Nov. 7, 1939. A. B. EGGER 2,178,783

PAPER FEEDING AND RELOADING MECHANISM

Filed April 23, 1938 2 Sheets-Sheet 1

FIG. 1.

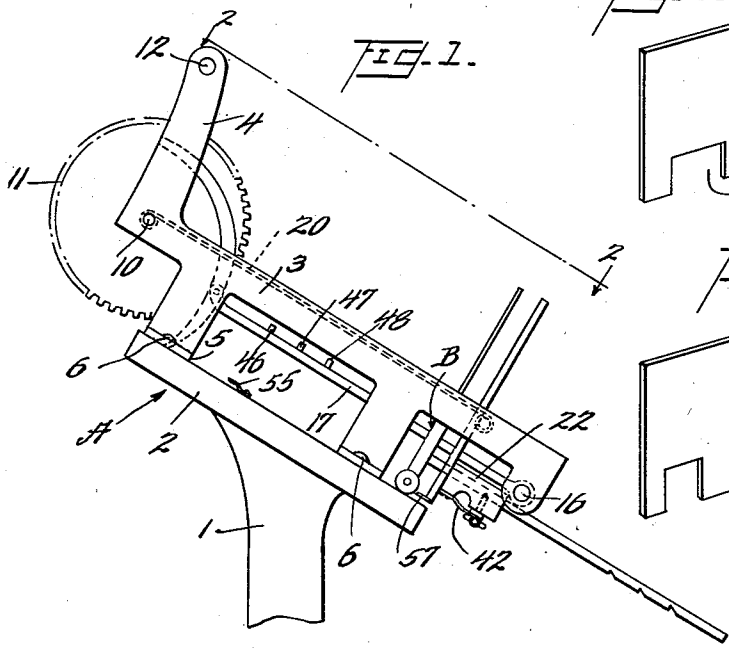


FIG. 9.

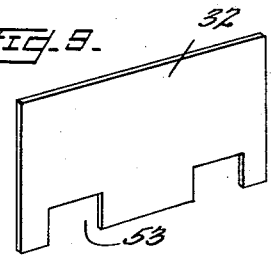


FIG. 10.

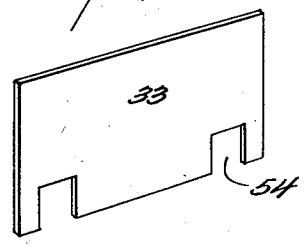
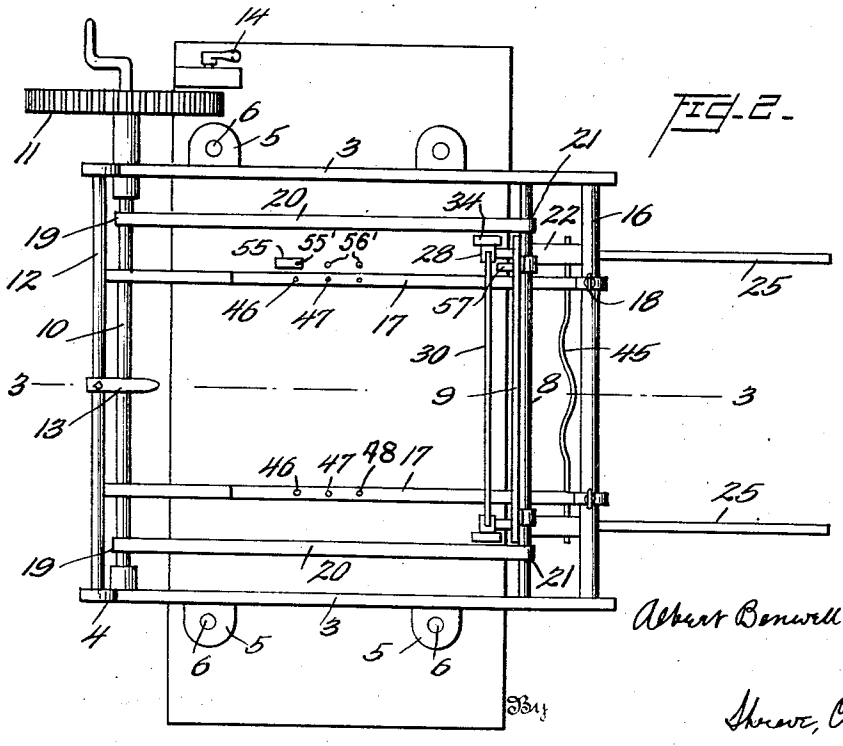


FIG. 2.



