



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Patented Aug. 16, 1932 1,871,506

UNITED STATES PATENT OFFICE

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MAIL STAMPING MACHINE AND THE LIKE

Application filed September 11, 1929, Serial No. 391,930, and in Germany September 13, 1928.

This invention refers broadly to cash-paid mail stamping machines and the like and it is intended to increase the reliability and facilitate the manipulation of such machines and to generally improve and simplify the construction thereof. More particularly the invention refers to a mail stamping machine with coupling or releasing means controlled by the piece of mail to be operated upon. By means of such coupling means the stamping or printing roller is coupled with the driving means upon the insertion of the piece of mail into the machine. Now my invention is distinguished over the previous art by the fact that the operation of the coupling means for the stamping or printing roller is effected by the bending of an elbow or toggle lever which is connected with a pawl which actuates the coupling means. This bell-crank or elbow lever is spring-actuated in such a manner that after said lever has been slightly bent by the action of a feeler or finger operated upon by the mail matter or the like, the action of the spring will complete the bending or tilting movement of this lever. The toggle or elbow lever is restored to its inoperative position after the lapse of a period corresponding approximately to the passage of a piece of mail matter of ordinary length and by means of a member which is firmly coupled with the printing or stamping roller. This particular arrangement of the important parts of the machine presents the advantage of a particularly simple construction and of a readily responding release combined with very sensitive and prompt operation, so that the article operated upon is not unduly strained or attacked. The parts which are in operative engagement with the tilting, elbow or bell-crank lever are preferably returned to their inoperative position substantially by the action of gravity, their own weight being accordingly operative in effecting the final coupling of the parts. This arrangement produces the advantage that unintentional disengagement and release of the parts, otherwise liable to occur as a result of the shocks and vibration incident upon the mail service will be avoided.

My invention will be more particularly described by reference to the accompanying drawings showing by way of exemplification an embodiment of the principles of the invention in Figure 1 in side elevation, showing particularly the releasing device; Figure 2 is a front view of the same. Figure 3 is a front view of the coupling in the disengaged position. Figure 4 is a section on the line A—B of Figure 5, showing the coupling means in the position of engagement, and Figure 5 is a top plan view of the coupling means.

The other parts of the stamping and printing machine, that is to say, the adding device used in connection therewith and the locking means actuated by the adding device, and the adjusting means for the type wheels usually disposed on the stamping or printing roller have not been shown in the drawings for the sake of clearness of illustration, as they do not form part of the invention.

In the drawings:—1 and 2 are the feeding rollers between which the article to be operated upon is introduced. These rollers are provided with grooves 3 adapted for the engagement of feeler levers or fingers 4 which are pivotally mounted in the frame 6 of the machine by means of the stud 5. By means of this stud 5 the feeler lever 4 is rigidly connected to the lever 7, so that it will follow the oscillating movements of the feeler levers. At the extremity of the lever 7 a roller 8 is rotatably arranged which operates the arm 9 of the two-armed lever 11 which is rockingly disposed upon the bolt or stud 10. The other arm 12 of this two-armed lever is provided with a roller 13 and is adapted to engage below the end of the lever 14 which is rockingly mounted in the frame 6 of the machine on the stud 15. The downward movement of the lever 14 is limited by the adjustable stop 16 which becomes operatively engaged with a lever arm 17 rigidly connected to the lever 14. Upon a shoulder or projection 18 of the lever arm 17 the pawl 20 is pivoted at 19. The hook 21 of the pawl 20 embraces the middle joint of a tilting or toggle lever 22, 23. In the position shown

in the drawings this lever 22, 23 rests against the adjustable stop 25 under the action of a spring 26. This spring is connected to the arm 28 of a two-armed lever the other arm 29 of which is engaged in a recess of the disc 30, the arm 28 being connected to the outer portion of the toggle lever. By the engagement of the disc 30 with the arm 29 of the two-armed lever the disc 30 is arrested and at the same time it produces the disengagement of the coupling between the stamping or printing roller and the operating gear of the machine by means otherwise well known in the art and not forming part of this invention. On this disc 30 a stud 31 is arranged which cooperates with a projection or arm 32 of the pawl 20 which embraces the middle joint of the toggle or elbow lever 22, 23, and thereby affects the same in the manner hereinafter described. To this projection 32 of the pawl 20 a spring 33 is connected the other end of which is connected to the lever 18 which is integral with the members 14 and 17 and constitutes the mounting means for the pawl 20, 21 with its extension 32. This spring 33 pulls the arm 32 against a stud 34 secured to the lever 18.

