

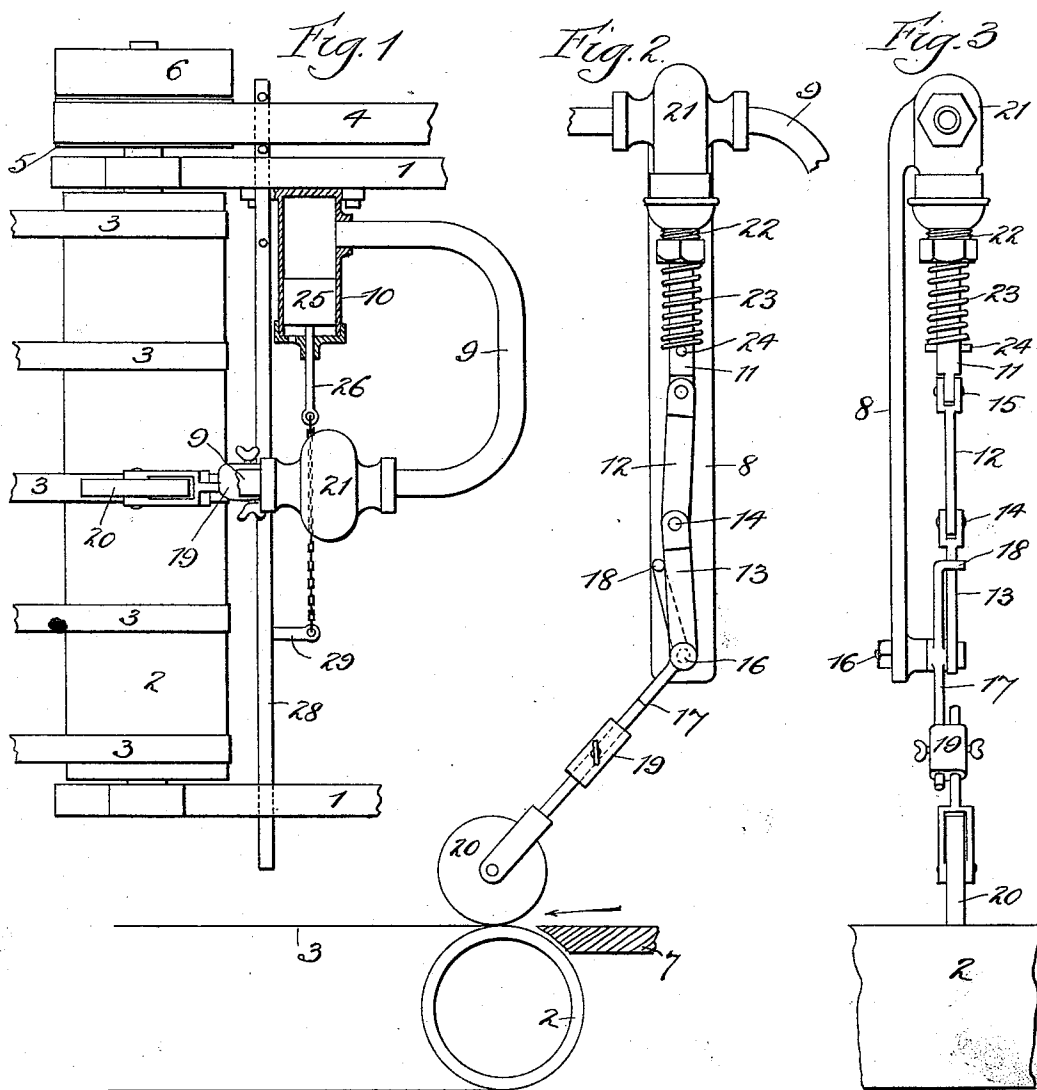
(No Model.)

G. F. LEIGER.

STOP MOTION DEVICE FOR PAPER FEEDING MACHINES.

No. 585,216.

Patented June 29, 1897.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE F. LEIGER, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND
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STOP-MOTION DEVICE FOR PAPER-FEEDING MACHINES.

SPECIFICATION forming part of Letters Patent No. 585,216, dated June 29, 1897.

Application filed March 13, 1896. Serial No. 583,126. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. LEIGER, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Paper-Feeding Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top or plan view of a portion of the top of a paper-feeding machine with my improvements attached thereto, a part being shown in section. Fig. 2 is a side elevation. Fig. 3 is a front elevation.

This invention relates to improvements in machines for feeding sheets of paper to a folder; and its object is to provide new and improved means for automatically stopping the feeding and folding operations whenever a sheet of paper that is rumpled or wrinkled and incapable thereby of being neatly folded is passing to the folder. This object is accomplished by the mechanism hereinafter described and claimed.

In the drawings, 1 indicates the framework of the machine, in which is suitably journaled at one end a roller 2, around which ordinary tapes 3 pass, the roller being driven, in the construction shown, by a belt 4, passing over a pulley 5, secured to the shaft of the roller 2.

6 indicates an idler on the shaft, onto which the belt 4 is adapted to be shifted.

7 indicates a portion of the table upon which the sheets of paper to be fed are stacked and from which by any suitable means they are automatically fed forward, one at a time, to the tapes 3 to be by said tapes carried to the folding mechanism, which folding mechanism, it will be understood, may be of any ordinary construction.

8 is a support composed, as here shown, of a metal plate suitably suspended above the machine. As shown, it is attached to a pipe 9, one end of which is suitably connected to a large air-pump (not shown) located in any desired place, the other end being in communication with a comparatively small cylinder 10, located, preferably, within the framework of the machine, the object and operation of these parts being hereinafter described.

11 indicates a stem projecting from a valve-

chamber 21, connected to the pipe 9, in which valve-chamber 21 is a valve of any approved construction, with which valve the stem 11 is connected, the stem passing through a suitable stuffing-box 22.