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FIG. 3.

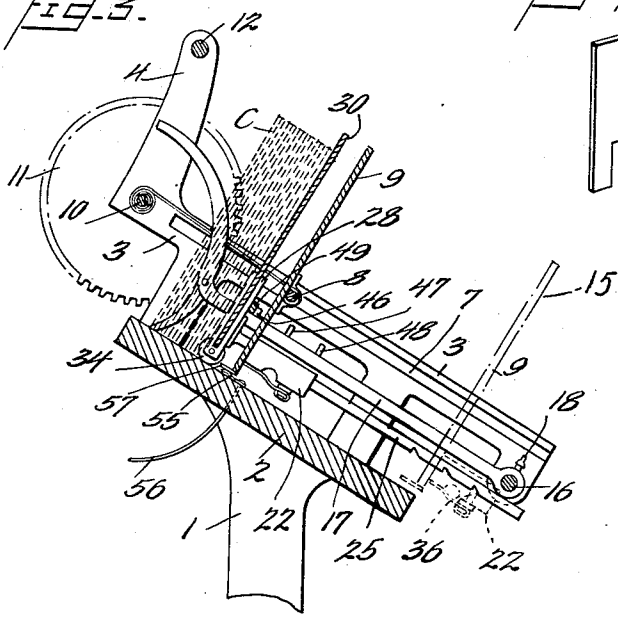


FIG. 7.

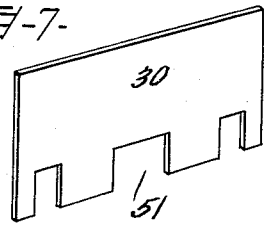


FIG. 8.

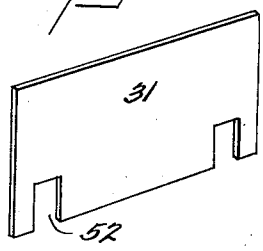


FIG. 4.

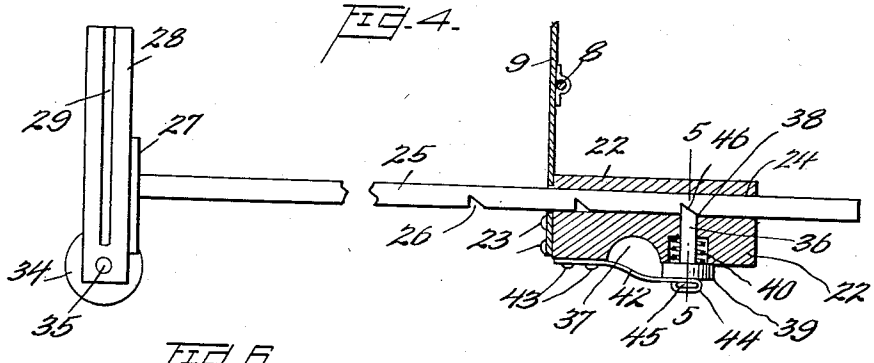


FIG. 6.

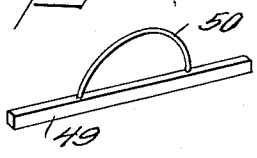
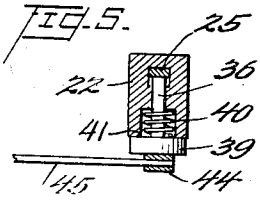


FIG. 5.



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Patented Nov. 7, 1939 2,178,783

UNITED STATES PATENT OFFICE

2,178,783

PAPER FEEDING AND RELOADING MECHANISM

Albert Benwell Egger, Jackson, Miss., assignor of one-fourth to W. I. Dement, Jackson, Miss.

