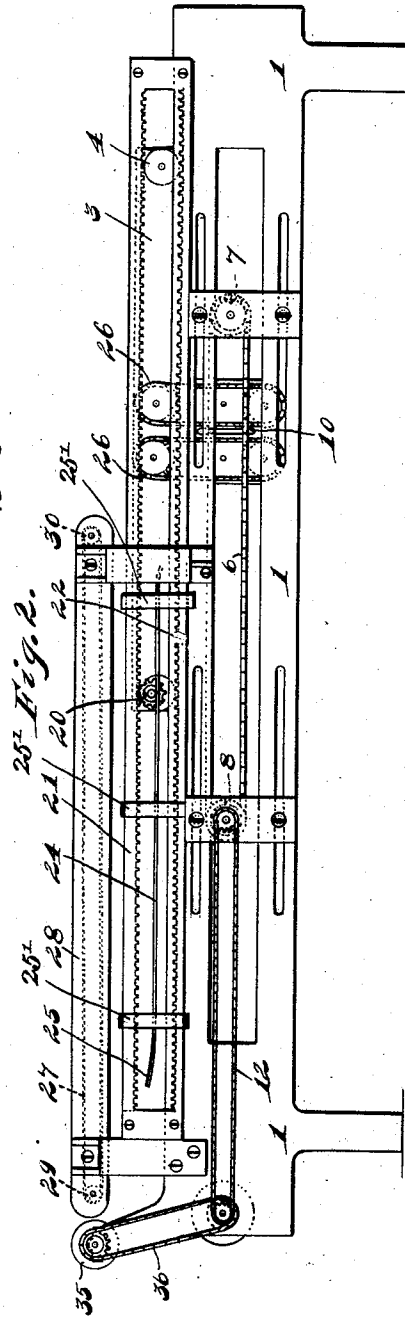
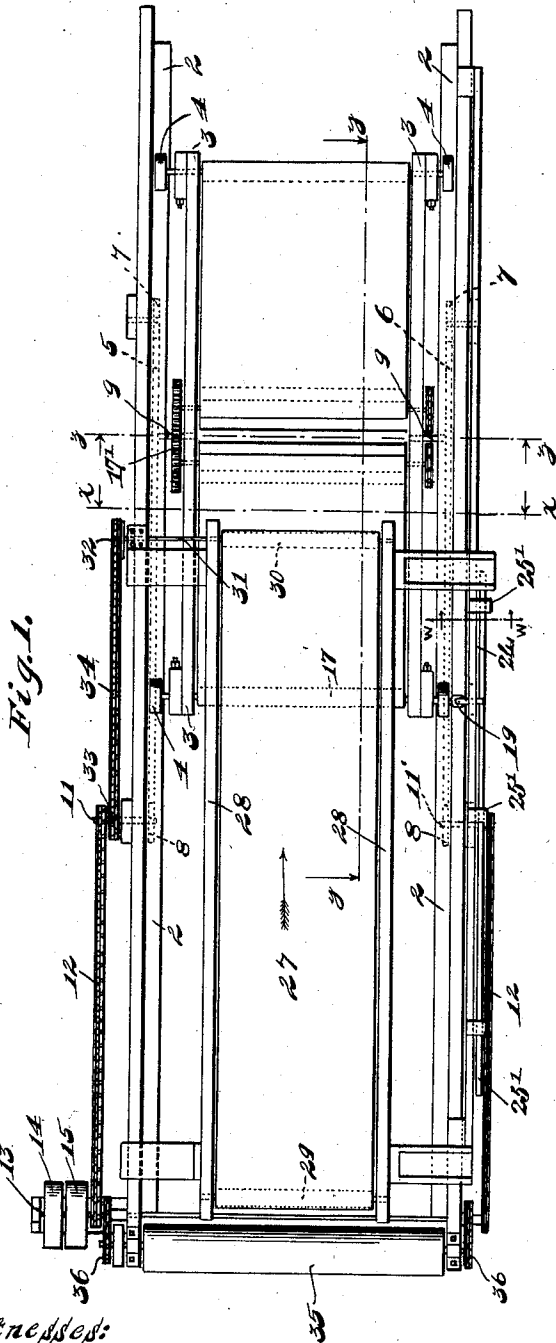


1,061,972.

