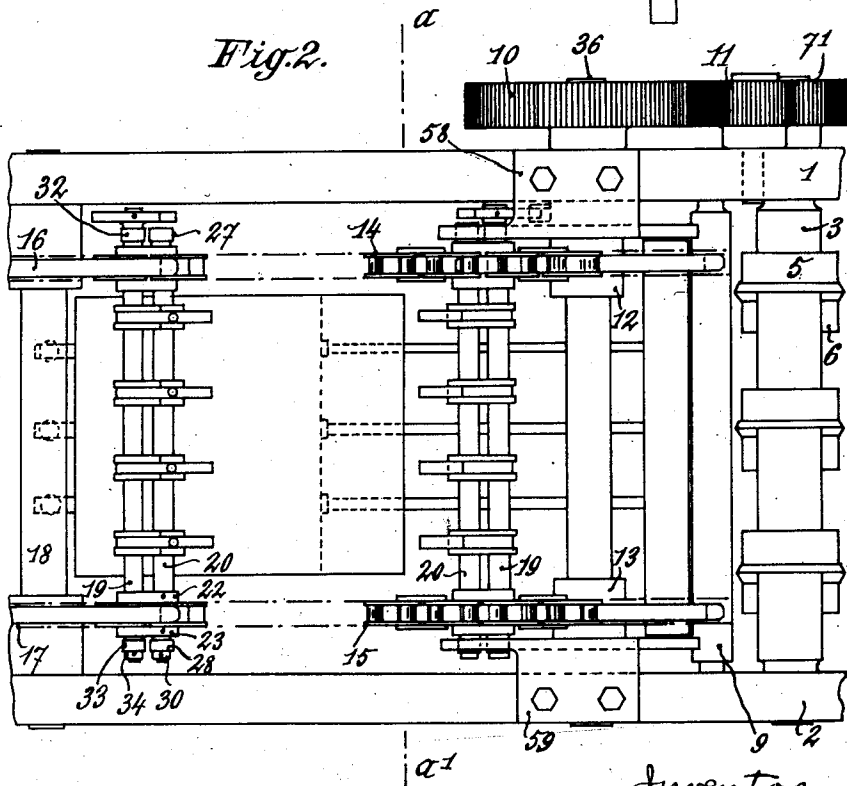
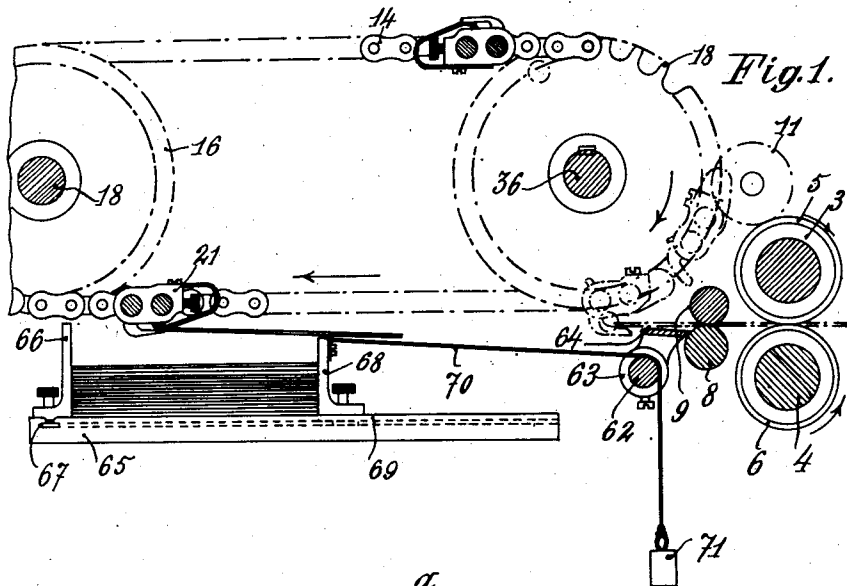


Jan. 12, 1926.

