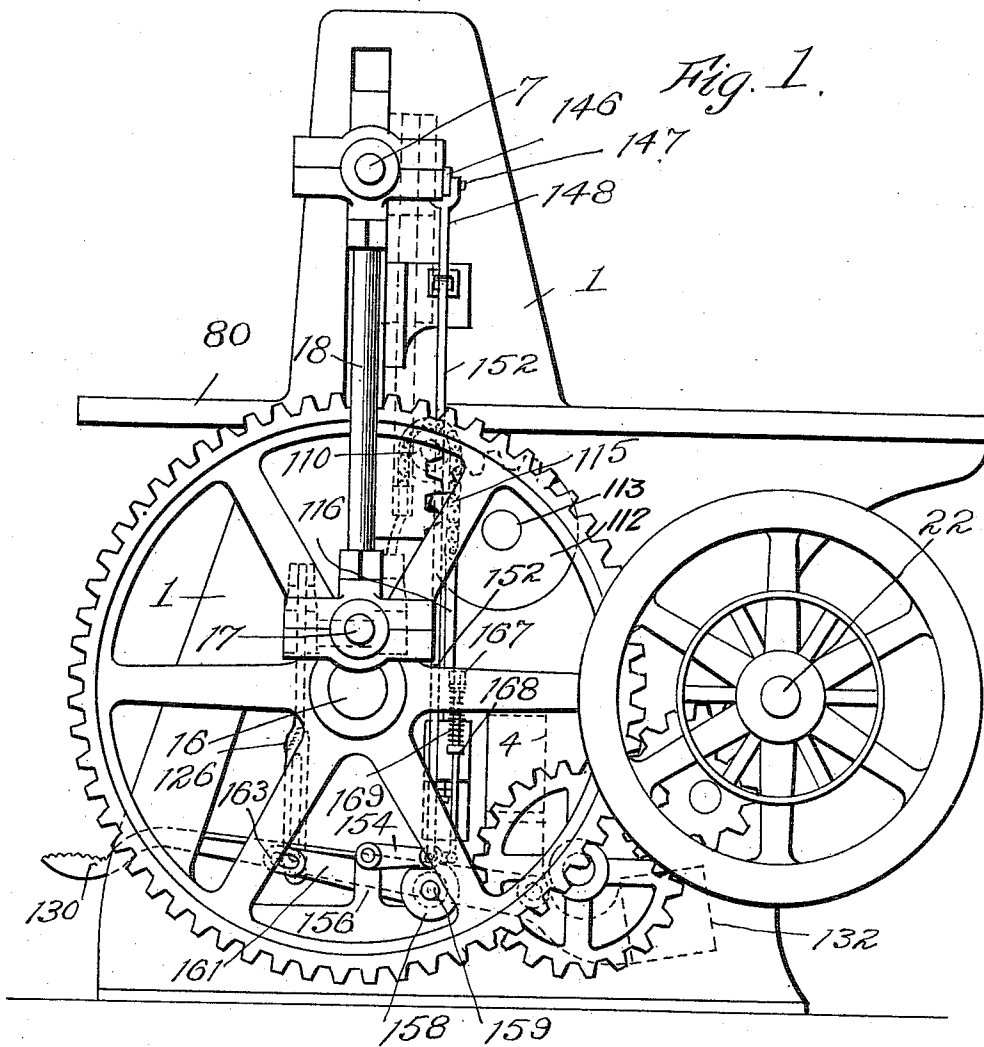


T. C. DEXTER.
PAPER CUTTING MACHINE.
APPLICATION FILED SEPT. 14, 1910.

994,637.

Patented June 6, 1911.

