

No. 716,576.

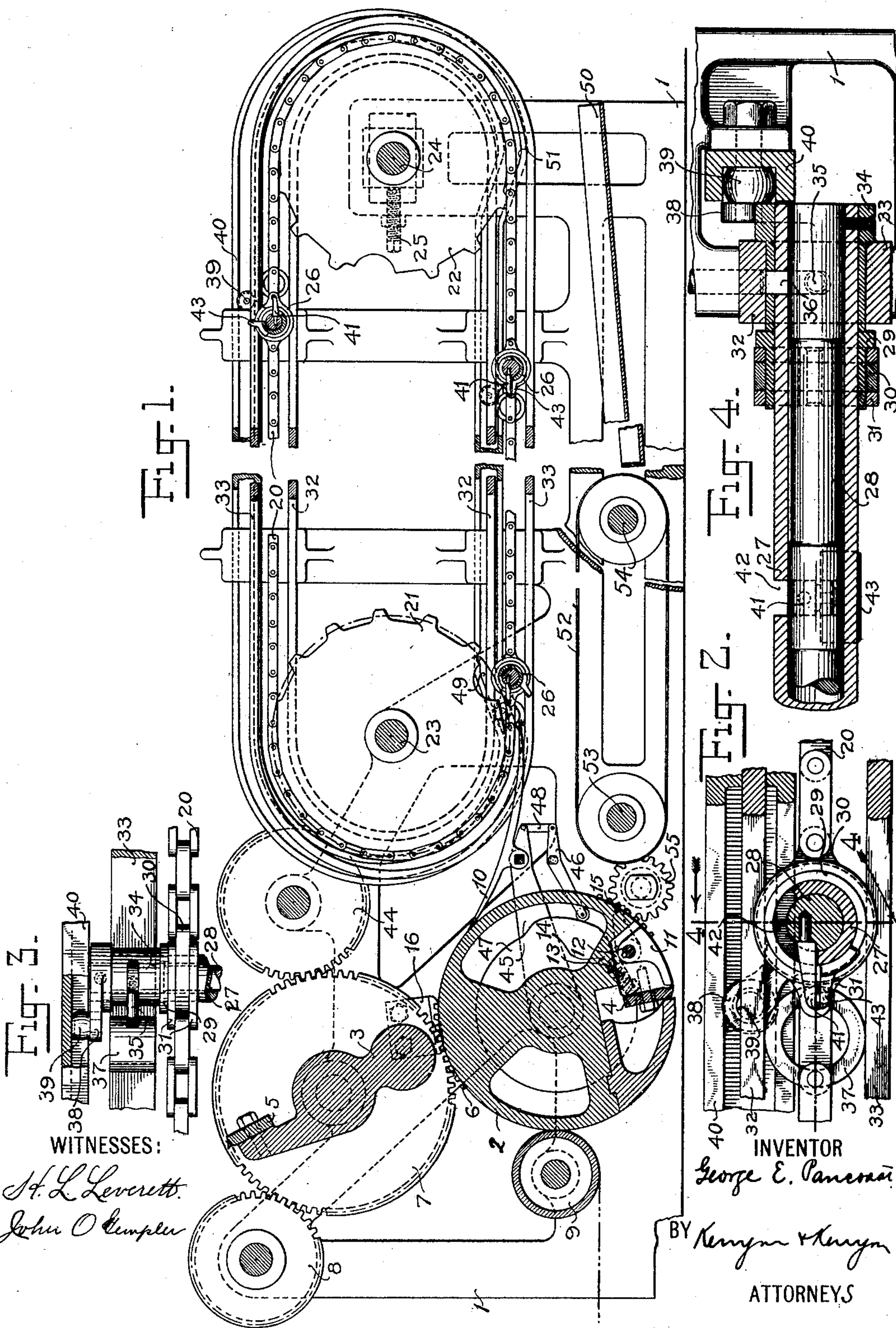
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G. E. PANCOAST.

MECHANISM FOR SEVERING SHEETS FROM WEBS OF PAPER OR SIMILAR MATERIAL.

(Application filed Apr. 9, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

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MECHANISM FOR SEVERING SHEETS FROM WEBS OF PAPER OR SIMILAR MATERIAL.

SPECIFICATION forming part of Letters Patent No. 716,576, dated December 23, 1902.

Application filed April 9, 1901. Serial No. 55,032. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. PANCOAST, a citizen of the United States, and a resident of the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Mechanism for Severing Sheets from Webs of Paper or Similar Material, of which the following is a specification.

10 My invention relates to improvements in a mechanism for severing sheets from webs of paper or similar material.

More particularly, my invention relates to a mechanism which is adapted to be used in connection with web-printing presses for cutting the printed web into sheets as it comes from the press and delivering the sheets in a flat or unfolded condition in a uniform pile.

My invention has for an object to provide a delivery mechanism for web-presses which will keep the paper under positive control from the time it leaves the press until it is finally deposited on the receiving-table and which at the same time will not mutilate the paper or mar the impression thereon.

