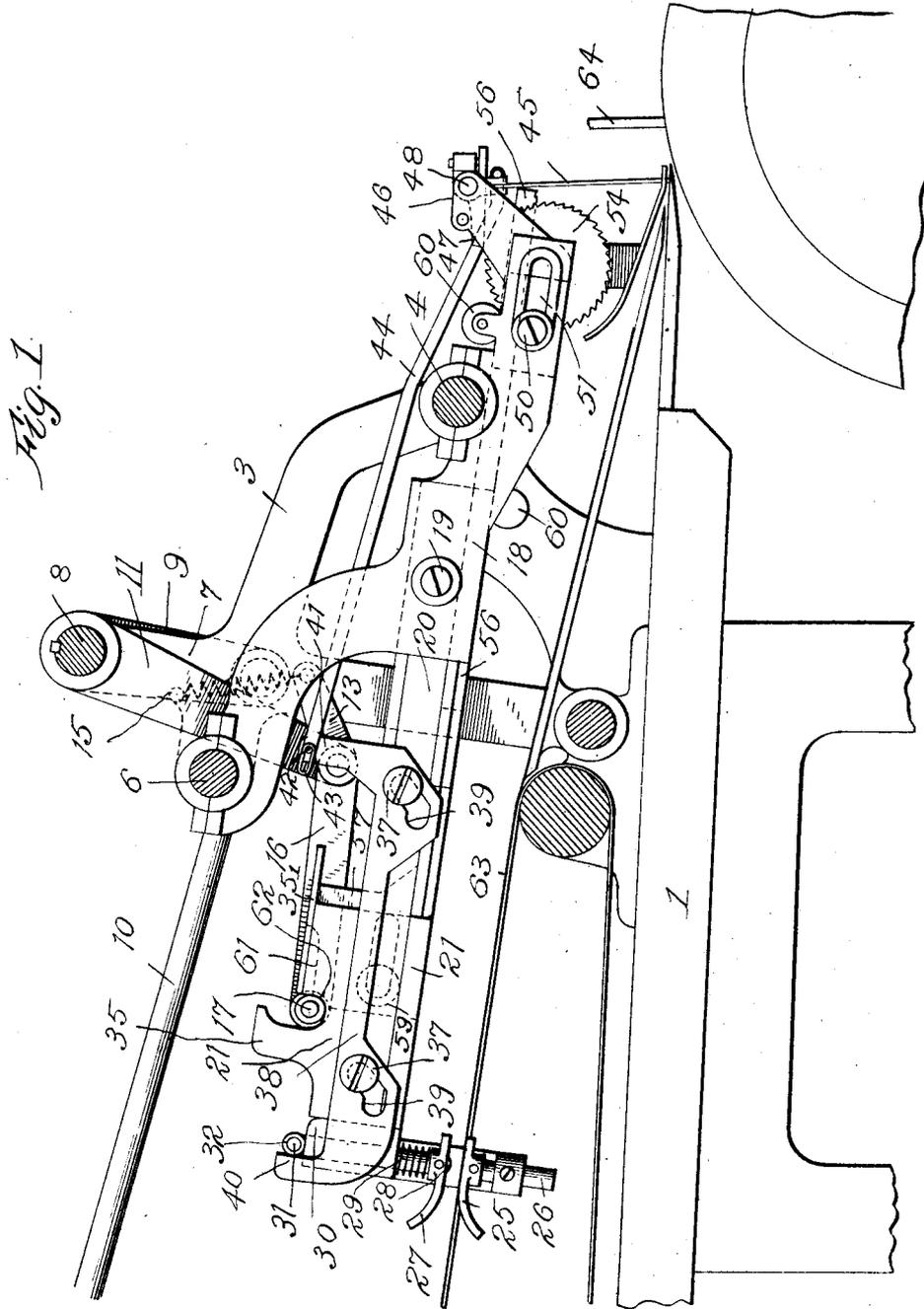


G. A. MARTIN.
 COMBINATION SHEET STRAIGHTENER AND SLOW-DOWN FOR FEEDERS.
 APPLICATION FILED MAY 2, 1912.

1,071,448.