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RECEIVING DEVICE FOR CUTTING MACHINES OF THE ROTARY
TYPE FOR PAPER OR PASTEBOARD, AND LIKE MACHINES
Filed April 29, 1924 2 Sheets-Sheet 1

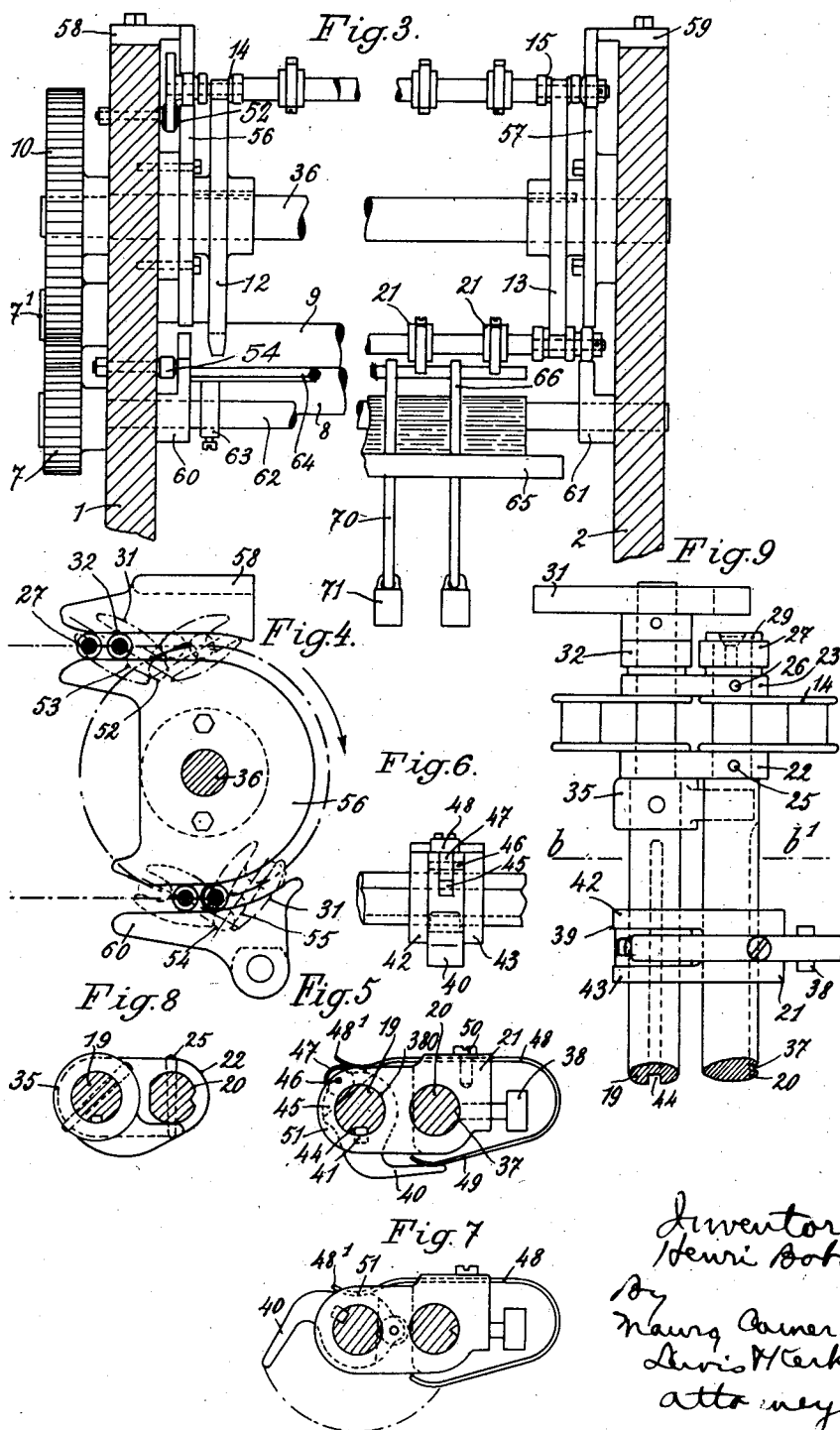


Inventor
Henri Bobst
By
Maurice Cameron, Lewis & Kerkam
attorneys

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Inventor
Henri Bobst
By
Nancy Cameron
Louis H. Kerkam
attorneys

Patented Jan. 12, 1926.

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UNITED STATES PATENT OFFICE.

HENRI BOBST, OF LAUSANNE, SWITZERLAND, ASSIGNOR TO SOCIÉTÉ ANONYME
MARINONI MACHINES ET MATERIEL POUR L'IMPRIMERIE ET LES INDUSTRIES
ANNEXES, OF PARIS, FRANCE.