Application April 23, 1938, Serial No. 203,920

13 Claims. (Cl. 271—62)

Generically this invention relates to automatic feeders for printing presses, but it is more particularly directed to an auxiliary cooperating means attachable to such a device, permitting the reloading or replenishment of the stock without interrupting the operation of the machine, and thereby rendering it possible to run an indefinite time without the loss of an impression.

One of the principal objects of this invention is the provision of an auxiliary mechanism of this character, simple in construction, cooperatively associated with the elevator advancing plate of an automatic feeder for printing presses, of the types well known to the art, and with special reference to Kluge, operative to permit replenishment of the stock without interrupting the continuous flow of the stock to the printing press.

Another important object of this invention is the provision of a stock reloading attachment for an automatic feeder embodying an auxiliary unit carried and driven by the elevator advancing plate of said Kluge feeder, including a series of detachable and interchangeable panels or auxiliary advancing plates for different types and sizes of stock, adjustable with respect to said elevator, and whereby the necessity for additional expensive hookups and cumbersome chain and other driving means for the auxiliary mechanism is eliminated.

A further important object of this invention is the provision of a stock reloading attachment associated with the elevator advancing plate mechanism, as above referred to, and including means cooperating with said detachable panel structure and the magazine side gauge members to maintain the panel in feeding relation with the diminished stock during return of the elevator advancing structure to reloading position.

Another important object of this invention is the provision of a simplified auxiliary advancing plate mechanism of this character utilizing the primary advancing structure drive, carried by and adjustable with respect to said primary advancing mechanism, including means for signalling when reloading is necessary, and adapted to maintain continuous feed of the stock to the press during the reloading operation.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which like characters of reference indicate like parts throughout the several figures, of which:

Fig. 1 is a side elevation with the elevator retracted.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is a vertical section on the line 3—3 of Fig. 2 with the elevator advancing plate and associated mechanism advanced.

Fig. 4 is a detail elevation partly in section of the auxiliary mechanism associated with the elevator advancing plate.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a perspective view of the panel structure retaining bar.

Figs. 7, 8, 9, and 10 are perspective views of various panels or plates used for different sizes of stock.

Various attempts have been made to effect reloading of automatic feeders without disturbing the continuous feed of the stock to the press, but those with which I am familiar, are either too expensive to produce, difficult to install, complex in their structural arrangement, and requiring additional or independent chains, gearing or other driving means for the auxiliary mechanisms, and it was to overcome such disadvantages by providing an auxiliary elevator advancing mechanism attached to, driven by, and adjustable with respect to the elevator advancing plate mechanism of, in the present instance, a Kluge automatic feeder, simple in construction, installable without material changes to the existing structure, comprising anchor blocks rigidly attached to the elevator advancing plate, a pair of rods slidably supported in said blocks, spring controlled means also associated with said blocks and coacting with the bars or rods to predeterminedly lock them with respect to said blocks, the outer ends of said rods carrying slotted standards adapted to detachably receive a selected panel or auxiliary advancing plate in accordance with a particular type of stock, and means for retaining said panel advanced when the elevator advancing plate is returned to retracted and stock reloading position, that I designed the attachable unit forming the subject matter of this invention.

In the illustrated embodiment characterizing this invention there is shown an automatic feeder A and auxiliary reloading unit B mounted thereon and coacting therewith to effect the continuous feed of stock C to the printing press (not shown) during the replenishment or reloading of the stock as it is diminished.