3 SHEETS—SHEET 1.



Talbot C. Dexter

Inventor,

By *his* Attorney *W. H. H. H. H.*

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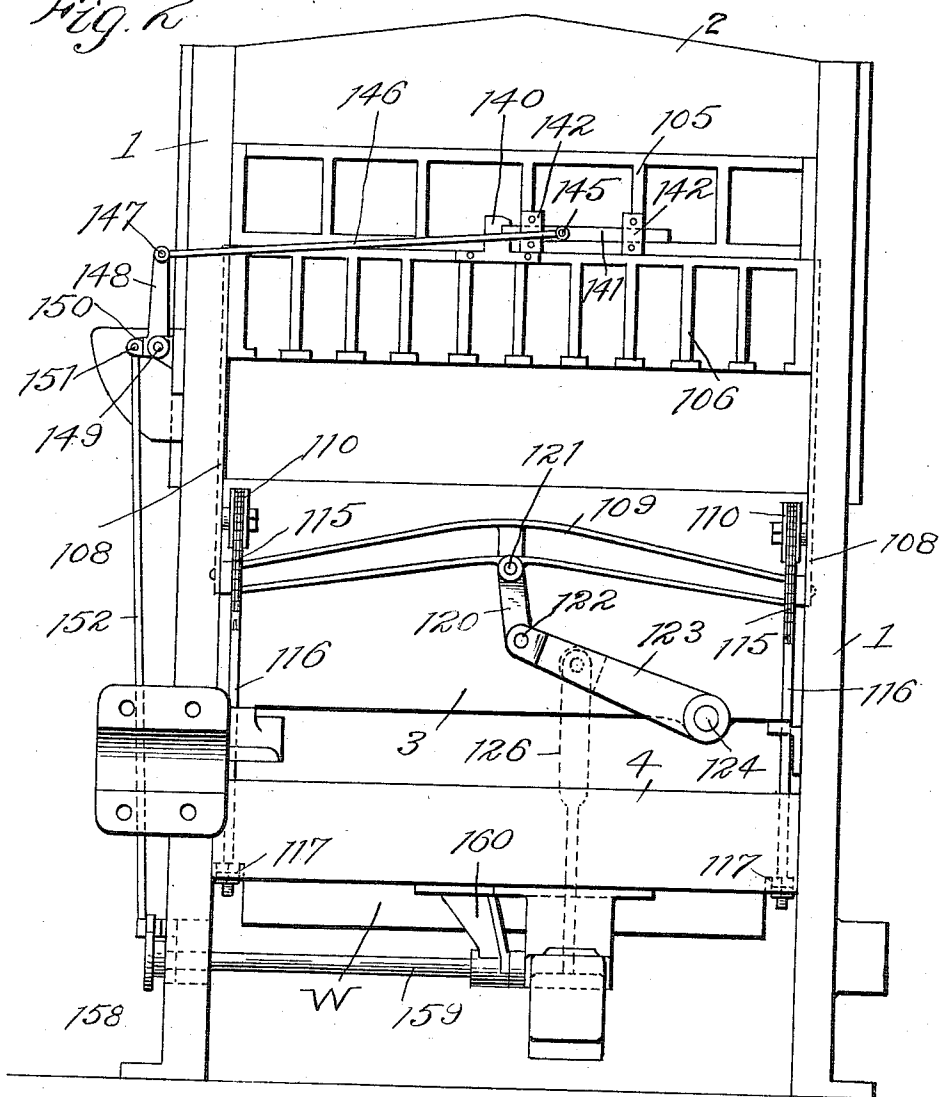
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3 SHEETS—SHEET 2.