Other objects of my invention are to provide a delivery mechanism which may be operated at high speeds and is adapted without modification or adjustment to manipulate webs of varying widths.

These and other objects of my invention will more clearly appear from the following description.

My invention consists in the novel parts, improvements, and combinations herein shown and described.

The accompanying drawings, which are referred to herein and form a part hereof, illustrate one embodiment of my invention and serve in connection with the description herein to explain the principles thereof and the best mode in which I have contemplated applying those principles.

Of the drawings, Figure 1 is a central longitudinal section of a delivery mechanism constructed in accordance with my invention. Fig. 2 is a sectional view, on an enlarged scale, illustrating a detail. Fig. 3 is a plan view of the detail shown in Fig. 2; and Fig. 4 is a section of the same, taken on the line 4-4, Fig. 2.

Like reference-numerals refer to like parts

wherever they occur throughout the drawings.

In carrying out my invention I provide a mechanism for cutting the web transversely, continuously moving web-forwarding devices for advancing the web through the cutting mechanism, a paper-carrier driven at substantially the same speed as the web-forwarding devices and constructed to engage the advancing end of the web after it leaves the cutting mechanism, and a suitable support for receiving the sheets as they are released from the paper-carrier. The cutting mechanism according to the preferred form of the invention comprises a pair of cooperating severing-blades mounted upon rotary carriers. The paper-carrier is preferably also in the form of a pair of endless flexible belts or chains which carry a series of paper-gripping devices arranged to engage the forward edges of the sheets after they leave the cutting mechanism and carry the sheets to a suitable receiving-table, and means independent of the cutting mechanism and the carrier are provided for separating the severed edges of the paper. The construction shown comprises a suitable frame 1, in which is journaled a pair of rotary supports, upon which the cooperating severing-blades 4 and 5 are adjustably mounted in any suitable manner. The supports 2 and 3 are geared together by the gears 6 and 7, which receive their motion from any suitable source, as a gear 8. The support 2 is provided with a substantially circumferentially-cylindrical web-forwarding surface, with which the roller 9 is adapted to cooperate to forward the web through the cutting mechanism. After the web has been severed by the cutting mechanism the forward edge is received by a series of fingers 10, mounted with their receiving ends closely adjacent to the cylindrical surface of the support 2. For the purpose of insuring the passage of the web onto the fingers 10 a series of lifting-fingers 11 are arranged on the support 2 in the rear of the blade 4, said fingers being mounted upon a rock-shaft 12, suitably journaled in the support. The fingers 11 are yieldingly held in their inoperative position by means of a spring 13, which engages a suitable arm 14, carried by one end of the rock-shaft 12. For the pur-

pose of throwing the fingers out at the proper time to lift the advancing edge of the web onto the fingers 10 the rock-shaft 12 is provided with an arm 15, which is adapted to engage the stationary cam 16, fixed at a suitable point on the frame 1. The fingers 10 carry the paper away from the cutting mechanism and guide it to the paper-carrier. As shown, the paper-carrier comprises a pair of endless chains, only one of which is shown, the same being indicated by the number 20 in the drawings. As the chains and their supports at opposite sides of the machine are identical in construction, the construction at one side of the machine only need be described. The chain 20 is mounted on a pair of sprocket-wheels 21 and 22, which are carried by the transverse shafts 23 and 24, suitably journaled in the frame 1. As shown, the rear shaft 24 may be adjusted to or from the shaft 23 by means of a screw 25 for the purpose of maintaining the proper tension on the chain 20. A series of suitable gripping devices 26 are carried by the chains, said gripping devices being adapted to engage the sheets of paper by their forward edges and convey them away from the cutting mechanism. As shown, each of these gripping devices comprises a pair of transverse members, which are so mounted at their opposite ends in the chains that they may be given a limited movement with relation to each other, and the members are provided with sets of gripping-fingers, which are adapted to be brought into and out of engagement with each other to grip and release the sheets. In the construction shown the transverse members consist of a tubular shaft or sleeve 27 and a slotted shaft 28, the latter being journaled within the former. The sleeve 27 is mounted at each end within a tubular bearing 29, which is carried by the chain 20 and forms a pivot member for suitable link-sections 30 and 31 thereof. For the purpose of positively guiding and controlling the grippers through their path of movement a pair of continuous guides 32 and 33 are provided, and the sleeve 27 of each set of grippers is provided with a bearing member 34, which is located in the channel formed between said guides and is adapted to travel therein. According to the construction shown the member 28 is prevented from rotating with relation to the gripping mechanism by means of an arm 35, which passes out through a slot 36 in the sleeve 27 and bearing member 34 and is provided at its outer end with a bearing member 37, which engages and is positively controlled by the channel formed between the guide members 32 and 33, and the member 27 is given a partial rotation to open or close the grippers by means of an arm 38, which is secured at one end thereof and is provided with a stud and roller 39, adapted to engage a continuous cam-groove formed in the frame-section 40. The member 28 is provided with