P. BELLAN.
FOLDING MACHINE.
APPLICATION FILED JUNE 5, 1911.

Patented May 20, 1913.

3 SHEETS-SHEET 1.



Witnesses:
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B. G. Richards

Inventor:
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By *John H. Tass*
his Attorney.

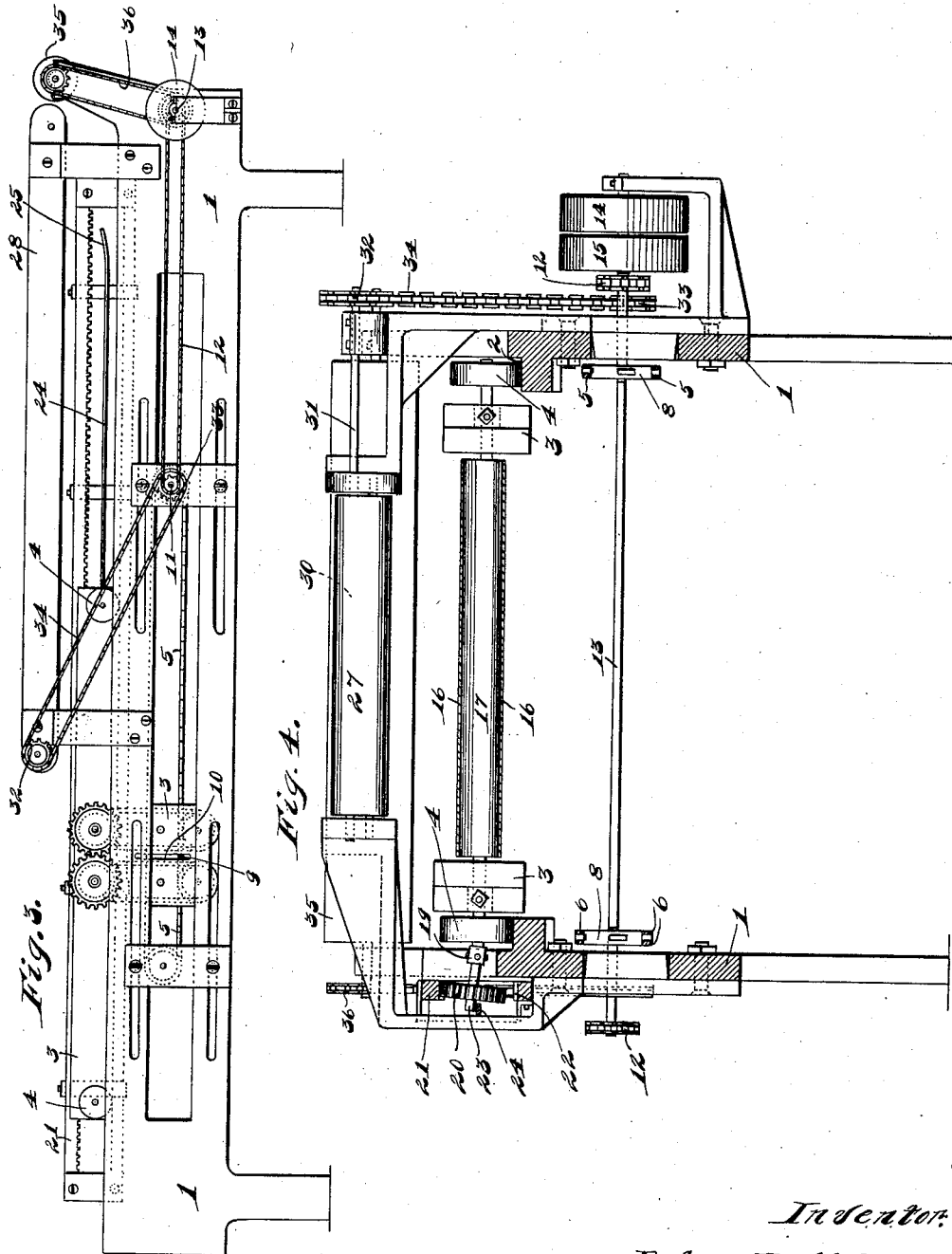
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3 SHEETS-SHEET 2.



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3 SHEETS—SHEET 3.

1,061,972.

