No. 609,437. Patented Aug. 23, 1898.

E. M. JILLSON.

PAPER FEEDING MACHINE.

(No Model.) (Application filed July 26, 1897.)

Fig. 4.

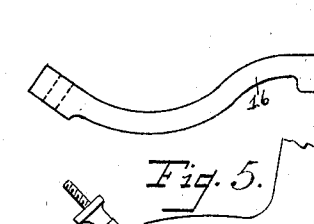


Fig. 5.

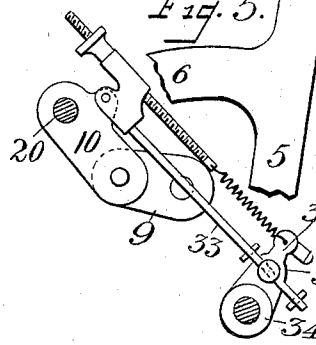


Fig. 1.

Fig. 2.

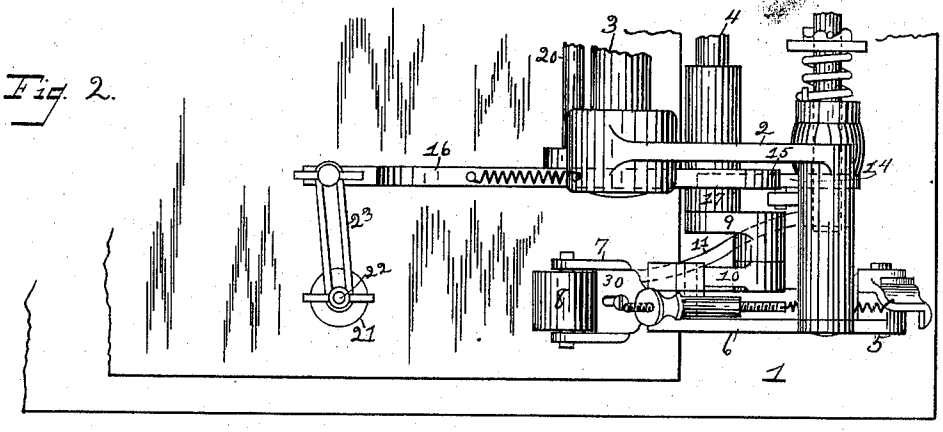
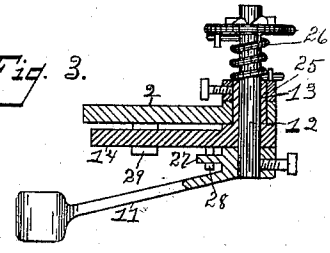


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWIN M. JILLSON, OF WEST CARROLLTON, OHIO.

PAPER-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 609,437, dated August 23, 1898.

Application filed July 26, 1897. Serial No. 645,992. (No model.)

To all whom it may concern:

Be it known that I, EDWIN M. JILLSON, a citizen of the United States, residing at West Carrollton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Paper-Feeding Machines; and I do 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 figures of reference marked thereon, which form a part of this specification.

This invention has reference to improvements in paper-feeding mechanism by which the sheets of paper are fed from a pile to be subsequently operated upon by the mechanism of a printing-press, ruling-machine, or other machine. These machines are provided with a table upon which the pile of paper is supported and which is automatically raised as the sheets are fed off from the top of the pile, a sliding buckling-finger for buckling or raising a portion of each top sheet to admit air thereunder, and thereby insure a proper removal of each sheet of paper, holding-down fingers for holding the sheets as they are being buckled, and a pile-retaining finger for holding the pile of paper in position. These devices and the means for operating them are shown and described in Letters Patent of the United States No. 434,629, dated August 19, 1890. In the present organization the sliding buckling-finger is operated as formerly; but the pile-retaining finger and the arm which carries the holding-down or gage foot are operated by a single cam.

The object of the present invention is to provide means for obtaining a substantially shorter buckle of the paper than has heretofore been obtained, whereby a more positive feed of the paper is obtained and the liability to buckle two sheets at a time is obviated.

A further object of the invention is to reduce the mechanism necessary to feed the paper and to dispense with the use of separate cams for operating the pile-retaining finger and the arm to which the gage-foot is attached.

In the accompanying drawings, Figure 1 is a front elevation of the sheet-buckling mechanism. Fig. 2 is a top plan view of the same. Fig. 3 is a section on the line x x of Fig. 1. Fig. 4 is a detached view of the rock-arm and its actuating-cam. Fig. 5 is an elevation with parts broken away to more clearly show some of the connections of the mechanism for operating the pile-retaining finger.

Similar numerals indicate corresponding parts in the several views.

1 designates the vertically-movable table upon which the pile of paper is supported.

2 is the head or frame which supports the buckling mechanism and which is secured to a supporting-rod 3.

4 designates the driving-shaft, which is journaled in the head or frame 2 and through which motion is imparted to the buckling mechanism.

5 designates a depending rock-arm which has a pivotal connection at its upper end to the head 2 and has an extended arm 6. The said rock-arm is further provided at its lower end with a buckling-finger 7, which is moved back and forth thereby and carries on its free end a roller 8, that bears upon the sheet and buckles it while moving outward. In the outward or buckling movement of the buckling-finger the roller 8 is locked against rotation by the plate 30, that is secured to the finger. An oscillatory movement is imparted to the rock-arm by a crank 9 on the driving-shaft 4 and connecting with the extended arm 6 by a link 10.