Patented Aug. 26, 1913.

6 SHEETS—SHEET 1.



Witnesses:
 Ray J. Ornt.
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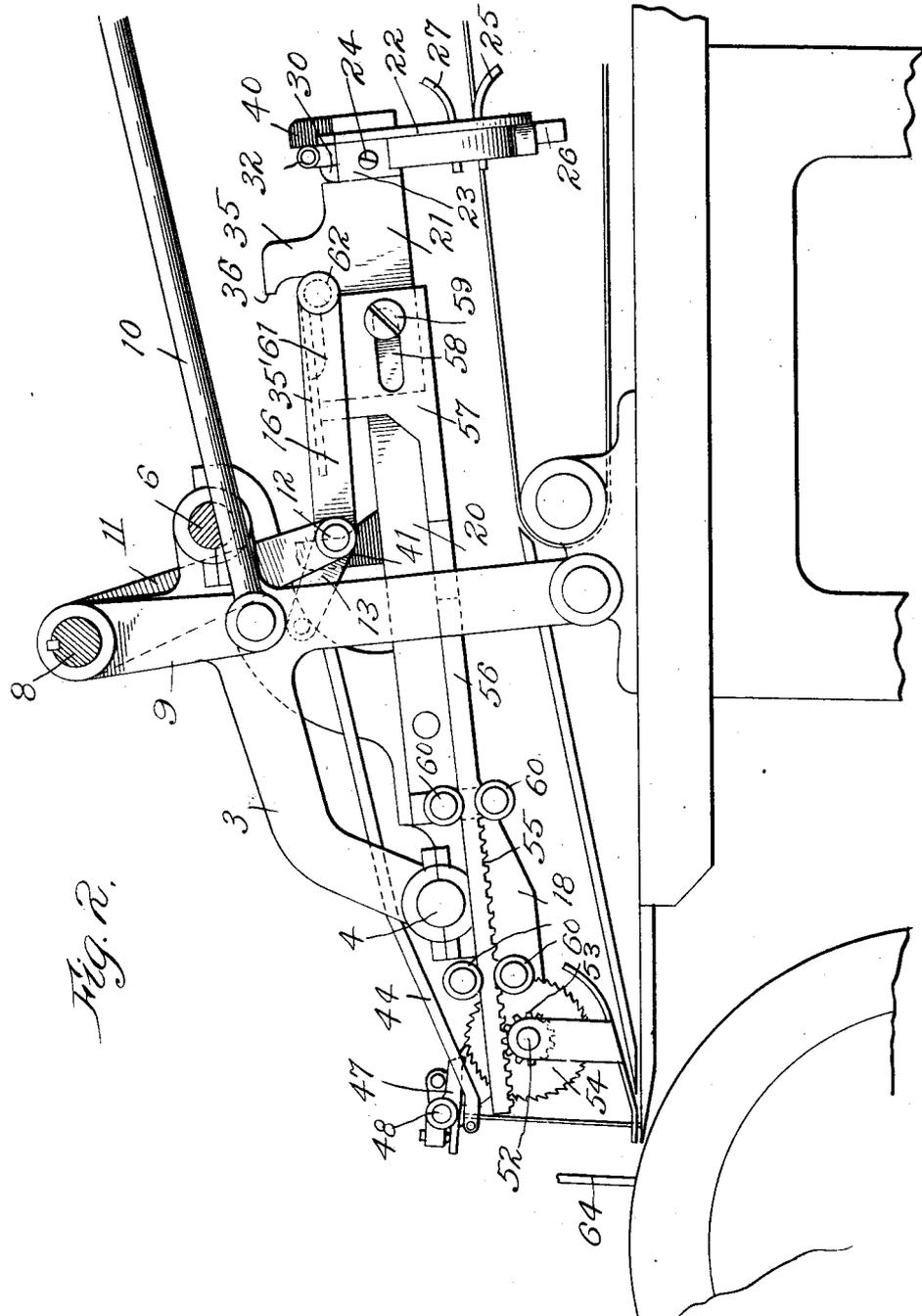


Fig. 2.