The automatic feeder mechanism A comprises a supporting base portion 1 on which is suitably

mounted the magazine base plate 2, and mounted on said plate is a pair of elevator slide members 3 formed at one of their ends with upwardly projecting portions 4 and with foot portions 5 secured by screws 6 or in any suitable manner and formed on their respective inner faces with longitudinal slots 7 adapted to slidably receive the respective end portions of elevator shaft 8 on which is suitably mounted the elevator or elevator advancing plate 9. Journalled in the lower ends of the upwardly projecting portions 4 is the elevator ratchet shaft 10 which is operated by a gear mechanism 11, and pawl mechanism (not shown) also effects movement of elevator adjusting arm shaft 12 and elevator adjusting arm 13 suitably mounted thereon which normally regulates the travel of the stock to the feeding arm suckers (not shown). 14 indicates the elevator pawl release lever which when pulled down permits the elevator advancing plate to slide back from advance position to the position shown in dotted lines, Fig. 3, as at 15, as will directly more fully appear. The slide members 3 are connected at their rear ends by tie-shaft 16 and mounted on said tie-shaft and longitudinally adjustable thereon are a pair of magazine side gauge members 17 secured by thumb screws 18. Suitably secured to the ratchet shaft 10 at one end as at 19 and adapted to be wound on said shaft are a pair of tapes 20, said tapes having their other ends suitably secured to said elevator shaft structure as at 21 so that rotation of ratchet shaft 10 will move the elevator advancing plate 9 forwardly in stock feeding direction, as will hereinafter more fully appear.

The reloading unit B comprises a pair of anchor blocks 22 each having one end rigidly secured to the rear face of elevator advancing plate 9 spaced from its lower edge and secured by bolts 23 extending through the elevator plate and threadedly engageable in said blocks, whereby the blocks are carried by said advancing plate and adapted to move therewith. Each of the blocks 22 is longitudinally bored as at 24 to slidably receive and support rods or bars 25 formed on their under surfaces with, in the present instance, a trio of spaced notches 26 spaced from the free ends of the bars. The opposite ends of the bars 25 are suitably connected as at 27 to the perpendicular standards 28 longitudinally slotted on their inner sides as at 29 to slidably receive the ends of one of the interchangeable panels or auxiliary advancing plates 30, 31, 32, and 33, as will directly more fully appear. The lower ends of the standards 28 are provided with rollers 34 journalled on stub shafts 35 suitably mounted in said standards.

The rollers 34 are adapted to travel on base plate 2 not only tending to maintain the rods 25 in true alignment with bores 24, but effecting smooth operation and return of the panel structure to retracted reloading position as shown in Fig. 1, upon release of said rods 25 by the disengagement of pins 36 from notches 26, as will directly more fully appear.

In the present instance, blocks 22 have cut out portions 37 in their under surfaces. The blocks 22 are formed with vertical bores 38, intersecting the longitudinal bores 24, in which are mounted pins 36, the heads 39 of which constitute seats for expansion springs 40 mounted on pins 36 in the countersunk openings 41.

Leaf springs 42 are secured at one end to the under surface of blocks by screws or other fastening means 43, their other ends 44 extending beneath heads 39 and are lapped around the ends of a strip of metal or other material 45 or secured thereto in any suitable manner. These springs 42 and the strip or bar 45 tend to maintain the pins 36 in engagement with a respective pair of notches 26 of bars 25. The ends of said pins 36 are beveled as at 46 to conform to the configuration of the notches 26 as will be apparent. When the bar 45 is depressed, springs 40 effect disengagement of the pins from the notches and permit the movable structure, carrying panel 30 or other selected panel, to assume loading position as shown in Fig. 1.

In order to maintain the panel mechanism 30 in operative contact with the diminished stock C, Fig. 3, so there will be no interruption to the continuous feed of the stock, while the advancing elevator element 9 is returned to the position indicated at 15 for purpose of reloading, a series of spaced and aligned lugs 46, 47, and 48 are suitably mounted on the magazine side gauge members 17 and which constitute stops for cross bar 49 having handle 50 suitably secured thereto, when said bar is inserted intermediate lugs 46 and panel 30, and standards 28, as shown in Fig. 3. The series of lugs are for the purpose of taking care of the different thicknesses of stock. The notches 26 are for the same purpose and correspond with said series of lugs, as will be apparent.

