

J. W. DUFFY.
TABLE OPERATING DEVICE FOR PAPER FEEDING MECHANISM.
APPLICATION FILED JAN. 26, 1909.

1,037,220.

Patented Sept. 3, 1912.

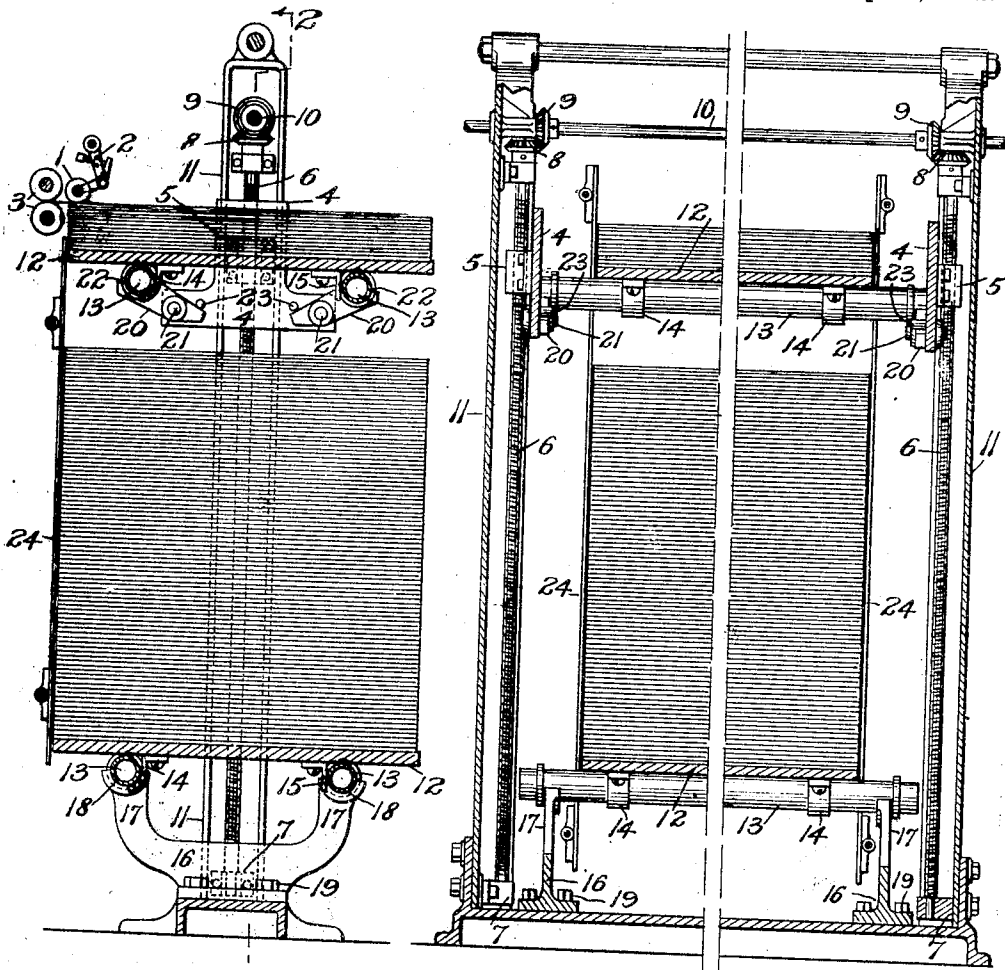


Fig. 1.

Fig. 2.

Witnesses:
A. White
John J. Kearney

Inventor:
James W. Duffy
By his Attys:
Philip P. Lawton, Rice & Kennedy

UNITED STATES PATENT OFFICE.

JAMES W. DUFFY, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE FULLER MANUFACTURING COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

TABLE-OPERATING DEVICE FOR PAPER-FEEDING MECHANISM.

1,037,220.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed January 26, 1909. Serial No. 474,246.

To all whom it may concern:

Be it known that I, JAMES W. DUFFY, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Table-Operating Devices for Paper-Feeding Mechanism, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to improvements in paper feeding mechanisms.

In the paper feeding mechanisms now usually employed, the sheets are presented to the sheet feeding mechanism by a table which is first loaded and then caused to automatically advance toward the sheet feeding devices as the sheets are fed therefrom. When the sheets have all been fed from the table, it is returned to the starting point and reloaded. This loading requires considerable time, during which the feeding mechanism and the machine with which it is cooperating is necessarily idle.

The present invention has for its object to produce an improved table mechanism for feeding machines by which a substantially continuous supply of sheets may be maintained.