Fig. 2



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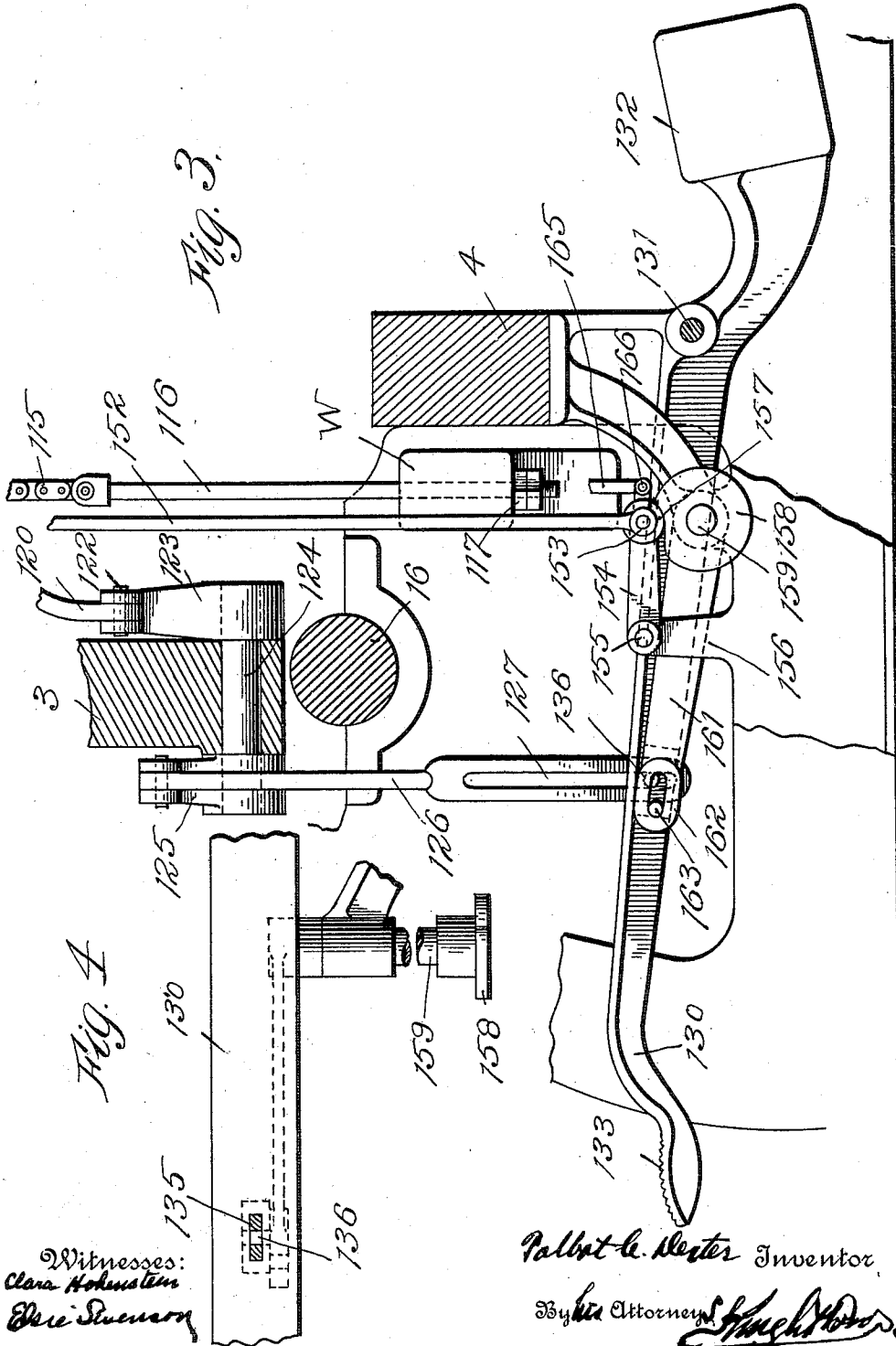
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

TALBOT C. DEXTER, OF PEARL RIVER, NEW YORK, ASSIGNOR TO DEXTER FOLDER COMPANY, OF PEARL RIVER, NEW YORK, A CORPORATION OF NEW YORK.

PAPER-CUTTING MACHINE.

994,637.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed September 14, 1910. Serial No. 581,996.

To all whom it may concern:

Be it known that I, TALBOT C. DEXTER, a citizen of the United States, and a resident of Pearl River, county of Rockland, State of New York, have invented certain new and useful Improvements in Paper-Cutting Machines, of which the following is a specification.

The present invention relates to improvements in the clamp controlling mechanism of paper cutting machines of the type illustrated in Patent No. 871,573, granted to me November 19th, 1907.

The object of the present invention is to improve the construction of the clamp mechanism with particular reference to the construction and operation of the device which detachably connects the two parts of the clamp, whereby the machine may be operated continuously as a power clamp machine, or as a manual clamp machine or the lower part of the clamp may be held in engagement with the pile at the will of the operator.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings and afterward point out the novelty more particularly in the annexed claims.

In said drawings: Figure 1 is a side elevation of a paper cutting machine having my improvements applied thereto. Fig. 2 is a rear elevation of the same. Fig. 3 is an enlarged detail longitudinal sectional view showing parts of the manually operated controlling mechanism for the clamp. Fig. 4 is a detail plan view of part of the same.