RECEIVING DEVICE FOR CUTTING MACHINES OF THE ROTARY TYPE FOR PAPER OR
PASTEBOARD, AND LIKE MACHINES.

Application filed April 29, 1924. Serial No. 709,872.

To all whom it may concern:

Be it known that I, HENRI BOBST, a citizen of Switzerland, and a resident of Lausanne, Switzerland, have invented new and useful Improvements in Receiving Devices for Cutting Machines of the Rotary Type for Paper or Pasteboard, and like Machines, which is fully set forth in the following specification.

The invention relates to a receiving device for paper sheets adapted for use with cutting machines of the rotary type for paper or pasteboard, and like machines. In the known types of machine, the paper issuing therefrom is caused to slide upon a receiving table, usually inclined, upon which the sheets are laid when discharged from the machine. In the various types of machine, the sheets are cut up into pieces or bands, which are laid down in irregular piles after issuing from the discharge rollers, so that the superposition of the sheets on the inclined table in such conditions will tend to reduce the output of the machine; on the other hand, the cut bands will have a tendency to roll up during their forward travel upon the receiving table, in spite of the inclined position of the latter.

The said invention has for its object a receiving device for paper sheets adapted for use with cutting machines of the rotary type for paper or pasteboard, and like machines, comprising one or more sets of gripping devices which are mounted upon supports connected with suitable actuating elements, one or more of the said supports consisting of a shaft which simultaneously controls the opening and closing of all the gripping devices of a given set.

In the said arrangement the gripping devices are so disposed that each sheet or band issuing from the machine will be seized by one or more gripping devices, and the controls of each device are actuated in such manner that their linear velocity will be substantially equal to the linear velocity of the work issuing from the said machine.

The appended drawing shows by way of example a form of construction according to the said invention relative to a rotary cutting machine.

Fig. 1 is an elevational view of the conveying device for the finished sheets. Fig.

2 is a plan view of the receiving device for the sheets. Fig. 3 is a section on the line $a-a'$ of Fig. 2, various parts being eliminated for the sake of clearness. Fig. 4 shows the control for the opening and closing of the gripping devices. Fig. 5 is an elevational view of the gripping device in the closed position, and Fig. 6 is an end view of the same. Fig. 7 is an elevational view of the gripping device in the open position. Fig. 8 is a section on the line $b-b'$ of Fig. 9, various parts being eliminated. Fig. 9 is a partial plan view of a set of gripping devices together with the controlling fork for the same.

The frame pieces 1 and 2, Fig. 3, of the said machine are extended in order to support the several elements receiving the paper sheets. The shafts 3 and 4 are revoluble and are respectively provided with the paper-cutting discs 5, 6. At one end of said shafts are respectively mounted the coacting gear wheels 7, 7'. In the said frame 1, 2, are revoluble the discharge rollers of the machine 8, 9 which are driven from the shafts 3, 4, by means of gearing, not shown. Upon the end of the shaft 36 which is revoluble in the frame 1, 2 is mounted a gear wheel 10, co-operating with an intermediate gear wheel 11 whereby the said shaft may be driven from the shafts 3 and 4. The shaft 36 has keyed thereto, between the frame pieces 1 and 2, the chain wheels 12 and 13 co-operating with the chains 14, 15 respectively. Two like chain wheels 16, 17, which are keyed to a shaft 18 revoluble in the frame 1, 2, serve to hold and to stretch the endless chains 14, 15. Upon each of the said chains are mounted two sets of gripping devices for seizing the sheets or paper.

Each of the said devices is mounted upon two shafts 19, 20, Figs. 2 and 9, the distance between centres of said shafts corresponding to the pitch of the chain links; the shaft 20 serves as a cross-connection and a support for the several body portions of the gripping devices, and is secured at each end to the links 22, 23 by the pins 25, 26. At each end of the shaft 20 is mounted respectively a roller 27, 28 held in place by a washer 29 and a ring 30. The shaft 19 controls the opening and closing of the gripping devices; it is revoluble in the links 22,

23 and has at one end a lever 31 in the form of a double fork by which the said shaft is actuated. A roller 32 is disposed between the fork 31 and the link 23, the other end of the shaft 19 having mounted thereon a roller 33 which is maintained by a stop ring 34. A tappet 35 secured by a pin to the shaft 19 comes into contact with the shaft 20, thus limiting the stroke of the shaft 19, Figs. 8 and 9.

