No. 679,961. Patented Aug. 6, 1901.

J. FRENCH.

MECHANISM FOR FEEDING CARDS OR THE LIKE.

(Application filed Jan. 23, 1901.)

(No Model.) 2 Sheets--Sheet 1.

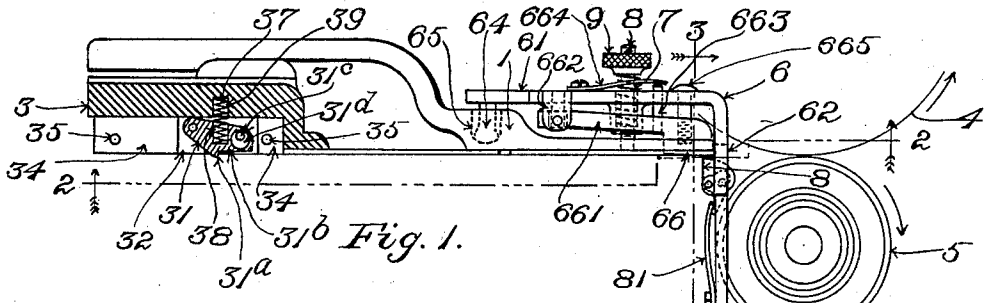


Fig. 1.

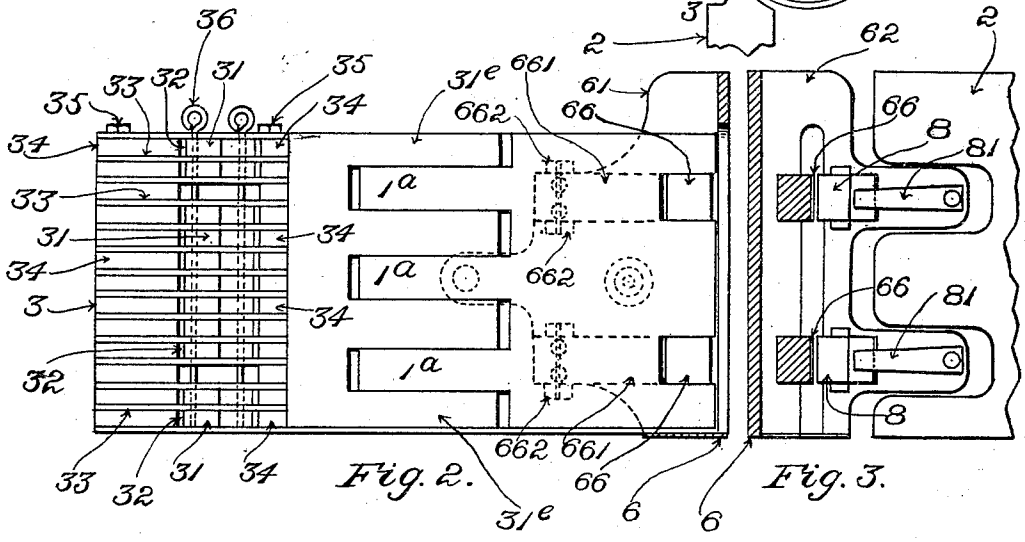


Fig. 2.

Fig. 3.

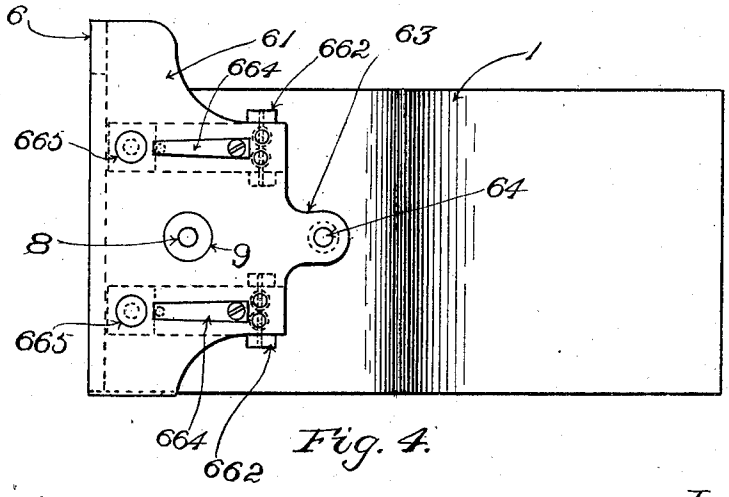


Fig. 4.