a series of fingers 41, which project outwardly through suitable slots 42, formed in the tubular member 27, and the latter member is provided with a cooperating series of fingers 43, rigidly secured thereto at one end of the slots 42 in position to engage fingers 41. The paper-carrier is so located with relation to the cutting mechanism that the grippers will engage the paper at its forward edge before it is severed by the cutting mechanism, as in this way the paper is kept under positive control, and to render this operation positive the paper-carrier is driven from the cutting mechanism and at the same circumferential velocity by means of an intermediate gearing 44. In order to separate the severed edges of the web and insure the entrance of the advancing edge into the bite of the grippers, the fingers 10 are so mounted and operated as to throw the advancing edge of the web upward toward the grippers just as it is about to be seized thereby. As shown, this is accomplished by mounting the fingers 10 on a frame 45, which is pivotally supported concentrically with the support 2, and providing an operating-lever 46, which is pivoted upon the frame 1 with one end in the path of a suitable cam 47, carried by the support 2, the opposite end of the lever being connected to the frame 45 by a link 48. The grippers are closed at the proper instant by means of an upwardly-inclined portion 49 in the cam-groove 40, and they are opened at the proper time to drop the sheet on the receiving-table 50 by means of a downwardly-inclined portion 51 in the cam-groove 40. The tails of the sheets may be supported during the passage of the sheet from the cutting mechanism to the receiving-table by any suitable means, as by a series of tapes 52, which are mounted on pulleys carried by the shafts 53 and 54 and driven from the cutting mechanism by an intermediate gear 55.

The operation of the mechanism having been fully described in connection with the construction thereof will need no further description.

My invention in its broader aspects is not limited to the precise construction shown and described nor to the exact construction by which it may be carried into effect, as many changes may be made therein without departing from the main principles of my invention and without sacrificing the chief advantages thereof.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a mechanism for severing sheets from webs of paper or similar material, the combination with mechanism for cutting a web transversely, of continuously-moving web-forwarding devices for advancing the web through the cutting mechanism, and a paper-carrier driven at substantially the same speed as the web-forwarding devices, and construct-

ed to engage the advancing end of the web after it leaves the cutting mechanism, substantially as described.

2. In a mechanism for severing sheets from webs of paper or similar material, the combination with mechanism for cutting a web transversely, of continuously-moving web-forwarding devices for advancing the web through the cutting mechanism, and a flexible endless carrier driven at substantially the same speed as the web-forwarding devices and having means for engaging the advancing end of the web after it leaves the cutting mechanism, substantially as described.

3. In a delivery mechanism for web-printing presses, the combination with mechanism for cutting a web transversely, of web-forwarding devices for advancing the web through the cutting mechanism, a paper-carrier driven at substantially the same speed as the web-forwarding devices and having means for engaging the advancing end of the web after it leaves the cutting mechanism, and a support for receiving the sheets as they are released from the paper-carrier, substantially as described.

4. In a mechanism for severing sheets from webs of paper or similar material, the combination with mechanism for cutting a web transversely, of a paper-carrier constructed to engage the advancing end of the web after it passes the cutting mechanism, and means independent of the cutting mechanism and the paper-carrier for separating the severed edges of the paper, substantially as described.

5. In a delivery mechanism for web-printing presses, the combination with a rotary cutting mechanism for severing a web transversely, one member of which constitutes means for advancing the web through the cutting mechanism, of a flexible endless carrier driven at substantially the same speed as the web-forwarding devices and having a series of grippers for engaging the advancing end of the web after it leaves the cutting mechanism, a set of guides for guiding the

advancing end of the web away from the cutting mechanism and means for operating said guides to separate the severed edges of the paper and directing the advancing edge into the bite of the grippers, and a support for receiving the sheets as they are released from the paper-carrier, substantially as described.

6. In a paper-carrier, a gripper comprising a tubular member or sleeve having a series of fingers and a series of slots adjacent thereto, a second member journaled within said first member and having a series of fingers projecting through the slots of the first member, and means for moving one of said members in relation to the other, substantially as described.

7. In a paper-carrier, the combination with an endless chain, of a series of grippers carried thereby each gripper comprising a tubular member or sleeve having a series of fingers and a series of slots adjacent thereto, a second member journaled within said first member and having a series of fingers projecting through the slots of the first member, and means for moving one of said members in relation to the other, substantially as described.

8. In a paper-carrier, the combination with an endless chain, of a series of grippers carried by said chain each of which comprises two members, one of which is movable in relation to the other, a guide-channel for controlling said grippers, means controlled by said guide-channel for preventing movement of one of the gripper members, and means for moving the other gripper member to engage and release the paper, substantially as described.

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

GEORGE E. PANCOAST.

Witnesses:

ROBERT M. DONALDSON,
GEO. H. BARNES.