Witnesses.
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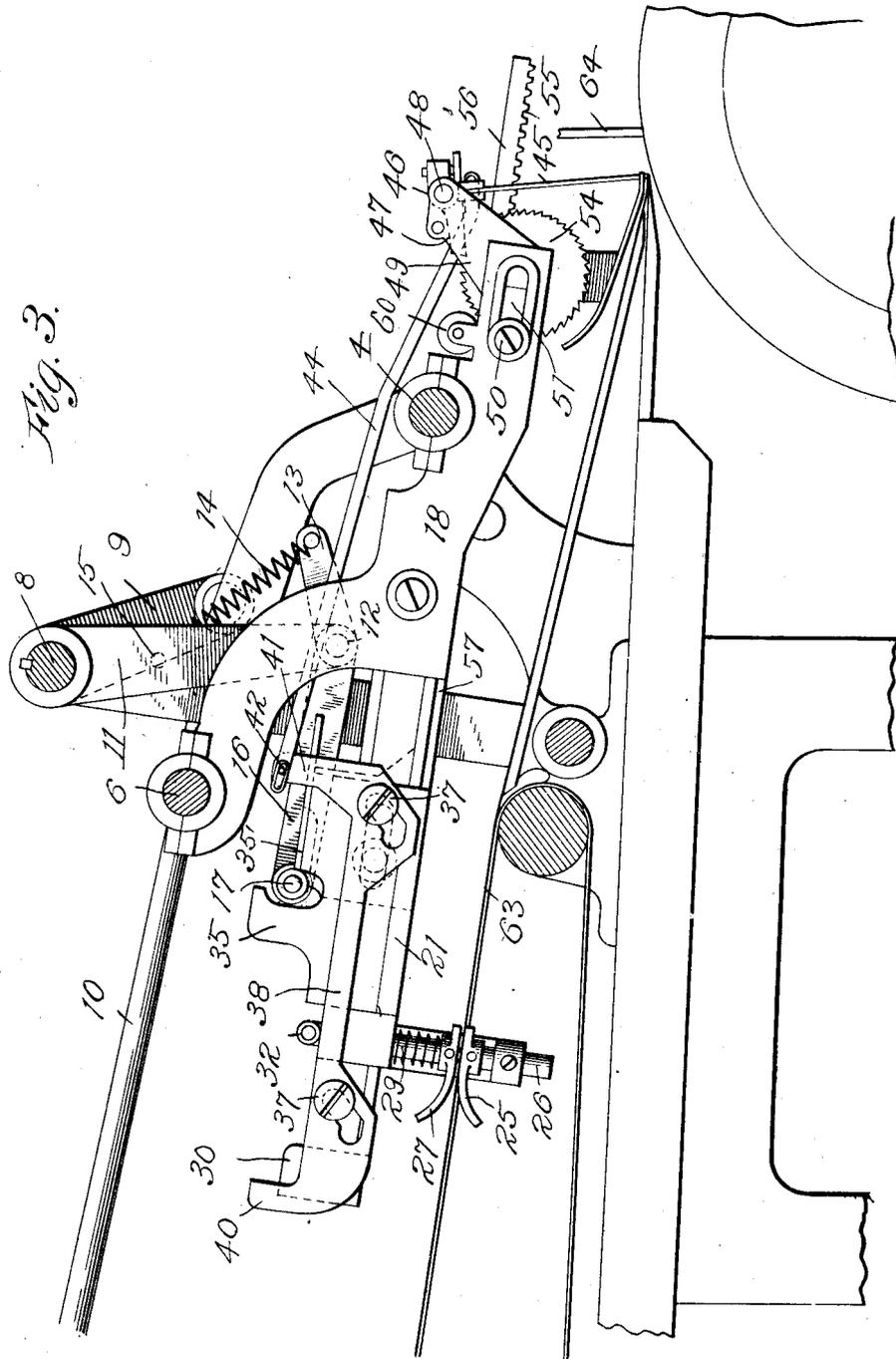
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6 SHEETS—SHEET 3.