11 designates the vertically-movable pile-retaining finger, secured to a horizontal rock-shaft 12, that is mounted in bearings on the lower side of the head 2. This pile-retaining finger bears upon the corner of the pile of paper in the rear of the buckling-finger and holds said pile in place while the top sheet is being removed.

13 is a sleeve surrounding the rock-shaft 12 and provided with an arm 14, upon which a cam 15 operates. This cam 15 is the only cam employed in connection with the feeding devices. The sleeve 13 is supported in the head 2. The sleeve 13 is held in the frame 2 by a collar 25.

26 is a coil-spring surrounding the rock-

shaft and maintaining a connection and tension between the pile-retaining finger and the sleeve carrying the arm 14, which bears against the cam 15. When the said cam bears against the arm and turns the sleeve, it creates a tension on the said spring, which tension is transmitted through the rock-shaft to the pile-retaining finger 11. When said cam releases the arm 14, the tension on the spring is removed and the pile-retaining finger rests loosely on top of the pile.

27 is a short arm formed on the pile-retaining finger and resting on a pin 28 formed on the arm 14, whereby the pile-retaining finger is supported when tension on the latter has been removed.

29 is a forwardly-projecting lug upon which the arm 14 rests when all the paper has been removed.

The cam 15 is mounted on the driving-shaft 4.

The mechanism described in the foregoing is substantially the same as that shown and described in Letters Patent No. 434,629, hereinbefore referred to, and to which reference is hereby made for a more complete description, if such should be found necessary.

33 designates a lifting-rod by means of which the buckling-finger is raised from the pile during its backward movement. This lifting-rod is attached with its inner end connected to the link 10, that connects the rock-arm with the crank of the driving-shaft, and passes with its opposite end through a post 31, formed on a lug 32, integral with the eye 34. The above mechanism is the same as that shown and described in the patent to Womersley, No. 475,839, dated May 31, 1892. Therefore it is no part of the present invention.

Coming now to a description of the means for obtaining a shorter buckle of the sheets than has heretofore been obtained by the means employed, 16 and 17 designate a rock-arm consisting of two members having a hinged or pivotal connection at 18 and maintained in a normally-closed position by means of a plate-spring 19, that is attached to the part 16. The latter member is rigidly secured on the feed-regulating shaft 20, and member 17 projects in the path of the cam 15 and is actuated thereby. The lower end of member 16 carries a gage-foot 21, which has a connection with a vertical shank 22, which in turn has an adjustable attachment with a slotted arm 23. The latter arm is adjustable on the end of the arm 16. The foot 21 rests upon the pile of paper, and against it the sheets are buckled, as shown in Fig. 1. It is essential that the arm 16 be short—say about four to four and three-quarters inches in length—so that the buckle 24 may be formed a short distance from the edge of the pile. The gage-foot 21 has a vertical movement toward and from the pile of paper to release each sheet after the formation of the buckle. By hinging the two members 16 and 17 the action of the cam 15 will at no time interfere with the other function of the shaft 20. The function of the shaft 20 is to elevate the feed-table 1 through mechanism fully shown and described in Patent No. 434,629, hereinbefore referred to, and which is no part of the present invention. By thus hinging the arm consisting of the two members 16 and 17 and having it operated upon directly by the cam 15 a more direct action is imparted to the feed-regulating shaft 20. The spring-joint allows the cam to rotate when the gage-foot 21 is in contact with the pile of paper. The cam 15 operates upon the inner end 17 of the arm 16 and upon the arm 14 simultaneously. The cam 15 in its rotation first actuates the arm 16 by coming in contact with the inner end 17 thereof. This holds the gage-foot 21 down for the buckle. The cam, continuing to move, next comes in contact with the arm 14 and presses down the pile-retaining finger 11. The buckling-finger 7 just prior to this has removed the top sheet from under the said finger 11. The pile-retaining finger 11 is pressed against the pile of paper by said cam only during the time in which a sheet is being buckled and fed forward from the pile. The movement of the finger 11 against the pile of paper is effected through the arm 14 and the cam.

In feeding a thin quality of paper the hold-down finger does not have to be tilted but very little, and as the cam has to rotate the same on all occasions provision has to be made to allow it to not interfere with the arm 16. This provision is made by hinging the arm as shown and described. In feeding thicker paper the arm has to lift higher and does not have to break joint as much. The thicker the paper is the less is the obstruction offered the cam.

Having described my invention, I claim—

1. In a paper-feeding mechanism, the combination with a main driving-shaft, a cam thereon, and a feed-regulating shaft 20, of a short rock-arm consisting of two members with abutting ends, and having a spring-controlled connection, and one of which is rigidly mounted on said shaft 20, a gage-foot carried on one of said members and adapted to rest upon a pile of paper adjacent to the edge thereof, a spring holding said members normally closed but allowing them to yield under the action of the cam when the gage-foot is in contact with the paper, substantially as specified.

2. In a paper-feeding mechanism, the combination with a main driving-shaft, a cam thereon, the feed-regulating shaft 20, a rock-arm and a buckling-finger mounted thereon, of a short rock-arm consisting of two members the inner ends of which abut, and have a spring-controlled connection, one of said members being supported on the shaft 20 and the other of said members being in the path

of said cam so that the rotating cam coming in contact therewith will cause said member to yield during certain periods in the operation of said rock-arm, a gage-foot carried on one member of said rock-arm and adapted to rest upon the top sheet of a pile of paper at a suitable point near the edge of said pile to enable the buckling-finger to make a short buckle in each sheet, substantially as described.

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

EDWIN M. JILLSON.

Witnesses:
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A. H. McCARTY.