With this and other objects not specifically referred to in view, the invention consists in certain constructions and in certain parts, improvements and combinations as will be hereinafter fully described and then specifically pointed out.

Referring to the accompanying drawings—Figure 1 is a sectional side elevation of a construction embodying the invention. Fig. 2 is a sectional elevation on the line 2—2 of Fig. 1.

The construction which has been selected for the purpose of illustrating a concrete embodiment of the invention is particularly adapted for supplying sheets of paper to a feeding mechanism by which the sheets are fed to a printing machine, although it will be understood that constructions embodying the invention are not confined to the specific use referred to.

When constructions embodying the invention include automatically operating sheet feeding mechanism, this mechanism may be of any suitable character. In the particu-

lar construction illustrated, the feeding mechanism or feeder frame is diagrammatically represented by a feeding roll 1 mounted on a swinging arm 2, this roll serving to deliver the sheets through forwarding rollers 3. This form of feeding mechanism is well-known in the art, and a specific illustration and extensive description thereof are unnecessary, as any other suitable feeding mechanism may be substituted therefor.

Constructions embodying the invention will include an elevating mechanism for the pile of sheets. This elevating mechanism may be varied widely in its details of construction. As shown, the elevating mechanism includes a carriage comprising a pair of side pieces or traveling girders 4. Suitable operating mechanism, which may vary widely in construction, will be provided for the carriage. As shown, each of the carriage side pieces 4 is provided with a nut 5, these nuts engaging threaded rods or screws 6 stepped in suitable bearings 7 mounted on the base of the machine. These screws, when employed, may be operated in any suitable manner. As shown, each of the screws is provided with a miter gear 8, these gears being engaged by miters 9 carried on a shaft 10 suitably journaled in the frame uprights, this shaft being driven from any suitable source of power, not shown. In the particular construction shown, the frame uprights 11 are arranged to provide recesses in which the screws 6 are located, and the inner faces of the uprights may serve as guides for the carriage pieces 4 in their movement.

Constructions embodying the invention will further include a plurality of tables, the construction of which may be widely varied. In the particular construction illustrated, two tables, which are duplicates, are employed, these tables comprising sheet supporting surfaces or boards 12 and rods or bars 13. In the best constructions, the supporting surfaces will be detachably connected to the rods or bars, when these bars are employed. While this connection may be formed in any suitable manner, as shown, each of the boards 12 of the tables is provided with hooks 14 which take around and under one of the bars 13, the boards 12 being also provided with angle bars 15 which

bear against the other rod or bar 13. This construction enables the table to be readily lifted from its supporting bars.

Constructions embodying the invention will further include a table support, the construction of which may be varied within wide limits. In the best constructions, this support will be so arranged that after a table resting upon it has been loaded, it may readily be connected to the elevating mechanism. In the construction illustrated, the support comprises two brackets 16 forming what may be termed a yoke, each bracket being provided with a pair of arms 17, the upper ends of which are recessed at 18, so that the bars 13 of the tables may rest in the recesses. These brackets 16, as shown, are secured by screws 19, to the base of the machine.

Constructions embodying the invention will include means for detachably connecting the tables to the elevating mechanism. While these means may be varied widely in their details of construction, in the particular construction illustrated each of the side pieces 4 forming the carriage is provided with a pair of connector pieces 20, these pieces being pivoted at 21 to the side pieces. The outer ends of these connector pieces are recessed at 22, so as to receive the bars 13 of the table. The movement of these connector pieces on their pivots is limited by stop pieces 23.

The usual piling guides 24 mounted on the machine frame may be employed in connection with the tables.

With the construction illustrated, a table having been connected to the side pieces of the carriage and the operation of the mechanism begun, the table supporting the sheets will be fed upward by the rotation of the screws, the sheets being thus automatically presented to the sheet feeding devices. When the table has been lifted a distance from the table support, the second table may be placed on the support and the loading of that table begun. This loading operation may be so timed as to be completed at about the time the last of the sheets on the first table has been fed therefrom by the feeding mechanism. When the sheets have thus been fed from the first table, the supporting surface or boards 12 of the table may be lifted from the bars 13, and the bars 13 then removed from the connector pieces 20. The carriage pieces 4 may then be moved down, so that the connector pieces thereon will automatically engage with the bars 13 of the loading table, this movement of the carriage pieces being effected in any suitable way, as, for instance, by reversing the direction of rotation of the screws. As soon as the connector pieces are engaged with the bars of the loaded table, the feeding operation may be proceeded with. It is also obvious that

where the table boards are large and cannot be conveniently manipulated in the manner just described, the carriage pieces may move down as soon as the last sheet is fed off the boards. As soon as the bars 13 strike the top of the pile, which has been placed in position during the feeding operation, the connectors 20 will be automatically disengaged from the bars 13, thus leaving the bars and table on the top of the pile, from which they can be readily removed.