For the purpose of illustrating my invention, I have shown it applied to the paper cutting machine set forth in Patent No. 807,730, granted to me December 19th, 1905. It will be understood, however, that I do not intend to limit my invention to its application to this particular form of paper cutting machine, since it can with equal advantages be applied to many other forms of paper cutting machines in which the clamp is made in two parts or members arranged for either power operation or manual operation at the will of the operator.

The side frames or standards 1 are firmly braced and connected by the top rail or cross-head 2, the center rail 3, the bottom cross rail 4, the cutter operating shaft 16,

clamp operating shaft 113 and the main power shaft 22 of the machine.

80 is a paper supporting table or platform.

The reciprocating cross-head 7, carrying the cutting blade, is mounted to slide vertically and transversely of the machine in the vertical guide slots formed in the side frames or standards 1, said cross-head 7 being suitably anchored to the top rail 2 by means not shown, and connected through links 18 with the cranks 17 mounted upon the knife operating shaft 16.

The paper holding clamp is formed of two parts or members 105 and 106 which are in effect two transversely arranged bars resting one above the other and operating in suitable vertical slots or guide-ways formed in the inner faces of the side frames or standards 1. The upper part or member 105 of the clamp has secured to its opposite ends depending rack bars (not shown) which are in constant mesh with gears 112 mounted upon the opposite ends of the clamp operating shaft 113 which is freely journaled in the side frames of the machine. The rack bars rest in vertical slots or guides formed in the opposite ends of the lower part or member 106 of the clamp, so that said lower member can move freely vertically upon the upper portions of rack bars. This construction will be fully understood from my Patent No. 807,730 dated December 19th, 1905. Secured to the opposite ends of the lower clamping member 106 are the depending straps or plates 108 shown in dotted lines in Fig. 2. Extending between and securely fastened to said straps or plates 108 is a yoke or beam 109.

110 indicate grooved pulleys journaled upon studs or bolts extending inwardly from the side frames 1 of the machine, and 115 are chains or cables passing around the pulleys 110 and secured at one end to the yoke beam 109. The opposite ends of these chains 115 are connected with rods or bolts 116 which pass through suitable openings in the ends of a heavy counterweight W. The counterweight is supported upon the rods 116 by means of nuts 117 screwed upon the ends of the rods engaging the counterweight. The weight W acting through the described connections, counterbalances the lower clamp member 106.

120 is a link pivotally connected with the yoke beam 109 midway between its ends as indicated at 121. This link 120 is pivoted at 122 to a lever 123 keyed to a short rock shaft 124 journaled in the center rail 3 of the machine frame. Rigidly secured to the opposite end of the rock shaft 124 is a rock arm 125 to the end of which is pivotally connected a link 126 extending downwardly from its pivot and formed with an elongated slot 127 for the purpose which will presently appear.

130 is a foot lever or treadle pivotally mounted at 131 upon brackets secured to the bottom rail 4 of the machine frame. This foot lever 130 carries a counterweighted rear end 132 for holding it in normal position. The forward end of the lever 130 is formed with a foot 133 having the usual roughened surface. Between the pivot 131 and foot 133, the lever 130 is formed with a vertical slot 135 through which the lower slotted end of link 126 freely passes. A pin 136 is seated in the lever 130 in engagement with the slot 127, so that the link 126 can move downwardly independently of the foot lever 130, but when the foot lever is operated the engagement of pin 136 with the lower end of slot 127 will carry the link 126 downwardly with it for pulling down the lower member of the clamp in the manner hereinafter explained.

It will be observed from Fig. 3 of the drawings that in the normal operation of the parts, the pin 136 rests slightly above the lower end of the slot 127 so as to permit a slight lost motion between link 126 and foot lever 130 when the foot lever is operated. This is for the purpose of allowing the foot lever 130 to disengage the latch which couples the two members of the clamp before pulling down on the lower clamp member.

Secured to the rear face of the lower clamp member 106 is a hook 140 which projects upwardly from the lower member alongside of the rear face of the upper clamp member 105. Cooperating with the hook 140 is a sliding bolt 141 mounted in bearings 142 secured to the rear face of the upper clamp member 105 in position to move into the recess of the hook 140 to securely couple the upper and lower clamp members.