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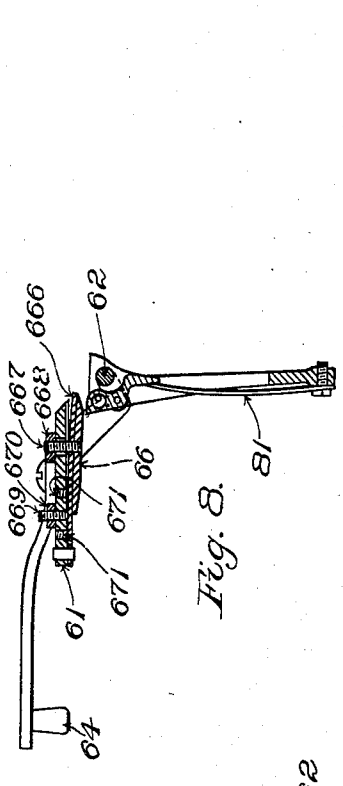


Fig. 8.

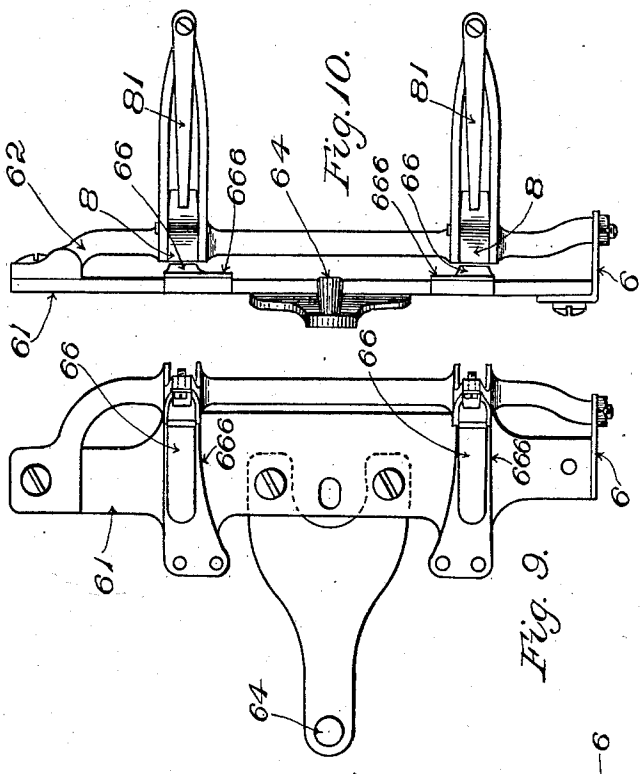


Fig. 10.

Fig. 9.

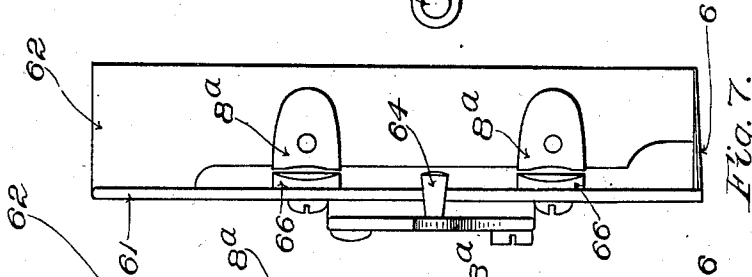


Fig. 7.

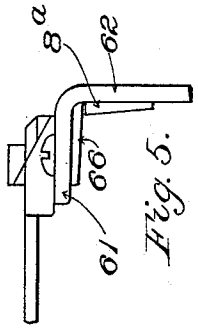


Fig. 5.