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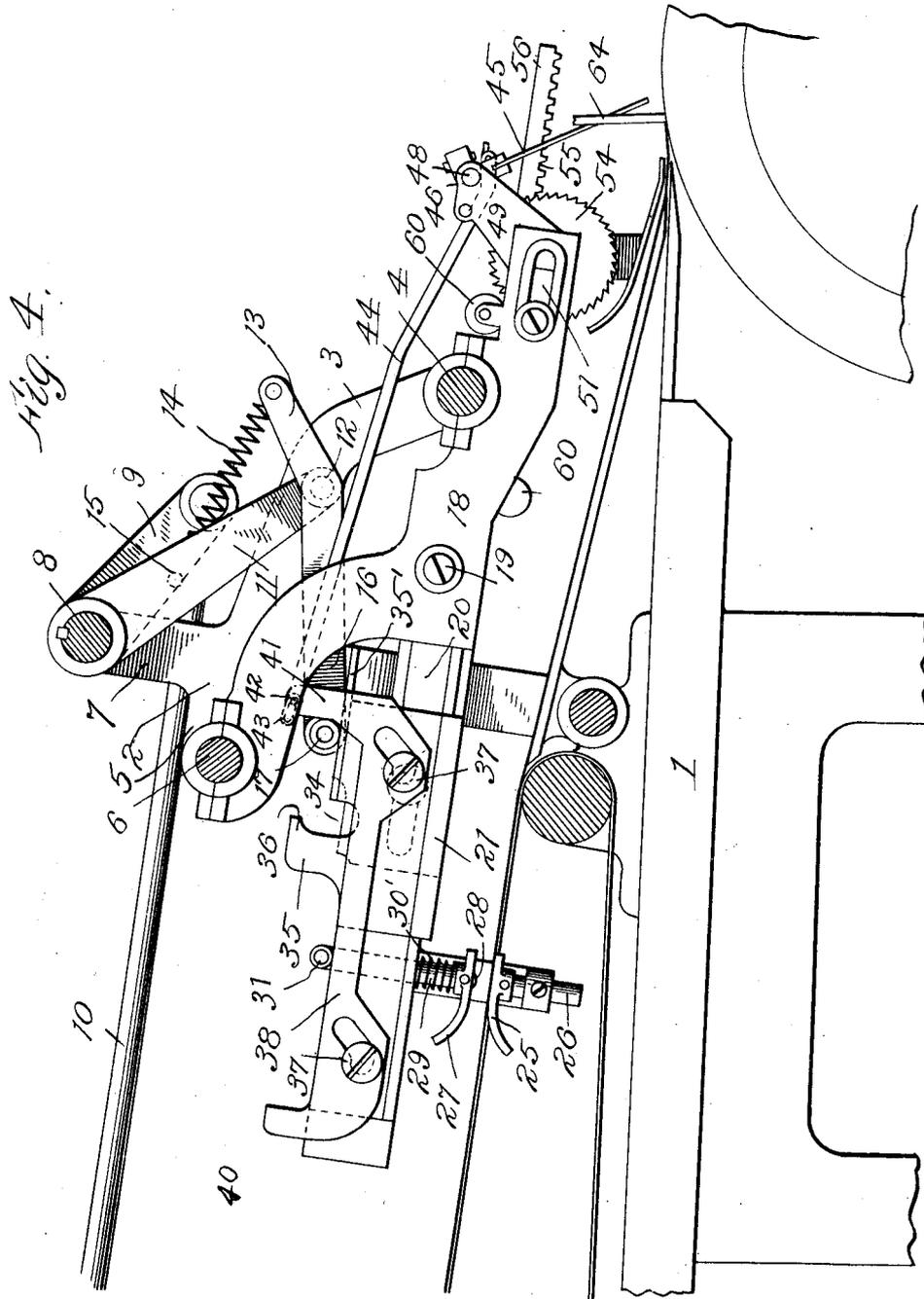
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6 SHEETS—SHEET 4.