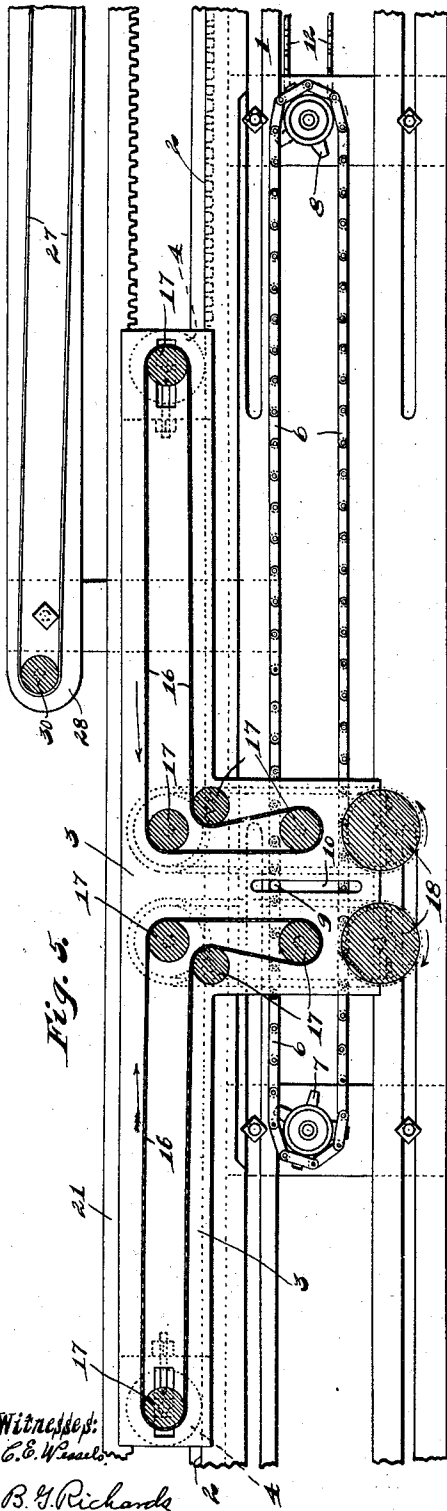


Fig. 5.

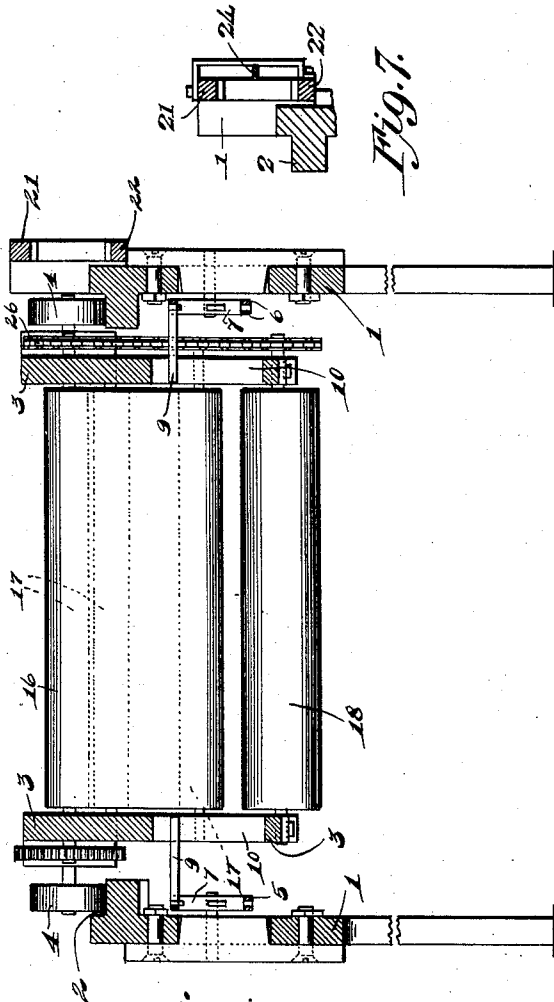


Fig. 6.

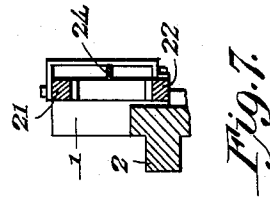


Fig. 7.

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UNITED STATES PATENT OFFICE.

