(No Model.)

J. C. KNEELAND.

PAPER FEEDING MACHINE.

No. 252,477. Patented Jan. 17, 1882.

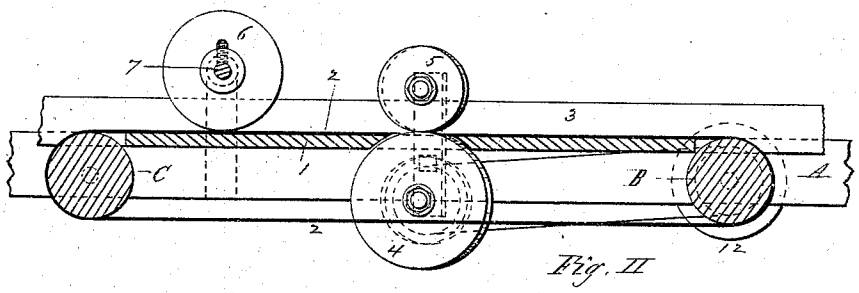


Fig. II

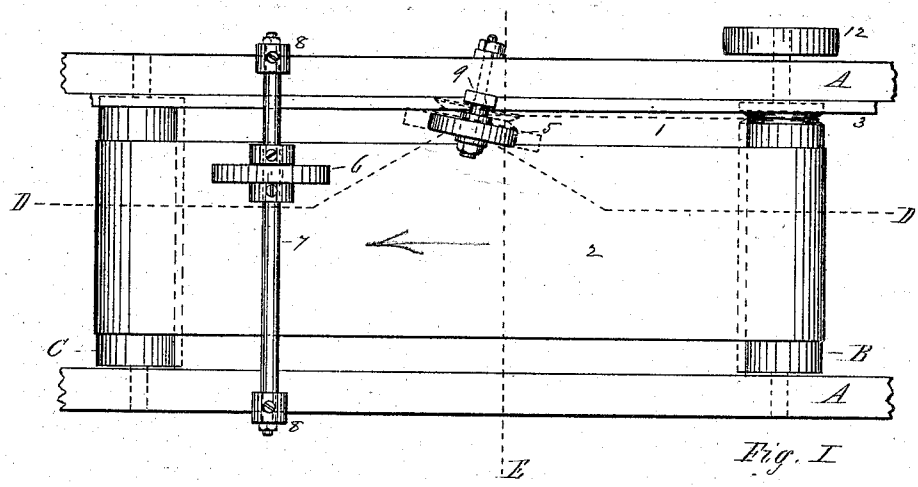


Fig. I

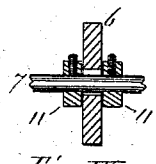


Fig. IV

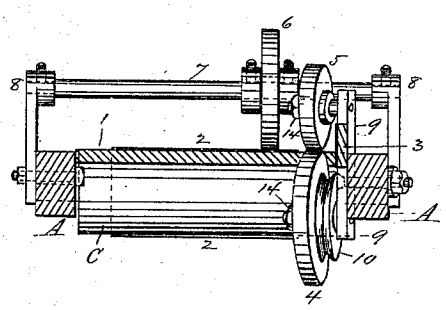


Fig. III

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UNITED STATES PATENT OFFICE.

JOSEPH C. KNEELAND, OF NORTHAMPTON, MASSACHUSETTS, ASSIGNOR TO MARK H. SPAULDING, TRUSTEE, OF SAME PLACE.

PAPER-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 252,477, dated January 17, 1882.

Application filed May 31, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. KNEELAND, of Northampton, in the county of Hampshire and State of Massachusetts, have invented a new and useful Improvement in Paper-Feeding Machines, of which the following is a specification and description.

The object of my invention is to cause all the sheets of paper as they are placed in succession upon the endless bands or apron of a feeding-machine to automatically assume a proper and uniform position against the guide, to be guided to the desired position to be operated upon by the machine to which such sheets are being fed; and I accomplish this by the means substantially as hereinafter described, and illustrated in the accompanying drawings, in which—

Figure I is a plan view of my invention. Fig. II is a vertical section of the same at line D of Fig. I. Fig. III is a transverse vertical section at line E, and Fig. IV is a vertical transverse section of the presser-roll on the line of its axis.

In the drawings, A denotes a frame which supports the journals of the rolls B and C, which, by revolving in their bearings in said frame, carry or actuate an endless apron, as 2, which may be made of suitable material and of the desired length, and this apron may be supported in part by a table, as 1.

Secured in the frame A or in an upright thereon are two spindles, as 14, which support two revolving rolls, as 4 and 5, the periphery of the upper roll, 5, resting upon or impinging against the periphery of the lower roll, 4, in substantially the same horizontal plane in which the upper side of the apron moves, as shown clearly in Figs. II and III, and the hole through the upper roll, 5, should be a little larger than the spindle upon which it revolves, so that, the weight of the upper roll, 5, resting upon the periphery of the lower roll, 4, if the latter is made to revolve the upper one will be made to revolve also by this simple weight or pressure of one roll upon the other.