12 and 13 indicate a pair of toggle-levers pivoted together by the pivot 14, the upper end of the lever 12 being pivoted by a pivot 15 to the lower end of the stem 11 and the lower end of the lever 13 being pivoted to a pin 16, projecting from the lower end of the plate 8.

17 indicates a crank-arm pivoted on the pin 16, the upper end of said arm being bent, as shown at 18, to engage the edge of the lever 13 and the lower end being inserted in a block 19 and there held by a set-screw, as shown, or otherwise.

20 indicates a small wheel adjustably secured in position to the lower end of the arm 17 by means of the block 19, as shown. This wheel forms in effect a continuation of the arm 17 and might be secured rigidly to such arm but for the fact that it is necessary to provide means for adjustment to suit different makes of machines to which the device may be applied. It is evident that some other provision for making this adjustment might be provided than the simple means illustrated and described.

23 indicates a spring around the valve-stem 11, being held between a nut on the stuffing-box 22 and a pin 24.

25 indicates a piston in the small cylinder 10, and 26 the piston-rod, to which rod is connected one end of a chain 27, which at its other end is connected to a shifting-bar 28 through an eye 29, attached to said bar. This bar 28 at one end is provided with any usual means for engaging the belt 4, so that by the movement of the bar the belt may be shifted from or to either of the pulleys 5 and 6.

The operation is as follows: Single sheets of paper from a pile of sheets on the table are fed forward by any suitable mechanism onto the tapes 3, and by such tapes carried to the folding devices, the wheel 20 being so adjusted as to permit such sheets when smooth and straight to pass beneath it. When, however, a rumpled, wrinkled, or mussed sheet unsuitable for folding is fed forward, it will

engage such wheel 20 sufficiently to raise the wheel slightly, and that action will cause the arm 17 to press sufficiently hard against the edge of the lower toggle-lever 13 to throw the levers 13 and 14 past the center or beyond a straight line. Upon this being accomplished the pressure of the spring 23 will be exerted to force down the valve-stem, thus opening the valve in the chamber 21. This chamber 21, as before stated, is in communication with the pipe 9, and one end of the pipe is connected to a large air-pump (not shown) and the other to the cylinder 10. The large air-pump being in operation, the effect of opening the valve in the chamber 21 is to immediately exhaust the air throughout the pipe 9 and in that portion of the cylinder 10 in front of the piston 25, whereby the piston 25 is at once drawn forward, and this action of the piston, through its connection with the shifting-bar 28, causes the belt 4 to be shifted from the pulley 5 to the idler 6, which of course stops the operation of the machine and allows of the withdrawal by the attendant of the wrinkled or rumpled sheet of paper.

By the use of my improvement it will not be found necessary for an attendant to give his undivided attention to the machine to prevent its becoming choked or clogged with paper, caused by a sheet in a damaged or unfoldable condition passing to the folding devices, as is now the case, for by my improvements the machine will be instantly stopped through the mechanism described when a damaged or unfoldable sheet of paper engages the roller 20.

It is evident that many changes in the details of construction may be made without departing from the spirit of my invention.

While the description has been particularly directed to the use of my improvements in connection with a paper-feeding machine, it is obvious that it can be advantageously used in connection with printing-presses for preventing clogging of such presses by a torn sheet or sheets otherwise unsuitable to pass through the press.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. In a paper-feeding machine, the combination of a support, a crank-arm 17 pivoted to said support and having its crank provided with a bent extremity 18 located above the pivotal point of the crank-arm, toggle-levers 12 and 13 jointed together and against which said bent extremity of the crank-arm operates to force them outward when said arm is raised by a rumpled or wrinkled sheet of paper, and mechanism connected with one of said toggle-levers for stopping the operation of the paper-

feeding machine when the bent extremity of the crank-arm forces the toggle-levers outward, substantially as described.

2. In a paper-feeding machine, a pivoted arm 17 located above the pathway of travel of the sheets of paper, in combination with a pair of toggle-levers 12 13 that are engaged by the upper end of said pivoted arm, a spring bearing upon the end of one of said pair of levers and acting to assist in throwing them outward, and means connected with said levers for stopping the operation of the machine, substantially as described.

3. In a paper-feeding machine, the combination of a pivoted crank-arm located above the pathway of travel of the sheets of paper to be folded, means at the lower end of said crank-arm for engaging with rumpled or unfoldable sheets of paper, a pair of toggle-levers adapted to be moved by the movement of said crank-arm, a valve-stem secured to said toggle-levers, a pipe provided with a valve to which said valve-stem is connected, a spring acting upon the toggle-levers to open the valve, a cylinder containing a piston, power-shifting devices adapted to be operated by said piston, and means for exhausting the air from said pipe and cylinder, substantially as and for the purpose specified.

4. In a paper-feeding machine, the combination of a pivoted crank-arm located above the pathway of travel of the paper to be folded, means at the lower end of said crank-arm for engaging with rumpled or unfoldable sheets of paper, a pair of toggle-levers adapted to be moved by the movement of said crank-arm, and devices connected with said toggle-levers for automatically stopping the operation of the machine when said crank-arm and toggle-levers are moved, substantially as specified.

5. In a paper-feeding machine, the combination of a pivoted crank-arm located above the pathway of travel of the sheets of paper to be folded, means at the lower end of said crank-arm for engaging with rumpled or unfoldable sheets of paper, a pair of toggle-levers adapted to be moved by the movement of said crank-arm, a valve-stem secured to said toggle-levers, a pipe provided with a valve to which said valve-stem is connected, a cylinder containing a piston, power-shifting devices adapted to be operated by said piston, and means for exhausting the air from said pipe and cylinder, substantially as and for the purpose specified.

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Witnesses:

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