While for purposes of description panel 30 has been more particularly referred to, it is to be understood that the interchangeable panels 30, 31, 32, and 33 may be selectively used according to the sizes and type of stock. For instance, panel 30 is used when feeding envelopes (two on) or two at a time, 31 for large stock, 32 for small stock or envelopes, one on, and 33 for medium size stock. While four have been specified, it is obvious that other panels may be employed according to operating requirements. The cut out formations 51, 52, 53, and 54 at the lower edges of these panels differ in order to allow for the adjustment of parts, such as the magazine side gauges, to different sizes of stock.

Mounted on base plate 2 in any suitable manner and with an adjustable range substantially corresponding to that of the pins 46—48 is a movable contact 55, adjustable by the insertion of pin 55' in the desired opening 56', electrically connected to a suitable bell or other signal device, not shown, by conductor 56; and suitably mounted on the elevator advancing structure 9 is a contact 57, so that when contact 55 is set in accordance with the particular stock being fed, and when contact 57 carried by elevator 9 engages contact 55, a signal will be given to replenish the stock.

The installation of the auxiliary advancing plate or reloading unit structure may be accomplished readily and with but slight changes to the existing structure of the automatic feeder above described. Each of the anchor blocks 22 is provided at one end with at least two threaded openings, and all that is necessary to attach the reloading attachment to the Kluge feeder is to drill two holes at each end of the elevator advancing plate 9 at its lower edge in alignment with the holes in the blocks and insert screws 23 rigidly securing the blocks to said plate. This elevator advancing plate has two aligned longitudinal slots already therein and the bores 24 being in alignment therewith, the rods 25 may be readily positioned in the bores without further change to existing structure. The only other change necessary is to drill three holes in each

of the magazine side gauge members in which are driven the pins 46, 47, and 48, or otherwise attached as desired.

While the operation of the device would seem to be clear from the above description, it might be well to further state that initially when the feeder is first loaded with stock, the rods or bars 25 are in their extreme retracted position with standards 28 carrying panel 30 in contact with or adjacent to elevator advancing plate 9. The rotation of ratchet shaft 10 through the instrumentality of tapes 20 advances plate 9 and the panel 30 mounted in front thereof and advanced thereby as the stock diminishes and when they reach a predetermined point so that contact 57 engages contact 55 a circuit is completed through conductor 56 to a signalling device, such as a bell, light, or the like, giving warning that the stock requires replenishing, then retaining bar 49 is positioned intermediate standards 28 and pins 46 to retain said standards and panel 30 in stock engaging position when the elevator pawl release lever is pulled down permitting the elevator advancing plate 9 carrying anchor blocks 22 to slide back to its open position or to the full length of the tapes, as indicated at 15, Fig. 3, and at this point pins 36 automatically engage the proper notches 26 under the action of springs 42, and the rods 25, standards 28, and panel 30 move as a unit with blocks 22 and elevator advancing plate 9 to prevent uninterrupted feed of said stock during the reloading operations. The bar 49 may now be removed and the space between panel 30 and the retracted elevator plate 9 reloaded with stock, then panel 30 is removed from standards 28, bar 45 depressed, permitting pins 36 to be disengaged by springs 40 from notches 26 and permitting bars 25 to slide through blocks 22 and standards 28 to roll back to their initial position adjacent to elevator 9 and panel 30 being again positioned in standards 28 in front of the elevator plate 9, the operation of the device is repeated as in the first instance, so that continuous feed of the stock to the press is effected without interruption during the reloading operations and to the end of the run, as will be clear without further explanation.

While in the above description I have used the terms "magazine base plate", "magazine side gauges", which in effect constitute a stock feeding magazine, and "elevator advancing plate" and "auxiliary advancing panel", it is to be understood that other designations well known in the art may also be used such as "stock feeding machine", and "followers", instead of "elevator advancing plate" and "auxiliary advancing panel or plate", if desired, without in any way departing from the scope or spirit of this invention.

From the above it is apparent that I have designed a simple structure which may be mounted on a Kluge feeder without material change to existing structure, attachable substantially as a unit, operable to effect feeding of the stock to the printing press without interrupting the continuity of the feed during reloading operations, capable of feeding different sized stocks without manual adjustments of parts, manufacturable at a minimum of cost, and efficient for the purposes intended.