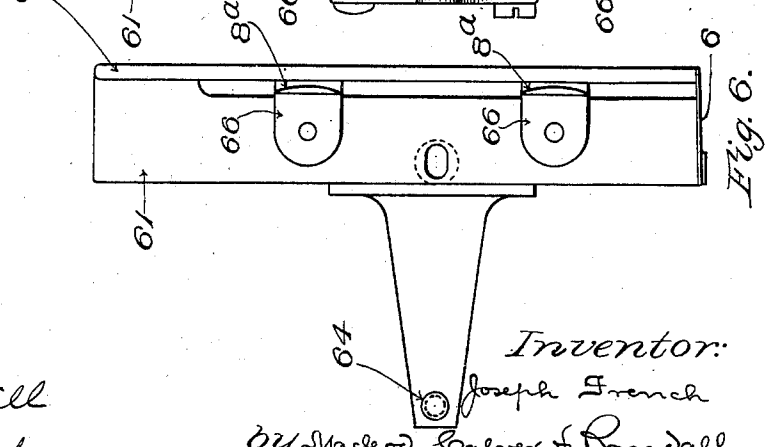


Fig. 6.

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UNITED STATES PATENT OFFICE.

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MECHANISM FOR FEEDING CARDS OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 679,961, dated August 6, 1901.

Application filed January 23, 1901. Serial No. 44,378. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH FRENCH, a citizen of the United States, residing at Woonsocket, in the county of Providence, State of Rhode Island, have invented a certain new and useful Improvement in Mechanisms for Feeding Cards or the Like, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention has relation to the means employed in various machines for the purpose of feeding cards and similar articles singly in succession.

The invention is designed for use in connection with various kinds of machines, among which may be instanced postmarking and canceling machines, machines for printing, &c.

In a machine on the order of those to which my present invention is applicable a stack of cards or the like articles to be fed is placed in proper position in the machine, and from the said stack the cards or other articles are required to be taken and advanced singly in succession through a throat or passage-way just wide enough to admit of the passage of one card at a time. In practice difficulty is experienced from the fact that the ends of the cards in the stack sometimes are held back by friction against the adjoining side of the receptacle or container or become warped or bent, so that the leading end of a card or other article requiring to be fed does not aline itself relatively to the throat or passage-way in proper position to enter the latter at the proper time. From this results a failure to feed and more or less injury to the card or other article, these being due to the fact that the card is held back from being advanced under the action of the devices operating to carry it toward the throat or passage-way.

My invention has for its aim to remedy the drawback described just above; and it consists in an improved construction of the part or parts forming the throat or passage-way, which I will now proceed to explain with reference to the accompanying drawings, in which latter I have illustrated embodiments of the invention.

Having reference to the drawings, Figure 1 shows a partly-sectional plan or portion of a machine which for the purposes of the present disclosure may be regarded as a postmarking or canceling machine containing one embodiment of the invention. Fig. 2 is a view in vertical section on the plane indicated by the dotted line 2 2 in Fig. 1 looking in the direction indicated by the arrows at the ends of such line. Fig. 3 is a view in vertical section on the dotted line 3 3 in Fig. 1 looking in the direction indicated by the arrows adjacent the ends of the said line. Fig. 4 is a view in elevation from the rear—*i. e.*, the top in Fig. 1. Figs. 5, 6, and 7 are views corresponding with Figs. 1, 2, and 3, showing an embodiment of the invention in which the gages and opposing blocks are fixed. Figs. 8, 9, and 10 are like views showing another embodiment of the invention in which the said parts are yielding, the gages being also adjustable.

In the drawings, 1 designates the end plate, against which in practice will be caused to press the first card or the like article of the series or stack of cards or the like articles to be operated upon. 2 designates a portion of a side plate or side bar against which the right-hand ends of the said series or stack bear and along which the said ends slide as the cards or the like articles (hereinafter termed the "cards") advance in usual manner to the place where the feeding occurs.