Pivoted at 145 to the bolt 141 is a long rod or link 146 pivotally connected at its opposite end 147 with a vertical arm 148 of a bell crank lever which is pivotally mounted at 149 upon one of the side frames 1 of the machine. This bell crank lever has a short horizontally projecting arm 150 to which is pivoted at 151 a long rod or link 152. The lower end of this rod 152 is pivotally connected at 153 with the rear end of a rock arm 154 journaled at 155 in the bracket arm 156 of the machine frame. The

rock arm 154 carries an anti-friction roller 157 journaled upon the pivot 153 and operating in peripheral contact with a cam disk 158 which is secured upon the outer end of a rock shaft 159 which is journaled in a suitable bearing in one of the side frames 1 and in a bracket bearing 160 projecting from the bottom rail 4. The inner end of the rock shaft 159 carries a forwardly presented arm 161 which extends parallel with the foot lever 130 and is formed in its forward end with a slot 162 in which operates a pin 163 projecting laterally from the foot lever 130.

165 is a rod pivoted at the rear end 166 of rock arm 154 and extending upwardly therefrom through a guide bracket 167 and having confined upon it between said bracket 167 and a nut 168, an expansion spring 169 which serves to yieldingly press downwardly upon the rock arm 154 to hold the anti-friction roller 157 in engagement with the controlling cam 158.

The operation of the mechanism will be clear from the following explanation: When the clamp is operated by the power of the machine, the operator throws the main clutch in for applying the clamp by power simultaneously with starting the operation of the knife in a manner well understood by those familiar with the Dexter paper cutting machines. In this power operation of the clamp, the power is applied to the rack bars extending from the upper clamp member 105 and the power clamp members are carried downwardly simultaneously, the lowering of the yoke beam 109 because of its connection with the straps depending from the lower clamp member, causing the link 126 to move downwardly, the elongated slot 127 permitting free movement of the link without any action of the treadle 130. In this power operation, the bolt 141 is permitted to remain in locked engagement with the hook 140 for causing the two clamp members to operate as one. If it is desired to operate the lower clamp member manually, the operator depresses the lever 130 by placing his foot thereon and this movement, by reason of pin and slot connection with the rock arm 161, first causes the partial rotation of cam disk 158 which pushes upwardly the rod 152 for rocking inwardly the bell crank lever 148—150 and disengaging the bolt 141 from the hook 140. A very slight movement of the foot lever 130 effects the disengagement of the bolt from the hook. The continued movement of the foot lever 130 causes the pin 136 to engage the lower end of the slot 127 and pull downwardly upon the yoke beam 109 through link 126, rock arms 125, 123 and link 120, the movement being maintained until the lower clamp member 106 (which has been freed from the upper clamp member as explained) engages the pile of

sheets upon the table 80. The manual pressure upon the clamp can be exerted at the will of the operator through the lever mechanism described. When the pressure is released from the lever 130, the counterweight W of the clamp and the weighted end 132 of the foot lever return the parts to their normal position, the final action in this return movement being the lowering of rock arm 154 by reason of the engagement of anti-friction roller 157 and the lower part of cam disk 158, with the result that the bolt 141 will again move into locked engagement with the hook 140. It will be observed that in the manual operation just described, the cam disk 158 will move proportionately to the extent of movement of the foot lever 130. The continued movement of this cam disk after effecting the unlocking of the bolt 141, causes no further movement of the part, but simply retains the bolt in disengaged position so long as the foot lever is depressed. The lost motion connection between foot lever 130 and link 126 permits the unlocking of the latch between the two clamp members prior to the manual operation of the lower clamp member and the return of the lower clamp member to its normal raised position prior to the reengagement of the latch, when the foot lever is released. This lost motion connection also allows for the power operation of the clamp without interference with the mechanism for manual operation.

What I claim is:

1. The combination, in a paper cutting machine, of a paper holding clamp comprising two vertically movable members, independent operating means for each of said clamp members, a coupling device normally coupling said clamp members, and operating means for said coupling device, having lost motion connection with one of said independent operating means.

2. The combination, in a paper cutting machine, of a paper holding clamp comprising two vertically movable members, power mechanism operatively connected with one of said clamp members, a foot lever, means connecting said foot lever with the other of said clamp members, a coupling device upon one of said clamp members adapted to engage the other of said clamp members, a lever connected with and adapted to operate said coupling device, and a cam actuated by said foot lever and arranged to operate said coupling lever.