Although in practice it has been found that the form of the invention illustrated in the accompanying drawings and referred to in the above description as the preferred embodiment is the most efficient and practical, yet realizing the conditions concurrent with the adoption of the invention will necessarily vary, it is well to emphasize that various minor changes in details of construction, proportion and arrangement of parts, may be resorted to within the scope of the appended claims without departing from or sacrificing any of the principles of this invention.

Having thus described the invention, what is desired protected by Letters Patent is as set forth in the following claims:

1. In a stock feeding mechanism, an inclined base plate, magazine gauge members, a pair of stock engaging followers, and means to move the followers for stock feeding purposes upwardly with respect to said base plate to a predetermined point, additional means associated with said gauge members for retaining one of the followers at said point, means for effecting return of the other follower down said inclined base plate to its initial position, and means for interconnecting the followers to again effect their simultaneous movement in the same direction for stock feeding purposes.

2. In a stock feeding mechanism, an inclined base plate, a pair of stock engaging followers, and means for simultaneously moving upwardly the two followers with respect to said base plate in the same direction for stock feeding purposes, means for retaining one of said followers at a predetermined point in the path of its movement, releasable means for returning the other follower down said inclined base plate to its initial position, and means for interlocking the followers to again effect their simultaneous movement in the same direction whereby to continue the feed of the stock during its replenishment.

3. In a stock feeding mechanism, an inclined base plate, a pair of stock engaging follower plates, means to move the follower plates for stock feeding purposes upwardly with respect to the base plate to a predetermined point, said follower plates having a common mounting and normally advancing simultaneously to feed the stock, means for holding one of the plates at a predetermined point, means operable to effect return of the other plate downwardly to its initial position, and means automatically operable to effect interlocking and driving connection between said plates during the reloading operation, said means including a manually controlled mechanism.

4. In a stock feeding mechanism, a base plate, a pair of stock engaging follower plates, and means to move the follower plates for stock feeding purposes with respect to the base plate to a predetermined point along an upwardly inclined plane, said follower plates having a common mounting and normally advancing simultaneously in stock feeding direction, means for holding one of the plates at said predetermined point, means for effecting return of the other plate down said inclined plane to its initial position, and means automatically operable to effect interlocking and driving connection between said plates during the reloading operation, said means including spring controlled manually operable pins.

5. In a stock feeding mechanism, a base plate, a pair of stock engaging follower plates, and means to move the follower plates for stock feeding purposes with respect to the base plate to a predetermined point upwardly along an inclined plane, said follower plates having a common mounting and normally advancing simultaneously in stock feeding direction, means for holding one of the plates at said predetermined point, means for effecting return of the other plate down said

inclined plane to its initial position, and means automatically operable to effect interlocking and driving connection between said plates during the reloading operation, said means including pins releasably controlled by a single rod.

6. In combination with an automatic stock feeder including a magazine base plate and elevator advancing plate, of an auxiliary elevator advancing mechanism, said mechanism comprising anchor means rigidly secured to said elevator plate, means for driving said elevator plate, an elevator panel structure movably connected to said anchor means including a detachable panel, means to retain said panel in advanced position during return of the elevator to its initial position, and additional means for locking the panel structure to the elevator plate whereby to impart the drive of the elevator to the panel structure during reloading of the device.

7. In an automatic stock feeder including an upwardly inclined base plate, stock engaging elevator advancing plate, means for driving said elevator plate, releasable means operable to effect return of said elevator plate down said inclined base plate to reloading position, an auxiliary advancing panel structure including a detachable panel connected to and driven by said elevator advancing plate, means to retain said panel structure at a predetermined advanced point during return of said elevator plate to reloading position, and means effecting interlocking connection of said elevator plate and panel structure whereby they advance as a unit during the reloading operation, said means being releasable following said reloading operation and removal of said panel to permit gravity return of the panel structure to its initial position.