The portion 22 of the toggle or elbow-lever 22, 23 carries a shoulder 35 which cooperates with the stud 37 rigidly secured to the disc 36. The manner of operation of these parts and the results thereby produced will be more fully described hereinafter. The disc 36 is firmly coupled to the stamping or printing roller 38, so that this disc 36 rotates only provided the stamping roller is coupled to the operating gear of the machine.

The stud or bolt 39 which constitutes the second exterior joint of the toggle lever 22, 23 carries an eccentric disc or a cam 40 which is rotatably mounted in the frame of the machine and may be locked in position by suitable means. By turning this cam 40 the lower end of said toggle lever may be laterally displaced so that by this turning movement the position of the lever 22, 23 with relation to the pawl 20 can be adjusted. By the operation of this cam 40 the lever will be so adjusted that in the terminal position shown in the drawings of the joint 24 of the toggle lever or the like 22, 23 a slight pull exerted upon the said joint towards the left of the illustration on the drawing will produce the folding up of the said toggle lever or the like by the action of the spring 26. As a result of the friction affecting the joints of the said toggle lever this folding action will occur, as soon as the toggle lever in its terminal position has become very slightly rocked towards the left hand side of the drawings.—The adjustable stop 25 serves for the purpose of absorbing the momentum of the said toggle lever at the proper time, when it is restored to its terminal position represented in the drawings.

The mode of operation of the device is substantially as follows:—Upon the introduction of an article to be stamped or printed upon, for instance a piece of mail matter or the like between the revolving feeding rollers 1 and 2 the said article will depress the feeler levers 4, so that the lever arm 7 connected thereto will rock the two-armed lever 11 in the anticlockwise direction. In consequence thereof the arm 12 of this two-armed lever rocks the lever 14 and accordingly also the arm 18 which is rigidly connected thereto in the clockwise direction, so that the pawl 20 which is pivoted to the lever arm 18 is drawn towards the left-hand side of the drawings. In its movement the pawl will move the middle joint 24 of the toggle or folding lever 22, 23. After an only very slight movement towards the left of this middle joint of the lever the spring 26 produces a quick folding up of the parts of this toggle lever 22, 23 and consequently the rapid rocking of the pawl or arm 29 of the lever 28, 29 in the clockwise direction. This arm will therefore release the disc 30 and thereby produces the coupling of the stamping roller 38 or the like with the operating gear of the machine. The disc 30 rotates together with the stamping roller 38. After the said stamping roller 38 and the disc 30 have almost finished their rotation the stud 31 secured to the disc 30 strikes against the extension 32 of the pawl 20, and thereby causes the arm 32 and the pawl 20 to be rocked in the anticlockwise direction, provided however that at this moment the end portion of the article operated upon is still retained between the feeding rollers 1 and 2, so that the feeler levers 4 are still depressed and the arm 32 at this moment is still in the path of the stud 31 on the disc 30 as a result of the raising of the lever arm 18.

By means of the rocking of the pawl 20 the hook 21 of this pawl is moved out of the path of the link-bolt 24 of the toggle lever or the like 22, 23, so that the hook does not interfere with the rocking back of the toggle lever into its terminal position shown in the drawings. This return movement is effected by the impingement of the bolt or stud 37 of the disc 36 against the projection or shoulder 35 of the section 22 of the toggle lever 22, 23. As a result of the rocking back of the said toggle or folding lever 22, 23 the pawl 29 is caused to become again engaged with the disc 30, so as to also cause the disengagement of the coupling between the disc 30 and the disc 38 on the one hand and of the operating gear of the machine on the other hand.

The coupling means represented in figures 3 to 5 of the drawings are substantially constructed and arranged as follows. The pawl 29 hereinbefore referred to in its position of

rest becomes engaged below the lug or projection 41 of a steering and controlling member 42 which is rockingly mounted at 43 on the disc 30 upon which a spring actuated pawl 44 is engagingly disposed. As soon as the steering or controlling member 42 becomes released by the lever or pawl 28, 29, the said member 42 descends by gravity by being rotated about its pivot 43 and by the action of the pawl spring. This causes the pawl 44 itself to engage the ratchet wheel 46 which is disposed on the driving shaft 45 and becomes exposed for engagement with the pawl by the rotation of the member 42. Now, rotation of the driving shaft 45 produces through the pawl and ratchet connection a clockwise rotation of the disc 30, which by suitable gearing x, y, z operates the record roller either by means of the disc 36 or directly. It is obvious that by the engagement of the pawl member 29, 28 with the lug 41 which is thereby raised the operation of the record roller 38 is interrupted.