Witnesses:
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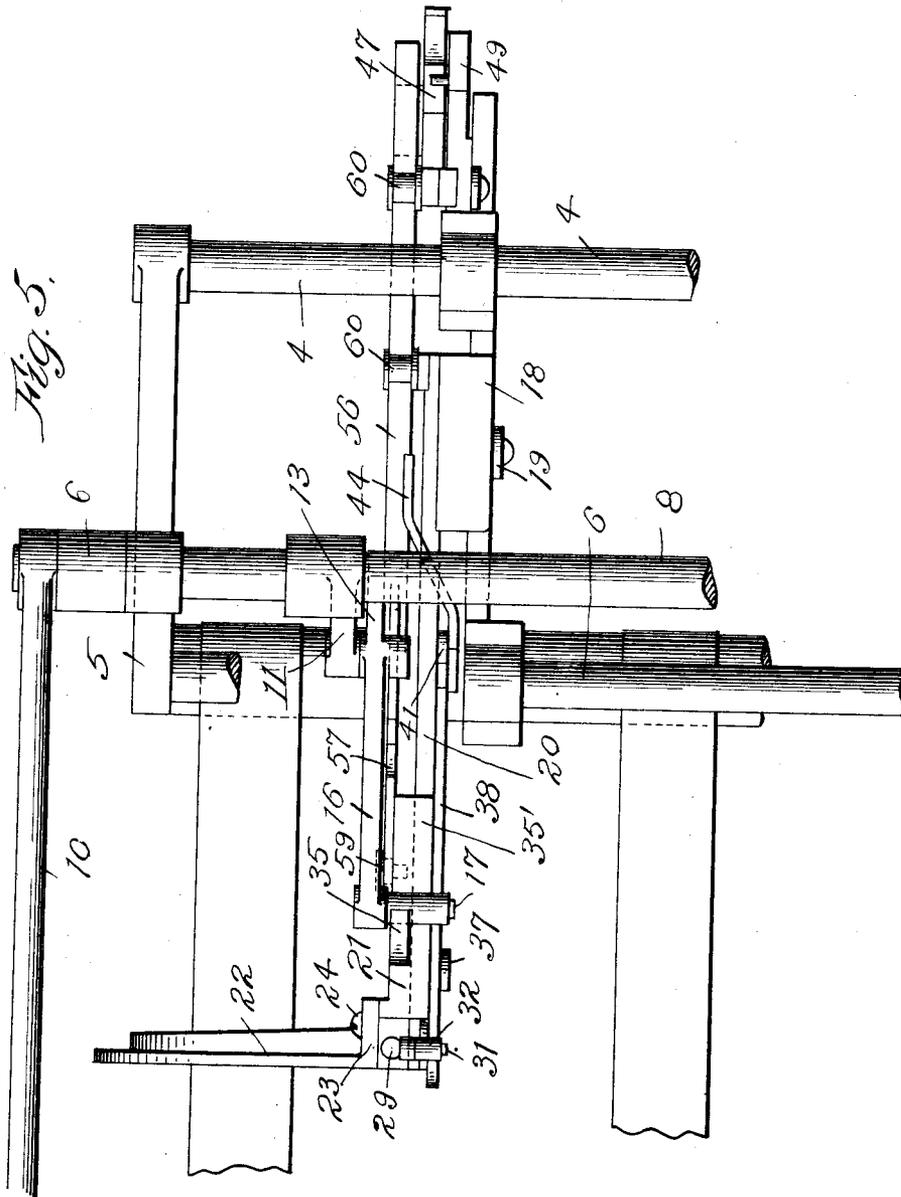
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6 SHEETS-SHEET 5.



Witnesses:
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G. A. Martin Inventor,
By his Attorney *[Signature]*

UNITED STATES PATENT OFFICE.