3 designates a feeder, by the action of which the foremost card of the series or stack is forced or carried transversely through the throat or passage-way or is advanced sufficiently into and through the said throat or passage-way to enable the leading end thereof to be grasped by devices operating to carry the card forward through the machine.

The feeder 3 may in practice be of any approved construction, although I prefer to employ a sectional feeder of the same general character and construction as that which is presented in my application for United States Letters Patent for improvement in postmarking and canceling machines filed January 23, 1901, Serial No. 44,490. Thus in the drawings I have represented the said feeder as provided with a vertical series of dogs 31 31, &c., located in spaces 32 32, &c., between the plates 33 33, &c. The said plates 33 33 are separated by spacing-blocks 34 34, &c., the said plates 33 and blocks 34 being fastened together by bolts 35 35 and the series of dogs

31 31 being pivoted upon a vertical pin 36, which passes through the series of plates 33 33. The pivotal connection of each dog 31 is located at the end of the latter which is remote from the throat or passage-way. Each dog is acted upon by an expanding spiral spring 37, the latter being received partly in a pocket 38 in the body of the dog 31 and partly in a pocket 39 in the body of the feeder. The dogs extend nearly parallel with the direction of movement of the feeder, which last reciprocates transversely in Fig. 1. The noses or engaging portions 31^a of the dogs are located between the pivotal points of the dogs and the throat or passage-way, and consequently, as will be perceived, the action of the springs in forcing the dogs out of the spaces in which they are contained causes the said noses or engaging portions to advance toward the front card in the series or stack to be fed until the prolongations 31^b of the dogs bring up against the front face of the said first card. Also the resistance which the card that is engaged by the said dogs offers to being pushed forward by the same in the feeding movement of the feeder has a tendency to rotate the dogs outward into fuller engagement with the card. The outward movement of the dogs is limited by an upright pin 31^c, passing down through holes in the plates and also through an enlarged hole 31^d in each of the dogs. (See Fig. 1.) The feeder and end plate are provided with overlapping tongues 31^e 31^e, &c., and 1^a 1^a, &c., which bridge the space existing between the body of the feeder and the right-hand portion of the end plate.

Adjacent the throat or passage-way I have represented a pair of rolls 4 5, which may be regarded as comprising, respectively, a printing-roll 4 and a backing-roll 5. The leading end of the foremost card in the series or stack after having been advanced by the feeder through the throat or passage-way into the bite of the said pair of rolls is taken hold of by the latter and by the rotation thereof carried forward.