3. The combination, in a paper cutting machine, of a paper holding clamp comprising two movable members, power mechanism operatively connected with one of said members, manually operated mechanism connected with the other of said members, a coupling hook upon one of said clamp members, a bolt upon the other of said

members, and means actuated by said manually operated mechanism for operating said bolt.

4. The combination, in a paper cutting machine, of a paper holding clamp comprising two movable members, power mechanism operatively connected with one of said members, a foot lever, means connecting said foot lever with the other of said members, a coupling hook upon one of said clamp members, a bolt upon the other of said members, a lever connected with and adapted to operate said bolt, and means operated by said foot lever for actuating said bolt operating lever.

5. The combination, in a paper cutting machine, of a paper holding clamp comprising two vertically movable members, power mechanism operatively connected with one of said members, a foot lever, means connecting said foot lever with the other of said members, a coupling hook upon one of said clamp members, a horizontally movable bolt upon the other of said members, means holding said bolt normally in engagement with said hook, and suitable bolt operating means actuated by said foot lever.

6. The combination, in a paper cutting machine, of a paper holding clamp comprising two vertically movable members, power mechanism operatively connected with one of said members, a foot lever, means connecting said foot lever with the other of said members, a coupling hook upon one of said clamp members, a bolt upon the other of said members, a lever connected with and adapted to operate said bolt, and a cam connected with said foot lever and arranged to actuate said bolt operating lever.

7. The combination, in a paper cutting machine, of a paper holding clamp comprising two vertically movable members, power mechanism operatively connected with one of said members, a foot lever, means connecting said foot lever with the other of said members, a coupling hook upon one of said clamp members, a horizontally movable bolt upon the other of said members, a bolt operating lever, a spring engaging said bolt operating lever, and a cam connected with said foot lever and arranged to actuate said bolt operating lever.

8. The combination, in a paper cutting machine, of a two-part paper holding clamp, a coupling hook on one of said clamp parts, a coupling bolt upon the other of said clamp parts, an operating lever suitably connected with said bolt, a spring engaging said lever for holding said bolt normally in coupled position, a cam engaging said operating lever, a foot lever operatively connected with said cam, and means connecting said foot lever with the lower clamp part.

9. The combination, in a paper cutting machine, of a two-part paper holding clamp,

a coupling device on one of said clamp parts, engaging the other of said clamp parts, an operating lever suitably connected with said coupling device, a spring engaging said lever for holding said device normally in coupled position, a cam engaging said operating lever, a foot lever operatively connected with said cam, and means including a slotted link engaging a pin upon said foot lever connecting said foot lever with the lower clamp part.

10. The combination, in a paper cutting machine, of a two-part paper holding clamp, a coupling device on one of said clamp parts, engaging the other of said clamp parts, an operating lever suitably connected with said coupling device, a spring engaging said lever for holding said device normally in coupled position, an oscillatory cam engaging said operating lever, a foot lever operatively connected with the lower clamp part, and a lever connected with said cam and having pin and slot connection with said foot lever.

11. The combination, in a paper cutting machine, of a paper holding clamp comprising two vertically movable members, power mechanism operatively connected with the upper member, a rock shaft connected with the lower member, a rock arm projecting from said rock shaft, a slotted link pivoted upon said rock arm, a foot lever carrying a pin which operates in the slot of said link, a coupling device normally connecting the

two clamp members, and means operated by said foot lever for uncoupling said coupling device.

12. The combination, in a paper cutting machine, of a paper holding clamp comprising two vertically movable members, power mechanism operatively connected with the upper member, a rock shaft connected with the lower member, a rock arm projecting from said rock shaft, a slotted link pivoted upon and depending from said rock arm, a foot lever formed with a guide slot in which said link operates, a pin upon said foot lever operating in the slot of said link, a coupling device normally connecting the two clamp members, and means operated by said foot lever for uncoupling said coupling device.

13. The combination, in a paper cutting machine, of a paper holding clamp comprising two vertically movable members, power mechanism operatively connected with the upper member, a foot lever operatively connected with the lower member, a counterbalance weight connected with the lower member, a coupling device normally connecting the two clamp members, and means operated by said foot lever for uncoupling said coupling device.

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