GEORGE A. MARTIN, OF PEARL RIVER, NEW YORK, ASSIGNOR TO DEXTER FOLDER COMPANY, OF PEARL RIVER, NEW YORK, A CORPORATION OF NEW YORK.

COMBINATION SHEET STRAIGHTENER AND SLOW-DOWN FOR FEEDERS.

1,071,448.

Specification of Letters Patent.

Patented Aug. 26, 1913.

Application filed May 2, 1912. Serial No. 694,754.

To all whom it may concern:

Be it known that I, GEORGE A. MARTIN, a citizen of the United States, residing at Pearl River, in the county of Rockland, State of New York, have invented certain new and useful Improvements in Combination Sheet Straighteners and Slow-Downs for Feeders, of which the following is a full and clear specification.

This invention relates to a device for straightening a sheet and slowing down the same as it passes through a feeding machine, and contemplates an improved construction, combination and arrangement of parts in devices of this character, in which laterally spaced grippers are reciprocally mounted and placed under the control of pendulums disposed in the path of the forward edge of a sheet as it passes through the feeding machine.

The primary object of this invention is to provide an improved mechanism of this character in which the parts shall be positively actuated in effecting the slowing down and straightening movements and to provide means for interrupting a positive actuation of the parts.

Toward the attainment of this object, my invention contemplates the provision of a reciprocating carriage upon which the gripper is mounted; a carriage actuating mechanism which is capable of being automatically released at a predetermined point in the travel of the gripper in definite relation to the position of the sheet in the feeding machine, and a positively operated device which will interrupt the movement of the carriage when the front edge of the sheet reaches a predetermined position.

Other and further objects will appear in the specification and be specifically pointed out in the appended claims, reference being had to the accompanying drawings exemplifying my invention, and in which—

Figure 1 is a side elevation of one of the devices embodying my invention, the parts being shown in suitable positions to permit the sheet to enter the grippers; Fig. 2 is a similar elevation from the other side of the same device; Fig. 3 is a view similar to Fig. 1, with the grippers closed upon the sheet; Fig. 4 is a similar view showing the positions of the parts in an advanced stage of the machine's operation; Fig. 5 is an enlarged top plan view of the mechanism with

the parts in the positions which they occupy in Figs. 1 and 2; Fig. 6 is a diagrammatic top plan view of a feeding machine showing the laterally spaced slow down and sheet straightening devices.

Referring more particularly to the drawings, and for the sake of convenience confining my description more especially to the particular embodiment shown in the drawings, a pair of side frames are indicated by reference character 1. Mounted upon these side frames in any suitable manner are a pair of laterally spaced upper frames 2 which comprise forwardly projecting arms 3 for supporting a tie rod 4, rearwardly projecting arms 5 for carrying a tie rod 6 and upwardly projecting arms 7 for journaling a rock shaft 8. The rock shaft 8 is provided with a crank arm 9, which serves to oscillate the shaft 8 under the action of a power transmitting rod 10. Keyed to the rock shaft 8 is an arm 11, upon whose depending end is mounted a bent operating lever, said lever being journaled intermediately of its ends upon a pin 12, which projects laterally from the arm 11, thus providing spring arm 13, which is connected by a spring 14, with a pin 15 projecting laterally from the arm 11, and a carriage actuating arm 16, which has a pin 17 projecting laterally from its rear extremity. Laterally spaced brackets 18 for supporting the sheet tripping mechanism, are carried by the tie rods 4 and 6. Secured to each of said brackets in any suitable manner, such as by the screw 19, is a beveled track bar 20, which projects rearwardly and serves to reciprocally mount a carriage 21, which is provided with a dovetailed groove for this purpose.