Permanently fixed to the side of the frame A is a guide, 3, which should extend the whole length of the machine, and these rolls 4 and 5 are placed between the apron 2 and this guide 3, and in a vertical line one above the other, or approximately so, but at a more or less acute angle with the length of the guide, so that they may revolve obliquely to the length of the apron, as shown clearly in the drawings.

Motion may be given the lower roll, 4, by any convenient means; but a very simple and effectual method is by making a grooved disk, as 10, on the side of the lower roll, 4, and made fast thereto, with an endless band extending around that and around a groove, as 15, in the roll B, which moves the apron, as shown clearly in Figs. I and II.

A shaft, as 7, is supported by the frame and extending across the machine above the apron 2, upon which shaft loosely revolves a light roll or wheel, as 6, and this may be adjusted and held so as to revolve at any desired point along the shaft 7 by two sliding collars, as 11, secured to the shaft each by a set-screw. This roll 6 revolves very loosely upon its shaft and rests upon the apron, so that the movement of the apron 2 will cause it to revolve; and the purpose of this roll 6 is to gently hold the sheets of paper down upon the apron as they pass off the machine and prevent them from being jarred out of place. Suppose the apron to be moving in the direction indicated by the arrow, and the machine to be used in connection with a ruling-machine to feed the sheets of paper thereon to be ruled, in which case it is necessary that every sheet shall register—that is, each sheet shall pass on to the ruling-machine in the same line of movement as its predecessor—in this case the movement of the roll B and the apron 2, and the small endless band around the disk 10 and roll B will cause the respective rolls 4, 5, and 6 to revolve in the direction indicated by the arrows marked thereon, as shown in Fig. II, and if the successive sheets of paper are placed upon the apron 2 with their edges nearest the guide 3 at different and various inclinations to the said guide, but so as to be passed by the apron between the rolls 4 and 5, these two rolls will quickly move every sheet without exception up against the guide 3, with the edge of each sheet perfectly parallel with and moved along by the apron in contact with the guide 3. Before the sheet entirely leaves the rolls 4 and 5 it passes

beneath the light roll 6, and is thereby held in its position against the guide 3 until it leaves the feeding-machine and passes upon the carrying-tapes of the ruling-machine.

The periphery of the rolls 4, 5, and 6, or any of them, may be covered with some soft or flexible material, if need be, to prevent injury to the paper.

This device will adjust every sheet of paper placed upon the feeding-apron into its proper position against the guide 3 without failure, whether the paper be thick or thin, and whether the sheets be large or small, and the rolls 4 and 5 may be made adjustable to any desired point between the apron 2 and the guide 3, and the roll 6 may also be adjusted to any point above the apron to operate upon either larger or smaller sheets of paper.

It is evident that the apron 2, instead of being in one piece, may be made in the form of a series of bands or tapes of suitable width to carry the sheets of paper along properly, in which case the two rolls might be located between two adjacent bands and at any desired and convenient distance from the guide 3.

I am aware that a roll arranged to revolve at an inclination to the guide has heretofore been used in a paper-feeding machine; but such roll was made to revolve against and upon the feeding-apron, and was inoperative to a large extent, for this reason: The roll arranged to revolve obliquely upon the feeding-apron would operate to draw the apron as well as the paper over to one side, and when so drawn over the apron acted upon the paper to draw it back again, so that the roll above operated to move the sheet in one direction, and the apron beneath acting against the roll operated to move the sheet in the opposite direction, and the forces neutralized each other, and the result was that the paper would move to neither side; but with two rolls operating together and not against the apron each sheet is acted upon and moved quickly and directly to its proper position against the guide. In this manner the carelessness of the operator in feeding the sheets of paper upon the apron or feeding-bands of the feeding-machine is automatically remedied, and every sheet passes immediately to its place against the guide and thence to the machine all uniformly to be operated upon.

Having thus described my invention, what I claim as new is—

1. The combination, in a paper-feeding machine, of a feeding apron or tapes for carrying the sheets of paper when placed thereon, two rolls placed one above the other, and with their peripheries in contact in approximately the plane of movement of said apron or tapes, and adapted to revolve vertically at an inclination to the line of movement of said apron or tapes, and a guide extending lengthwise the machine for the purpose of adjusting the sheets of paper into the same line of movement, substantially as described.

2. The combination, in a paper-feeding machine, of a feeding apron or tapes for carrying the sheets of paper when placed thereon, two rolls placed one above the other, with their peripheries in contact in approximately the plane of movement of said apron or tapes and adapted to revolve vertically at an inclination to the line of movement of said apron or tapes, a guide extending lengthwise the machine, and a roll adapted to be revolved above and by said apron or tapes or by the sheets moving thereon, substantially as and for the purpose set forth.

JOSEPH C. KNEELAND.

Witnesses:
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