In carrying my present invention into effect I produce what may be termed a "floating" throat, the position of which is determined or defined by the position of the leading end of the card which is next to pass into and through the passage-way. Thus I mount the throat-piece movably, and in order to place the same under the control of the card end which is next to pass through the throat or passage-way I cause the throat-piece to be pressed with yielding force in the direction of the face of the said card end, so as to tend to cause a gage which may constitute one side of the throat to project somewhat beyond the general plane of the inner surface of the end plate and feeder toward the stack of cards. This gage bears firmly against the said face of the card end and accommodates itself to the position of the latter. When the first card advances properly into contact with the face of the end plate and feeder, the gage and throat-piece are forced back by the pressure thereof. When, however, the end of the card is warped or bent back, the throat-piece and gage are held pressed inward by the spring, so as to cause the gage to find and make contact with the face of the said end. Thus I utilize the face of the card end itself as a means of alining the floating throat with the card end. Herein the throat-piece 6 is for convenience made substantially L-shaped in plan, as shown by Fig. 1, and is placed in the machine with one arm thereof, 61, extending parallel with the end plate 1 transversely in the drawings and the other arm thereof, 62, extending parallel with the side plate 2. The arm 61 first mentioned is connected to the end plate 1 in a manner to enable the throat-piece to rock transversely to itself in a vertical plane, whereby it is enabled to accommodate itself to any inclination of the front card from the vertical and to enable it to swing bodily in a horizontal direction toward and from the face of the said card. Thus herein the transversely-extending arm 63 of the throat-piece is furnished at mid-height of the throat with a round-headed projecting pin 64, working in a socket 65 in the back of the end plate 1. 66 is a vertical slot or opening in the arm 62 of the throat-piece, through which the cards travel as they are fed endwise. The throat-piece is furnished with two gages 66 66, which are designed to make contact with the face of the first card. They are located at some distance apart vertically. These gages in the present instance form one side of the throat or passage-way. For the purpose of pressing the throat-piece yieldingly inward toward the stack of cards, so as to tend to cause the said gages to occupy normally a position in which they will bear against the face of the end of the front card before the main portion of such card brings up against the end plate and feeder, a compression-spring 7 is employed, it being applied to the stem of a screw-threaded pin or stud 8, projecting from the end plate 1 through a hole in the hollow boss, with which the transverse arm of the throat-piece is formed, the said spring being compressed between the inner end of the said boss and the nut 9 on the said screw or pin. By turning the said nut 9 the tension of the spring 7 may be varied, and thereby the degree of resistance which the throat-piece will offer to being pressed outward by the cards may be regulated. The spring 7 operates to hold the throat-piece pressed inwardly with force enough to cause the gages to become firmly seated against the face of the first card. In consequence of the fixed relationship between the gages 66 66 and the throat or passage-way it will follow that when the face of the card end and the surfaces of the gages are in proper contact the throat or passage-way will be in correct juxtaposition with the leading end of the card, and the feeding movement of the card will invariably pro-

ject said leading end therethrough. The gages 66 66 may be constituted by fixed parts in the throat-piece, as in Figs. 5, 6, and 7. In most cases, however, the said gages will be mounted or applied upon the throat-piece in a manner rendering them capable of moving or yielding to a certain extent independently of the throat-piece and, if desired, also independently of each other. This is for the purpose of enabling them to accommodate themselves to any local or unusual increase in the thickness of a card—as, for instance, when the edge of the card is battered or bent; also, for the purpose of enabling the width of the throat or passage-way conveniently to be regulated to accommodate cards or the like of any required thickness, as presently will be explained. Thus in Fig. 1 I have shown each gage located at one extremity of an arm 661, which is pivoted at its other extremity to lugs 662 662, projecting forwardly from the transversely-extending arm 61 of the throat-piece. Each of the said arms 661 661 has a projection or pin 663, that is acted against by a leaf-spring 664, attached to the transversely-extending arm 61 of the throat-piece. The leaf-spring 664 acts with a tendency to hold the gage pressed forwardly into its normal position relatively to the throat-piece. The said normal position of the gages is fixed by the headed stop pins or screws 665 665, which are attached to the said gages.

Figs. 8, 9, and 10 show an embodiment of the invention in which the gages 66 66 are attached to the free extremities of leaf-springs 666 666, which at their other extremities are affixed to the arm 61 of the throat-piece. Each spring 666 has attached thereto a threaded stud 667, projecting through a hole in the arm 61 and having applied thereto a nut 668 to limit the inward flexure of the said spring. For the purpose of enabling the tension of each spring 666 to be regulated to suit the requirements of practice I have shown in this modification an adjusting-screw 669 with lock-nut 670 thereon. By turning this screw in or out the free extremity of the spring and the gage thereon may be borne more or less forcibly inward toward the stack of cards. For the purpose of enabling a wide range of adjustments to be had a number of threaded holes 671 671, &c., are formed through the arm 61 at different distances from the fixed end of the spring to receive the said adjusting-screw.