PETER BELLAN, OF CHICAGO, ILLINOIS.

FOLDING-MACHINE.

1,061,972.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed June 5, 1911. Serial No. 631,255.

To all whom it may concern:

Be it known that I, PETER BELLAN, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Folding-Machines, of which the following is a specification.

My invention relates to folding machines particularly adapted for folding cotton batting for use in mattresses, comforts, pads, etc., although it is to be understood that my invention is not limited to such use but may be embodied in a machine for folding cloth or for other similar uses.

The objects of my invention are to provide a machine of the character mentioned which shall neatly, accurately and quickly fold the material into several laps as desired, and further to provide a machine as stated which may be adjusted to make the several folds or laps of any desired length.

Further objects of my invention are to provide in a machine of the class under consideration improved mechanism for driving the feed mechanism and for reciprocating the carriage.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a top plan view of a folding machine embodying my invention, Fig. 2, a side elevation of the same, Fig. 3, a side elevation of the machine showing the side opposite to that shown in Fig. 2, Fig. 4, an enlarged section of the machine taken on line $w-w$ of Fig. 1, Fig. 5, an enlarged section of the machine taken on line $y-y$ of Fig. 1, Fig. 6, an enlarged section of the machine taken on line $z-z$ of Fig. 1, and, Fig. 7 is a section on the line $w-w$ of Fig. 1.

The preferred form of construction as illustrated in the drawings comprises a suitable frame 1 provided with suitable tracks 2. A carriage 3 is provided with supporting rollers 4 which run on tracks 2 thus permitting longitudinal reciprocations of said carriage. Sprocket chains 5 and 6 are mounted in frame 1 adjacent each side of carriage 3 and pass over sprocket wheels 7 and 8 which are adjustably mounted on said frame as shown. Each of said sprocket chains carries a pin 9 engaging a vertical slot 10 in the side of carriage 3 as shown. Sprocket wheels 8 are mounted upon shafts 11 and 11' which

are extended slightly from the sides of frame 1 and are connected by means of sprocket chains 12 with the main drive shaft 13 of the machine. Shaft 13 is provided with a tight and loose pulley 14 and 15 for operating the machine. By this construction it will be observed, that upon rotation of shaft 13, sprocket chains 5 and 6 will be caused to travel over sprocket wheels 7 and 8 and pins 9 operating in slots 10 in the sides of carriage 3 will cause said carriage to reciprocate on frame 1 a distance equal to the operative length of said sprocket chain. When it is desired to change the length of reciprocation of the carriage, this may be done by adjusting the sprocket wheels 7 and 8 toward and away from each other and shortening or lengthening sprocket chains 5 and 6 to correspond.

Carriage 3 carries feed aprons 16 arranged over rollers 17 as shown in Fig. 5. The feed aprons 16 are arranged to feed a strip or web of cotton batting or similar material to discharging rollers 18 as indicated in Fig. 5. The shaft of one of the rollers 17 is extended laterally from carriage 3 and provided with a universal joint 19. A pinion 20 is connected with the universal joint 19 and oppositely disposed rack bars 21 and 22 are arranged above and below the path of travel of said pinion. The upper end 23 of the pinion shaft is extended as shown and rides upon a guide 24 mounted at the side of frame 1. Guide 24 is provided with flexible deflected spring ends 25 and the arrangement is such that as pinion 20 reciprocates with carriage 3 it is held in mesh with one of the rack bars while traveling in one direction and is shifted and held in mesh with the other rack bar while traveling in the opposite direction. It is obvious that the guides 24 must be substantially the same in length as the distance traveled by the carriage, hence when the travel of the carriage is adjusted the length of the guide must be correspondingly changed. To this end I provide the guides with brackets 25' which are detachably secured to the frame, and by equipping the device with a number of interchangeable guides of different lengths, the guides may be changed to correspond to the travel of the carriage. Discharging rollers 18 are operatively connected with rollers 17 and aprons 16 by means of sprocket chains 26 as shown and the shafts of adjacent rollers of the two aprons are

connected by intermeshing pinions 17'. By this arrangement it will be observed that when carriage 3 reciprocates, aprons 16 and discharge rollers 18 will be driven continuously in the directions indicated by the arrows in Fig. 5 and that when the carriage pauses at the ends of its reciprocations, said aprons and discharging rollers will pause to correspond, thus preventing feed of the material to be folded during the pause at the ends of the reciprocations of the carriage.