The said gripping devices may be employed in any suitable number according to requirements, and are subject to lateral displacement; to this end the shaft 20 is provided with a slot 37 co-operating with the end of a set-screw 38 whereby the gripping devices may be secured in the desired position. The shaft 19 is revoluble in the bearing 380 formed in the main body of the gripping device 21, Figs. 5, 6, 7, 9; the said body serves to connect together the shafts 19 and 20. The gripping element properly so called is disposed in a slot 39 formed in the main body 21; it is slidable on the shaft 19 and is actuated by means of the key 41 which is held between the branches 42, 43 of the main body 21. When the said gripping device is laterally displaced, the said key will slide in a slot 44 in the shaft 19. The roller 47 is disposed upon the gripping element in a groove 45 and is revoluble upon a small shaft 46; said roller is in contact with the end 48' of a spring 48 which assures the closing of the said gripping device. The said spring which is held in place by a screw 50 is extended to the point 49 in order to seize the sheet of paper, which is pressed against the end 49 by the gripping element 40; said spring affords a certain elasticity for the said device and the end 49 may yield to some extent according to the variable thickness of the sheets. When closed, the said device has the position shown in Fig. 5 and when entirely open, the position shown in Fig. 7. In the latter case, the end 48' of the spring coincides with a small recess in the main body 40. Rollers 52 and 54, rigidly mounted on the frame 1, are positioned in the path of the fork 31, as clearly shown in Figs. 3 and 4. As the traveling chains advance, the fork 31 will engage the fixed roller 52, said roller occupying the space 53 between the branches of said fork, and as the chains continue to advance, said fork will be rotated by said roller, thereby rotating the shaft 19, and opening the gripping devices 40.

As the chains turn around the chain wheels 12 and 13, the fork rests in position with the gripping devices open until it engages the roller 54 which occupies the space 55 of the fork, thereby rotating the fork and the shaft 19 and closing the said gripping devices. The sectors 56 and 57 secured respectively to the frame members 1, 2 pro-

vide a roller path respectively for the rollers 27, 32 and the rollers 28, 33, Figs. 2, 3 and 4. The guides 58, 59 mounted respectively upon the members 1 and 2 serve as an upper roller path, while the guides 60, 61 serve as a lower roller path; the space between said guides and sectors corresponds to the diameter of the rollers 27, 28, 32, 33, Fig. 4.

Upon a cross piece which is firmly secured to the members 1, 2 are mounted the supports 63 adapted to hold the bar 64 in a slightly inclined position so as to form a guide for the paper sheets issuing from the rollers 8 and 9, Figs. 1 and 3. The sheets discharged from the machine are received upon the plate 65, and to this end the tappets 66 movable in the slot 67 are disposed between the gripping devices 21 and serve to remove the sheets from the said devices. The tappets 68 movable in the grooves 69 serve as rear stop-pieces. The guiding straps 70 are secured to the tappets 68 and are disposed upon the cross-piece 62, the tension being afforded by counter weights 71.

The operation is as follows. When rotating, the shafts 3 and 4 actuate through the intermediary of the gear wheel 11 the shaft 36 having thereon the chain wheels 12, 13; the latter will actuate the chains 14, 15 together with the said gripping devices. Before reaching the wheels 12 and 13, the fork 31 of each set will engage the roller 52; the latter enters the space 53 and rotates the fork 31 and with it the shaft 19, thus opening the gripping devices 40, Figs. 1 and 4. The set of gripping devices in the open position will proceed around the sector 56 while the sheet of paper passes between the circular shears by which it is cut into a certain number of pieces and then issues from the said discharging rollers. At this time the fork 31 of the set gripping devices coincides with the roller 54 which enters the space 55 and effects the closing of the said devices by the rotation of the fork 31. The paper sheets or bands are carried forward by the set of gripping devices while the rear end of the sheet passes through the said shears and then through the discharge rollers; the forward motion of the set of gripping devices corresponds substantially to the travel of the sheet, or to the linear speed of the actuating elements of the said machine.

As the gripping devices continue their forward movement, the sheets are brought into engagement with the tappets 66 and are slid out of the interior of the closed grippers, falling upon the plate 65. The set of gripping devices continues to move forward and again coincides with the roller 52 whereby the said devices are opened; the paper sheets are to be fed into the ma-

chine in concordance with the closing of the said devices in order that the front edge of the paper shall be in the proper position when the gripping device is closed.