Changes and variations may be made in the construction by which the invention is carried into effect. The invention is not, therefore, to be limited to the specific construction herein shown and described.

What is claimed is:—

1. In a paper feeding mechanism, the combination with a suitable frame, of sheet feeding devices, a table support fixed with relation to the frame, a piling guide mounted on the frame, a plurality of tables, an elevating mechanism constructed to move a table from the support to the feeding devices and to move back in the same path, and means for detachably connecting each of the tables when on the support and after it is loaded to the elevating mechanism.

2. In a paper feeding mechanism, the combination with a suitable frame, of sheet feeding devices, a table support fixed with relation to the frame, a piling guide mounted on the frame, a plurality of tables, an elevating mechanism constructed to move a table from the support to the feeding devices and to move back in the same path, and means for automatically and detachably connecting each of the tables when on the support and after it is loaded to the elevating mechanism.

3. In a paper feeding mechanism, the combination with a suitable frame, a piling guide mounted thereon, a carriage comprising a pair of side pieces, means including threaded rods for moving the side pieces in both directions, a plurality of tables, a table support located between the paths of travel of the side pieces and fixed with relation to the frame, and means for detachably connecting each side piece to a table.

4. In a paper feeding mechanism, the combination with a suitable frame, a piling guide mounted thereon, a carriage comprising a pair of side pieces, means including threaded rods for moving the side pieces in both directions, a plurality of tables, a table support located between the paths of travel of the side pieces and fixed with relation to the frame, and means for automatically connecting each side piece to a table.

5. In a paper feeding mechanism, the combination with sheet feeding devices, of a carriage, a plurality of tables, a table support, means for causing the carriage to move between the table support and the

sheet feeding devices and back again in the same path, connectors on the carriage, and devices on each table with which said connectors may be engaged when a table is on the support.

6. In a paper feeding mechanism, the combination with sheet feeding devices, of a carriage comprising a pair of side pieces, a plurality of tables, a table support, means for moving the carriage between the table support and the sheet feeding devices, pivoted connectors on the carriage, and means on each table with which said connectors engage.

7. In a paper feeding mechanism, the combination with sheet feeding devices, of a carriage comprising a pair of side pieces, means including threaded rods for moving the carriage, a plurality of tables, each table being provided with bars, a table support provided with arms for engaging the bars, and a pair of pivoted connectors on each carriage side piece arranged to automatically engage the table bars when a table is on the carriage.

8. In a paper feeding machine, the combination of a feeder frame, reversible pile elevating mechanism mounted in said frame and including traveling bracket girders supported in parallel longitudinal planes and adapted to move upwardly and downwardly past the ends of a pile of sheets, a removable pile supporting platform, end girders adapted to be detachably coupled to said bracket girders and engage beneath said pile supporting platform, and a support at the base of the feeder frame for supporting said pile platform.

9. In a paper feeding machine, the combination of a feeder frame, reversible pile elevating screws mounted in upright position in said frame, screw nuts operating

upon said screws, bracket girders mounted upon said nuts and adapted to move upwardly and downwardly past the ends of a pile of sheets, end girders adapted to be detachably coupled to said bracket girders, two pile supporting platforms, and means at the base of the feeder frame for supporting a platform in position to have a pile placed upon it.

10. In a paper feeding machine, the combination of a frame having a transverse bar at its base, a yoke or cradle mounted upon the base bar of said frame and formed with upwardly presented recesses or sockets, a pile supporting platform adapted to rest in said recesses or sockets of said yoke or cradle, and have sheets piled upon it, suitable elevating mechanism including vertically movable brackets and means for detachably coupling said platform to the brackets of the elevating mechanism.

11. In a paper feeding machine, the combination of a suitable frame provided at its base with a fixed table support, a plurality of pile carrying tables, each of which is adapted to rest upon said support in pile receiving position, suitable elevating mechanism mounted in said frame and including vertically movable members which are adapted to move freely up and down past a table upon said support, and means detachably connecting the vertically movable members of said elevating mechanism with one of said tables.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

JAMES W. DUFFY.

Witnesses:

WALTER TERS,

MILDRED DRUSCH.