An apron 27 is mounted in a frame 28 projecting upwardly from frame 1 and passes over rollers 29 and 30 as indicated. The shaft 31 of roller 30 is extended laterally and provided with a sprocket wheel 32 connected with a sprocket wheel 33 on shaft 11 by means of a sprocket chain 34, thus providing a means for driving apron 27. A roller 35 is mounted in operative relation with apron 27 so as to direct material thereon. Roller 35 is driven by means of sprocket chains 36 connecting with shaft 13. By this arrangement it will be observed, that a strip of cotton batting or similar material fed to roller 35 and apron 27 will be directed onto aprons 16 and thus discharged downwardly from rollers 18. The web discharging from rollers 18 will be nicely laid upon a table or other suitable support by the reciprocations of carriage 3. Owing to the fact that the discharge of the web will be discontinued during the pause of the carriage at each end of its reciprocations, a nice and exact fold will be made.

While I have illustrated and described the preferred form for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of my invention. I, therefore, do not wish to be limited to the precise details set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. A folding machine comprising a frame; a carriage mounted to reciprocate on said frame; means for reciprocating said carriage; feeding means arranged on said carriage; a pinion carried by said carriage and connected to drive said feeding means; two rack bars arranged in operative relation with said pinion; and means for causing said pinion to mesh with one of said rack bars during its movement in one direction and with the other of said rack bars during its movement in the other direction, substantially as described.

2. A folding machine comprising a frame, a carriage mounted to reciprocate on said frame, means for reciprocating said carriage, feeding means arranged on said carriage, a pinion carried by said carriage and

connected to drive said feeding means, two rack bars arranged in operative relation with said pinion, a guide arranged adjacent the rack bars for holding the said pinion into engagement with said rack bars, said guide being provided with flexible ends adapted to shift said pinion from one rack bar to the other at the reversal of movement of the carriage, substantially as described.

3. A folding machine comprising a frame; a carriage mounted to reciprocate horizontally on said frame, said carriage being provided with a vertical slot; a sprocket chain mounted at one side of said carriage; a pin on said chain engaging said slot; means for driving said chain; feeding means arranged on said carriage, a pinion carried by said carriage and connected to drive said feeding means; two rack bars arranged in operative relation with said pinion; and means for causing said pinion to mesh with one of said rack bars during its movement in one direction and with the other of said rack bars during its movement in the other direction, substantially as described.

4. A folding machine comprising a frame; a carriage mounted to reciprocate on said frame; means for reciprocating said carriage; downwardly discharging rollers on said carriage; feed aprons arranged to feed to said rollers; a driving shaft connected to operate said rollers and aprons; a pinion having a universal joint connection with said driving shaft; oppositely disposed rack bars arranged above and below the path of travel of said pinion and at a distance apart slightly greater than the outside diameter of said pinion; and a guide for said pinion arranged to hold said pinion in mesh with one of said rack bars during its movement in one direction and with the other of said rack bars during its movement in the other direction, substantially as described.

5. A folding machine comprising a frame; a carriage mounted to reciprocate on said frame; means for reciprocating said carriage; downwardly discharging rollers on said carriage; feed aprons arranged to feed to said rollers; a drive shaft connected to operate said rollers and aprons; a pinion having a universal joint connection with said drive shaft; oppositely disposed rack bars arranged above and below the path of travel of said pinion and at a distance apart slightly greater than the outside diameter of said pinion, and a guide for said pinion arranged to hold said pinion in mesh with one of said rack bars during its movement in one direction and with the other of said rack bars during its movement in the other direction, said guide being provided with flexible ends adapted to shift said pinion from one rack bar to the other at each end of its reciprocation, substantially as described.

6. A folding machine comprising a frame;

a carriage mounted to reciprocate on said frame, said carriage being provided with a vertical slot; a sprocket chain mounted at one side of said carriage; a pin on said chain engaging said slot; means for driving said chain; downwardly discharging rollers on said carriage; feed aprons arranged to feed to said rollers; a drive shaft connected to operate said rollers and aprons, a pinion having a universal joint connection with said drive shaft, oppositely disposed rack bars arranged above and below the path of travel of said pinion and at a distance apart slightly greater than the outside diameter of said pinion; and a guide for said pinion arranged to hold said pinion in mesh with one of said rack bars during its movement in one direction and with the other of said rack bars during its movement in the other direction, substantially as described.