5 According to the size of the sheets or to the number of bands which are cut at the same time, the said gripping device can be moved laterally by releasing the screw 38 from the main body 21 of said device, Fig.

10 5, in order that each paper band may be seized by at least one of the said devices.

The sheet is seized between the spring 49 and the gripping device 40 at a substantially constant pressure, irrespectively of its thickness. The tappet 35 mounted upon the shaft 19 limits the closing of said device in order that the spring 49 may have a sufficient freedom of movement to properly seize the sheets of varying thickness; in order to hold the device open before seizing the sheet, the end 48¹ of the spring 48 coincides with the recess 51 in the gripping device 40.

By reason of the preliminary opening of the said gripping device and the wide angle of opening employed, the withdrawing device can be mounted very close to the machine, and this allows the device to seize sheets of small size; and further, due to this wide opening, the sheet can be caused to travel at practically the same speed as the gripping device; on the other hand, the sheets which would tend to fall are brought up when the said device is closed and are properly seized. The guide bar 64 adjacent the said rollers will support the paper and engage it properly with the said gripping device.

The straps 70 serve to support the small-sized sheets, and the latter after leaving the discharge rollers will slide upon the said straps before dropping between the tappets 66 and 68. The respective rollers 27, 32 and 28, 33 provided at each end of the set of gripping devices will prevent all torsion of the said sets of devices when the same are opened, said rollers being held respectively between the sector 56 and the guide 58 on one side and between the like members 57 and 59 on the other side, and in like manner when the said devices are closed the said rollers are respectively held between the sector 56 and the guide 60, and between the sector 57 and the guide 61.

In the preceding example rollers and guides are employed at each end of the sets of gripping devices, but in order to simplify the construction, the same may be mounted solely at one end, or in coincidence with the fork 31. In the said example, a single fork controls one set of gripping devices, but a double control may be provided wherein a fork is mounted at each end of the shaft 19.

The chains 13 and 14 may have mounted thereon only one set of gripping devices, or more than two sets. Upon each shaft 20 are mounted one or more gripping devices, and the number employed will depend upon the number of paper bands issuing from the machine. The stop rings 30, 34 may be replaced by washers similar to the washer 29.

What I claim is:

1. A receiving device for machines for cutting paper, pasteboard, and like material, comprising endless traveling chains, supports connected with said chains, said supports including two shafts, one or more sets of grippers mounted on said supports, means for rotating one of said shafts whereby said grippers are opened and closed, means for presenting a sheet of material to said grippers during their closing movement, and means positioned in the path of travel of said sheets whereby said sheets are detached from said grippers while the latter are closed.

2. A receiving device for machines for cutting paper, pasteboard, or like material, comprising endless traveling chains, supports connected with said chains, said supports including two shafts, one or more sets of grippers mounted on said supports, said grippers being movable laterally on said supports, means for securing said grippers in position on said supports, means for rotating one of said shafts whereby said grippers are opened and closed, means for presenting a sheet of material to said grippers during their closing movement, and means positioned in the path of travel of said sheets whereby said sheets are detached from said grippers while the latter are closed.

3. A receiving device for machines for cutting paper, pasteboard, and like material, comprising endless traveling chains, supports connected with said chains, said supports including two shafts, one or more sets of grippers movably mounted on said supports, and one or more levers having forked ends mounted on one of said shafts and adapted to engage means positioned in the path of travel of said lever whereby said shaft is rotated causing opening and closing of said grippers.

4. A receiving device for rotary machines for cutting paper, pasteboard, and like material, comprising endless traveling chains, supports connected with said chains, said supports including two shafts, one or more sets of grippers movably mounted on said supports, and one or more levers having forked ends mounted on one of said shafts and adapted to engage rollers successively positioned in the path of travel of said lever whereby said shaft is rotated, causing the opening and closing of said grippers, the latter being disposed in closing to raise and

engage the edges of the sheets of material issuing from the rotary machine.

5. A receiving device for machines for cutting paper, pasteboard, or like material, comprising endless traveling chains, supports connected with said chains, said supports including two shafts, one or more sets of grippers movably mounted on said supports, one or more levers having forked ends mounted on one of said shafts and adapted to engage means positioned in the path of

travel of said levers whereby one of said shafts is rotated causing the opening and closing of said grippers, and tappets positioned in the path of travel of sheets issuing from the machine for detaching said sheets from said grippers while the latter are closed. 15

In testimony whereof I have signed this specification.

HENRI BOBST.