Mounted upon the carriage 21, is a gripper supporting yoke 22, which is preferably provided with a pad 23, which is secured to the carriage 21 by means of a screw 24. An anvil or lower clamping foot 25 is provided with a stem 26, adjustably mounted in the lower branch of the yoke 22. The upper clamping foot 27 with its pivot point 28, is provided with a stem 29, which is reciprocally mounted in the upper branch of the yoke 22, under the action of a compression spring 30. As shown best in Fig. 5, the upper end of the stem 29 is provided with a laterally projecting pin 31, which carries an anti-friction roller 32, which cooperates

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with a cam plate 30, which is rigidly supported on the rear end of the track bar 20, and serves to hold the clamping foot 27 in raised position at certain periods of the operation.

In order to adapt the carriage 21 to be reciprocated by the oscillating lever 13, 16, a notch 34 in the upper edge of said carriage is adapted to receive the pin 17 which rides along a bearing plate 35' when not engaging said notch. An abutment block which projects upwardly from the carriage 21 is provided with a forwardly projecting nose 36, which serves to prevent premature disengagement of the pin 17 from the notch 34.

Secured to the lateral face of the track bar 20 by means of studs 37, is a cam bar 38 which is provided with angular slots 39 to permit said cam bar to be raised and lowered on the studs 37 in the manner to be hereinafter pointed out. The rear end of the cam bar 38 is provided with a post 40 to adapt said cam bar to be moved rearwardly by the cam roller 32 on the upper end of the stem 29 of the gripper. The forward end of the cam bar 38 is likewise provided with a post 41 which is suitably disposed to be engaged by the pin 17 on the operating lever 13, 16. In the upper end of the post 41 is a laterally projecting pin 42, which moves in a slot 43 in the rear end of a pendulum displacing connecting rod 44. As shown best in Figs. 1, 2, 3 and 4, the pendulum 45 depends from the bearing block 46 of a ratchet dog 47, said bearing block 46 being swingingly mounted on a pin 48, which projects from the upper portion of a pendulum supporting bracket 49, which is adjustably mounted on the forward end of the bracket 18, by means of a stud 50, which is threaded into the bracket 49 and moves in a slot 51 in the forward end of said bracket 18. A stud 52 (see Fig. 2) projects laterally from the opposite side of the bracket 49, and serves to journal a gear pinion 53, which is rigid with a ratchet 54. A rack 55 on the forward end of a rack bar 56 meshes with the pinion 53 and serves to impart motion to said ratchet when the dog 47 is disengaged therefrom. A reciprocable cam plate 57, shown best in Fig. 2, has its forward end connected with the rack bar 56. The plate 57 is provided with a slot 58 in which a stud 59 slides, said stud being threaded into the carriage 21. The forward end of the rack bar 56 is preferably mounted between guide rollers 60. As shown in dotted lines in Fig. 2, the reciprocating plate 57 is provided with a cam roller recess 61, over which the pin 32 with its anti-friction roller is drawn when the movement of the rack bar 56 is interrupted, in the manner to be hereinafter pointed out. The plate 57 is also provided at the rear end of the recess

61 with a part circular recess 62, shown in dotted lines in Fig. 2.

The operation of the device will now be understood and briefly stated is as follows: Referring first to Fig. 1, as the connecting rod 10 moves the crank arm 9 forwardly, the rock shaft 8 swings the arm 11 in the same direction and carries with it the operating link 13, 16, the roller on the pin 17 being socketed in the notch 34 of the carriage 21, as well as engaging behind the part circular recess 62, as indicated in Figs. 1 and 2. In consequence both the carriage 21 and the reciprocating plate 57 partake of the forward movement of the roller carried by the pin 17. The gripper which travels with the carriage 21 causes the cam roller 32 to be released from the cam block 30 shortly after this movement has begun, thus permitting the jaws of the gripper to close upon the sheet 63, which is being passed through the feeding machine. Immediately the movement of the sheet 63 is retarded under the action of the gripper which continues the forward movement of the sheet under reduced speed until the parts approximately reach the positions shown in Fig. 3. Shortly before this, the forward edge of the sheet 63 has come into contact with the pendulum 45 and caused the dog 47 to drop into engagement with the ratchet 54, thus interrupting the forward movement of the rack bar 56 and the reciprocating plate 57. As the forward movement of the operating link 13, 16 continues, the roller on the pin 17 rides over the forward corner of the part circular recess 62 and traverses recess 61. At the same time, the stud 59 travels along the slot 58, the scope of this movement being sufficient to bring the front edge of the sheet 63 against the front gage 64 preparatory to its being engaged by the grippers of the press or other machine. When the stud 59 reaches the forward end of the slot 58 the movement of the carriage 21 is interrupted and that edge of the sheet 63 which corresponds to the particular device, comes to rest against the front gage 64. If the same stage has not been reached on the other side of the feeding machine, the other edge of the sheet 63 continues to be shoved forward until it also rests against its front gage 64 when the sheet will be in perfect register. A continuation in the forward movement of the operating link 13, 16 causes the cam roller on the pin 17 to mount the rear corner of the wear plate 35'. Eventually the roller on the pin 17 strikes the post 41 and imparts a forward movement to the cam bar 38, which by reason of its pin and slot connection with the track bar 20 is lifted into the position shown in Fig. 4, the upper foot 27 of the gripper being raised by this movement. By this time, the pin 42 on the upper end of the post 41 has reached the forward