7. A folding machine comprising a frame; a carriage mounted to reciprocate on said frame, said carriage being provided with a vertical slot; a sprocket chain mounted at one side of said carriage; a pin on said chain engaging said slot; means for driving said chain; downwardly discharging rollers on said carriage; feed aprons arranged to feed to said rollers; a drive shaft connected to operate said rollers and aprons; a pinion having a universal joint connection with said drive shaft; oppositely disposed rack bars arranged above and below the path of travel of said pinion and at a distance apart slightly greater than the outside diameter of said pinion; and a guide for said pinion arranged to hold said pinion in mesh with one of said rack bars during its movement in one direction and with the other of said rack bars during its movement in the other direction, said guide being provided with flexible ends adapted to shift said pinion from one rack bar to the other at each end of its reciprocation, substantially as described.

8. A folding machine comprising a frame; a carriage mounted to reciprocate horizontally on said frame, said carriage being provided with a vertical slot in each of its sides; a sprocket chain arranged at each side of and parallel to the path of travel of said carriage; pins on said chains engaging said slots; means for driving said chains at the same speed; downwardly discharging rollers on said carriage; feed aprons arranged to feed to said rollers; a driving shaft connected to operate said rollers and aprons; a pinion having a universal joint connection with said drive shaft; oppositely disposed rack bars arranged above and below the path of travel of said pinion and at a distance apart slightly greater than the outside diameter of said pinion; and a guide for said pinion arranged to hold said pinion in mesh with one of said rack bars during

its movement in one direction and with the other of said rack bars during its movement in the other direction, substantially as described.

9. A folding machine comprising a frame, a carriage mounted to reciprocate horizontally on said frame, means for reciprocating said carriage, feed rollers on said carriage, a pinion on the shaft of one of said rollers, a universal joint in said shaft between the roller and the pinion, said shaft being extended beyond said pinion, oppositely disposed rack bars arranged above and below the path of travel of said pinion and at a distance apart slightly greater than the outside diameter of said pinion, and a guide engaging the extended end of said shaft for holding said pinion in mesh with one of said rack bars during its movement in one direction and with the other of said rack bars during its movement in the other direction, substantially as described.

10. A folding machine comprising a frame, a carriage mounted to reciprocate horizontally on said frame, means for reciprocating said carriage, feed rollers on said carriage, a pinion on the shaft of one of said rollers, a universal joint in said shaft between the roller and the pinion, said shaft being extended beyond said pinion, oppositely disposed rack bars arranged above and below the path of travel of said pinion and at a distance apart slightly greater than the outside diameter of said pinion, a guide arranged adjacent the rack bars for holding the said pinion in engagement with the said rack bars, said guide being provided with flexible ends adapted to shift said pinion from one rack bar to the other at the reversal of movement of the carriage, substantially as described.

11. A folding machine comprising a frame, a carriage mounted to reciprocate on said frame, means for regulating the length of said reciprocations, feeding means arranged on said carriage, a pinion carried by said carriage and connected to drive said feeding means, a pair of rack bars arranged in operative relation with said pinion, a guide adapted to be arranged adjacent the rack bars for holding the said pinion in engagement with one of said rack bars during its movement in one direction and with the other of said rack bars during its movement in the reverse direction, said guide being detachably mounted upon the machine, substantially as described.

12. A folding machine comprising a frame, a carriage mounted to reciprocate on said frame, means for regulating the length of said reciprocations, feeding means arranged on said carriage, a pinion carried by said carriage and connected to drive said feeding means, a pair of rack bars arranged in operative relation with said pinion, a guide

arranged adjacent the rack bars for holding
the said pinion into engagement with one
of said rack bars, said guide being detach-
ably mounted on the machine and the ends
5 of said guide being flexible to shift said
pinion from one rack bar to the other at
the reversal of movement of the carriage,
substantially as described.

In testimony whereof I have signed my
name to this specification in the presence of 10
two subscribing witnesses.

PETER BELLAN.

Witnesses:

HELEN F. LILLIS,
JOSHUA R. H. POTTS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."