8. In an automatic stock feeder including an inclined base plate, a stock engaging elevator advancing plate associated with said base plate, means for driving said elevator plate up said inclined base plate, means for effecting return of said elevator plate down said inclined base plate to reloading position when a predetermined point in feeding direction has been reached, of an auxiliary advancing panel structure slidably connected to said elevator advancing plate, means for retaining said panel structure in contact with the diminished stock during the downward return of the elevator plate to loading position, and means automatically operable to effect interlocking and driving connection between said elevator plate and panel structure during the reloading operation.

9. In an automatic stock feeder including an inclined magazine base plate, a pair of magazine side gauge members relatively adjustable in accordance with different sized stock, a stock engaging elevator advancing plate movable with respect to the base plate, means for upwardly advancing said elevator plate, and releasable means operable to effect return of said elevator plate downwardly to reloading position when it has reached a predetermined point in feeding direction, of an auxiliary advancing panel holding structure, a plurality of interchangeable panels, said holding structure adapted to slidably carry a selected panel in accordance with different sized stocks, said elevator advancing plate and panel structure having a common mounting, said advancing panel structure being slidably connected to said elevator advancing plate through said mounting, releasable means carried by said mounting effecting interlocking connection of the elevator plate and panel structure whereby they are upwardly advanced simultaneously in stock feeding direction, and means for holding said panel structure at a predetermined advanced point while said elevator plate is returned downwardly to stock reloading position.

10. In an automatic stock feeder including an inclined magazine base plate, a pair of magazine side gauge members relatively adjustable in accordance with different sized stock, a stock engaging elevator advancing plate movable with respect to the base plate, means for advancing said elevator plate upwardly with respect to said inclined base plate, and means for effecting return of said elevator plate downwardly with respect to said inclined base plate to reloading position when it has reached a predetermined point in feeding direction, of an auxiliary advancing panel holding structure, a plurality of interchangeable panels, said holding structure adapted to slidably carry a selected panel in accordance with different sized stocks, said elevator advancing plate and panel structure having a common mounting, said advancing panel structure being slidably connected to said elevator advancing plate through said mounting, means carried by said mounting for automatically effecting interlocking connection between the elevator plate and panel structure whereby they are upwardly advanced simultaneously as a unit in stock feeding direction, means for holding said panel structure at a predetermined advanced point while said elevator plate is downwardly returned to stock reloading position, said panel being detachable and said interlocking means releasable to permit return of the panel holding structure to its initial position.

11. In an automatic stock feeder including a base plate, a stock engaging elevator advancing plate, means for advancing said elevator plate upwardly along an inclined plane and releasable means for effecting the return of said elevator plate downwardly along said inclined plane to reloading position, an auxiliary panel advancing structure, means adjustably effecting interlocking connection of the elevator plate and panel structure whereby the latter is driven upwardly along said inclined plane by said elevator plate during the reloading operation, said means being operable to render said connection movable when the panel structure has reached a predetermined advanced point, means adjustable in accordance with different sized stock adapted to retain said structure at such advanced point during return of the elevator advancing plate downwardly along said inclined plane to reloading position, the adjustment of said retaining means controlling the adjustment of the interlocking connection.

12. The combination with an automatic stock feeder including a base plate, an elevator advancing plate, and means for driving the elevator advancing plate, of a reloading unit adapted to be operatively associated with the elevator plate and base plate, said unit consisting of a pair of anchor blocks adapted to be secured to the elevator advancing plate, a pair of rods slidable through said elevator plate and blocks, means for effecting an interlocking connection between the rods and blocks, and a panel detachably carried by the free ends of the rods.

13. The combination with an automatic stock feeder including a base plate, an elevator advancing plate, means for driving the elevator advancing plate, and releasable means permitting the return of said elevator plate to reloading position, of a reloading unit adapted to be oper-

atively associated with the elevator plate and base plate, said unit consisting of a roller supported auxiliary panel, rods extending from the panel and slidable through the elevator plate, anchor means secured to the elevator advancing plate, releasable means in connection with the anchor means to interlockingly engage the free ends of the rods slidably extending through said anchor means, and means associated with the auxiliary panel to hold said panel in advanced position during the return of the elevator plate to reloading position.

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