end of the slot 42 in the rear end of the pendulum displacing rod 44. As a result, the pendulum 45 is raised into the position shown in Fig. 4 and out of the path of the sheet as it is drawn from the feeding machine by the grippers of the printing press or other machine. An explanation of Fig. 4 will show that the return movement of the gripper takes place with the cam roller 32 traveling in line with the upper edge of the cam block 30 so that at the end of the return movement, said gripper is maintained in open position ready for the following sheet. At the same time the roller 32 before the completion of its rearward movement, strikes the rear post 40 and imparts a rearward movement to the cam bar 38 with the result that said cam bar is forced downwardly by the studs 37 traveling in the slots 39.

What I claim is:

1. In a device of the character described, a releasable gripping device, means for moving said device, said means being adapted to be automatically disengaged from the gripping device and means disposed in the path of said device moving means for releasing said gripping device.

2. In a device of the character described, a releasable gripping device provided with means whereby said device may be moved and other means whereby said device may be actuated to open or close it, and means adapted to successively engage the means whereby the device is moved and the means whereby the device is opened or closed.

3. In a device of the character described, laterally spaced slow down grippers adapted to separately engage the lateral edges of a sheet, means for positively actuating each of said grippers, a pendulum disposed in the path of the forward edge of said sheet, and means operated by said pendulum for separately terminating the positive actuation of each of said grippers.

4. In a device of the character described, the combination with a reciprocable gripper with a movable jaw, a cam plate for sustaining said jaw in raised position in rearmost position of said gripper, an actuating cam

roller for reciprocating said gripper, a normally lowered cam bar adapted to be engaged by said actuating roller at the forward end of its stroke, and means for automatically raising said cam bar to raise said jaw at the end of its forward stroke.

5. In a device of the character described, a gripper with a movable jaw, means for reciprocating said gripper, a cam plate holding said jaw in raised position at the rear-most position of said gripper, said jaw being permitted to drop during its forward movement, a track bar for said gripper, and a cam bar for raising said jaw at the end of its forward movement, said cam bar having a cam-like pin and slot connection with said track bar.

6. In a device of the character described, a releasable gripping device, means for releasing said device, and means normally disconnected from said releasing means for moving said device, said device moving means having a lost motion attachment with said device to adapt it to independently release said gripping device.

7. In a device of the character described, a gripping device adapted to be actuated to successively engage and release a sheet, means for moving said device bodily, said means being automatically detachable from said device and means for actuating said gripping device, said actuating means being operatively engaged by said device moving means subsequently to the automatic detachment from said device.

8. In a device of the character described, the combination of a reciprocable gripper comprising a fixed and a movable jaw, a cam bar capable of an endwise movement relative to said fixed jaw and adapted by such movement to be raised and lowered, said cam bar being operatively connected to said movable jaw of the gripper, and an actuating lever having a part successively and periodically engaging said cam bar.

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Witnesses:

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