The side of the throat or passage-way opposite that which is constituted by the gages 66 66 may be formed by one or more pieces 8^a 8^a, rigidly mounted, as in Figs. 5 and 6. Preferably, however, I mount pivotally upon the forwardly-projecting arm 62 of the throat-piece tongues or blocks 8 8, Figs. 1 and 3, corresponding in number with the gages 66 66 and having tails which are acted upon by leaf-springs 81 81, tending to hold the working ends of the pivoted tongues or blocks normally in working position close to the faces of the gages. Ordinarily these tongues or blocks occupy the positions in which they are represented in Figs. 1 and 3; but they are arranged to yield when necessary for the purpose of avoiding injury to a card which is being advanced through the throat or passage-way. The necessity for yielding of the said tongues or blocks occurs when an undue thickness presents itself in a card. This undue thickness may result from the edge of a card being battered or torn and bent back upon itself, or in extreme cases two or more cards may cling together and pass at one time into the throat or passage-way. It will now be perceived that the real throat or passage-way exists between the faces of the gages 66 66 and the ends of the movable blocks or tongues 8 8. The width of said throat or passage-way is adjusted by means of the stop-screws 665 665 of Figs. 1 and 4 or by means of the studs 667 and nuts 668 of Figs. 7, 8, and 9. It will be perceived also that the said throat or passage-way is composed of separate narrow sections one above the other. This lessens the difficulty in causing the leading edge of a card to enter, since the said edge need aline itself with only the said narrow portions of throat. If the card be battered or bent elsewhere than at the said sections, it will in no wise hinder the advance of the card.

What I claim is—

1. In combination, a receptacle for cards or the like, and a floating throat-piece controlled in position by the position of the leading end of the card which is next to be fed, substantially as described.

2. In combination, a receptacle for cards or the like, a floating throat-piece, a gage to enable the position of the throat-piece to be determined by the leading end of the card next to be fed, and means to hold said throat-piece pressed with yielding force toward its normal position, substantially as described.

3. In combination, a receptacle for cards and the like, a movable throat-piece, a gage to enable the position of the throat-piece to be determined by the leading end of the card next to be fed, means to adjust the said gage to vary the throat or passage-way, and means to hold the throat-piece pressed with yielding force toward its normal position substantially as described.

4. In combination, a receptacle for cards and the like, a movable throat-piece, means to hold the same pressed with yielding force into normal position, a gage connected with said throat-piece forming one side of the throat or passage-way, and a block forming the other side thereof and yielding to obviate injury to a card, substantially as described.

5. In combination, a receptacle for cards and the like, a movable throat-piece having a yielding gage to enable the position of the throat-piece to be determined by the leading

end of the card next to be fed, said gage forming one side of the throat or passage-way, a yielding block forming the other side of the throat or passage-way, and means to hold the throat-piece pressed with yielding force toward the normal position thereof, substantially as described.

6. In combination, a receptacle for cards and the like, a movable throat-piece, means to hold the same pressed with yielding force into normal position, a gage to enable the position of the throat-piece to be determined by the leading end of the card next to be fed, and forming one side of the throat or passage-way, means to adjust the said gage to vary the throat or passage-way, and a block forming the other side of said throat or passage-way and yielding to obviate injury to a card, substantially as described.

7. A receptacle for cards and the like having a throat in narrow sections separated from each other to facilitate passage of a card therethrough, substantially as described.

8. In combination, a receptacle for cards and the like having a throat in narrow sections separated from each other, to facilitate passage of a card therethrough, and the sectional feeder, substantially as described.

9. In combination, a receptacle for cards having a floating throat, and a sectional feeder, substantially as described.

10. In combination, a receptacle for cards, a yielding throat-piece, yielding gages to coact with the face of the leading end of the first card, and pivoted yielding blocks forming one side of the throat or passage-way, substantially as described.

11. In combination, a receptacle for cards, a yielding throat-piece, gages to coact with the face of the leading end of the first card, pivoted blocks forming one side of the throat or passage-way, and means to adjust the width of said throat or passage-way, substantially as described.

12. In combination, a receptacle for cards, a yielding throat-piece, yielding gages to coact with the face of the leading end of the first card, pivoted blocks forming one side of the throat or passage-way, and means to adjust the width of said throat or passage-way, substantially as described.

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

JOSEPH FRENCH.

Witnesses:
LEPINE HALL RICE,
CHAS. F. RANDALL.