In the claims, the term "locking means" and "locking lever" is used for the member 29. As will be perceived from Figures 3—5, this covers an uncoupling of the disc 30 which is effected by the driving shaft 45 owing to the fact that the lever 29 is swung out of the position shown in Fig. 4 into the position shown in Fig. 3. The projection of the disc 30 now comes in contact with the lever 29 and thereby effects a locking or a rotation of the disc 30 and of the stamping roller 38 in driving connection with the said disc over the toothed wheels x, y and z. In the constructional form shown by way of example, the lever 29 serves as uncoupling and locking member. If the stamping roller is sufficiently braked or the correct normal position of the stamping roller is ensured after a rotation in another manner, for instance, by a pawl falling in a notch, it will also be sufficient if the lever 29 merely effects the uncoupling. Finally, the lever 29 may also lock the disc 30 and in consequence of the resistance then effect the uncoupling by other means. Consequently the term "locking" should be construed in its broadest sense for the lever 29. It may be stated that it serves for stopping or arresting the roller.

It will be understood that the scope of the invention is not limited to the particular exemplification herein shown and described, and that it is susceptible of modifications and changes and equivalent parts may be used within the terms of the appended claims.

I claim:—

1. In a device of the kind described in combination, a record bearing roller, a rotatable operating member, operatively engageable with said roller, locking means for said member, link-connected foldable operating means linked to said locking means, an actuating spring acting upon said operating means, feeding means, and levers engageable with the feeding means and with the operating means, and adapted to release the locking means in order to make active the record-roller.

2. In a device of the kind described in combination, a record-bearing roller, a rotatable operating member, operatively associated with said roller, a locking lever engageable with said member, a foldable spring actuated toggle lever, operating means engageable with the toggle lever rockable mounting means for said operating means, feeding rollers, and levers engageable with the feeding rollers and with the mounting means, and adapted to release the locking lever and the toggle lever and actuate the record bearing roller upon a slight initial movement of said toggle lever, and means to restore the locking member to its operative position.

3. In a device of the kind described in combination, a record roller, an operating disc operatively connected to said roller, a locking lever engageable with the disc, a spring actuated foldable toggle lever linked to the locking lever, a spring actuated pawl engaging the toggle lever, a rockable mounting lever for said pawl, feeding rollers, feelers engaging the feeding rollers, and levers intermediate the feelers and the mounting lever, an extension on said pawl, and means engaging said extension and adapted to withhold the pawl from engagement with the toggle lever until the return of the feelers to their position of rest.

4. In a device of the kind described in combination, a record roller, feeding rollers for the insertion of articles to be recorded and stamped, a rotatable disc operatingly engaging the record roller, a spring actuated foldable toggle-lever, locking means linked to said toggle-lever and engageable with the disc, a spring-actuated pawl engaging the toggle lever and adapted to swing the toggle-lever in one direction, a rockable mounting lever for said pawl, spacedly and rigidly connected feelers engaging the feeding rollers, operating levers engaged by the feelers and means in operative connection with said record roller and engageable with the toggle-lever and adapted to swing it in the opposite direction.

5. In a device of the kind described in combination, a record roller, a spring actuated foldable toggle lever, pivoting means for said toggle lever, and substantially cam-shaped setting means on said pivoting means for adjusting the relative initial position of said toggle lever, actuating means for said record roller, locking means for said actuating means and linked to the toggle lever, and operating means for said toggle lever, feeding rollers, feelers engaging the feeding-rollers and lever-connection of the feelers with the toggle lever operating means.

6. In a device of the kind described in

combination, a record roller, a spring actuated foldable toggle lever, pivoting means for said toggle lever, and substantially cam-shaped setting means on said pivoting means for adjusting the relative initial position of said toggle lever, actuating means for said record roller, and locking means for said actuating means, said locking means linked to the toggle lever, and operating means for said toggle lever, feeding rollers, feelers engaging the feeding rollers, and article-actuated lever-connection of the feelers with the toggle lever operating means.

In testimony whereof I affix my signature.

WILHELM FRIEDRICHS.