

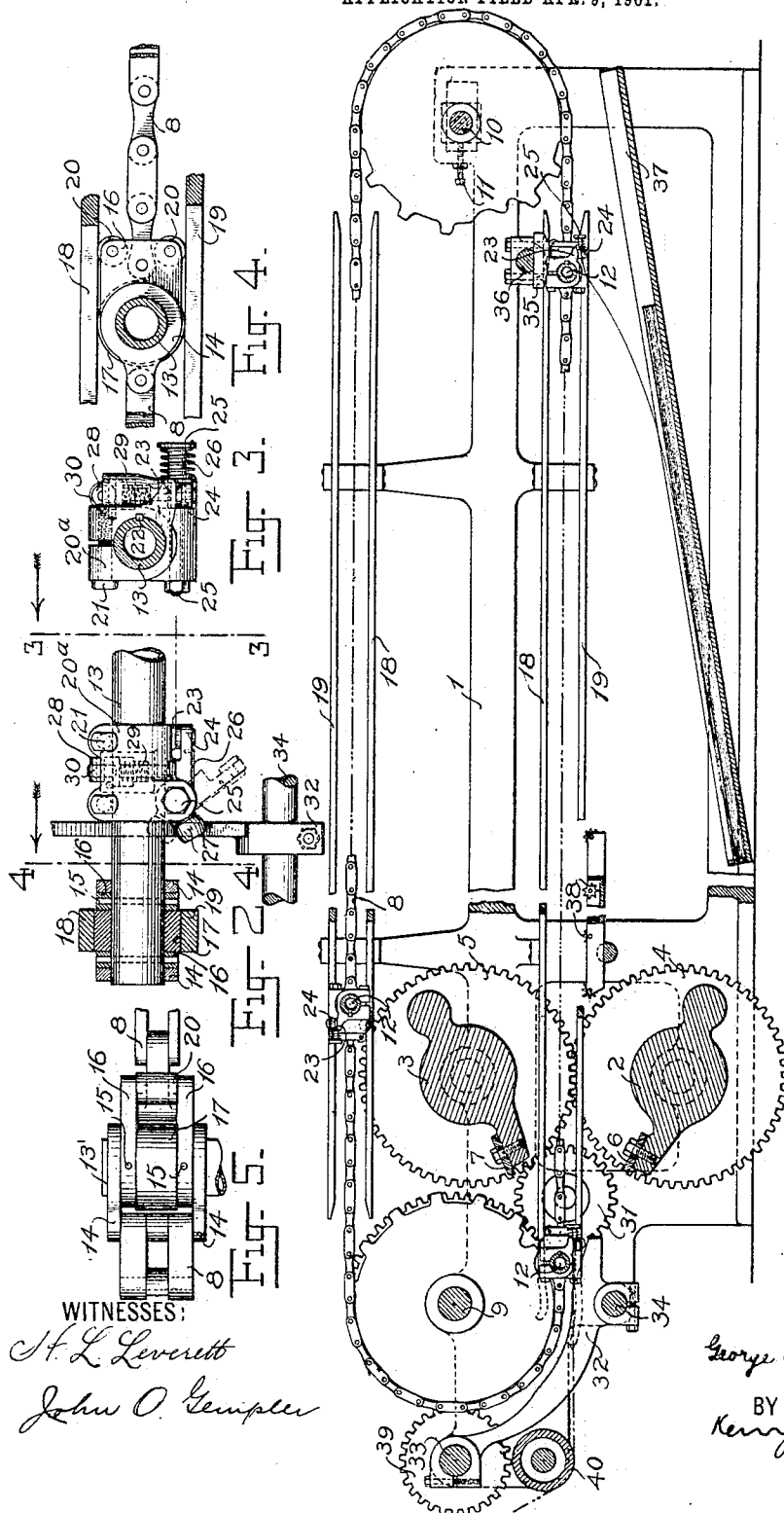
No. 781,903.

PATENTED FEB. 7, 1905.

G. E. PANCOAST.

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

APPLICATION FILED APR. 9, 1901.



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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. 781,903, dated February 7, 1905.

Application filed April 9, 1901. Serial No. 55,031.

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.

My invention relates to improvements in mechanisms 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 is simple in construction and positive in operation and may be operated at a high speed and may be readily adjusted 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 form of my invention and serve, in connection with the description herein, to explain the principles of my invention and the best mode contemplated by me of applying those principles.

Of the drawings, Figure 1 represents a longitudinal central section of a mechanism constructed in accordance with my invention. Fig. 2 is an elevation, partly in section on an enlarged scale, illustrating a detail. Fig. 3 is

a transverse section of the same, taken on the line 3 3, Fig. 2. Fig. 4 is a similar view taken on the line 4 4, Fig. 2; and Fig. 5 is a plan view of the portion of the construction at the left in 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 into separate sheets and a paper-carrier constructed to engage the web before it passes the cutting mechanism and adapted to manipulate webs of different widths. According to the preferred construction the cutting mechanism comprises a pair of cutters mounted in cooperating relation on rotary supports, and the paper-carrier is adapted to engage the opposite edge of the paper and is so constructed that it may be adjusted to engage the opposite edges of paper of different widths without adjusting the cutting mechanism.

Referring now in detail to the construction illustrated by way of example in the drawings, the numeral 1 represents one of a pair of side frames upon which the various parts of the mechanism are mounted. As the construction at the opposite sides of the machine is or may be the same, one side only of the machine is shown and described herein.

2 and 3 represent a pair of rotary supports suitably journaled in the frame 1 and driven in unison by means of the gears 4 and 5. The supports 2 and 3 are respectively provided with transverse cutter-blades 6 and 7, which are preferably so mounted as to be capable of a slight radial adjustment by any suitable means, whereby they may be brought into exact cooperating relation.

The paper-carrier comprises a pair of endless belts or chains, one of which is indicated by the numeral 8. These chains are mounted on sprocket-wheels carried by the shafts 9 and 10, suitably journaled at opposite ends of the frame 1. The shaft 10 at the outer end of the frame is preferably made adjustable toward and from the shaft 9, as by means of a screw 11, for the purpose of maintaining a proper tension upon the chains. A series of suitable gripping devices 12 are mounted upon the

chains at intervals corresponding to the length of the sheets to be severed from the web by the cutting mechanism. Preferably and as shown, these gripping devices are such as are adapted to engage the opposite edges of the paper, and in order that they may be readily adjusted laterally with relation to the paper the gripping devices are adjustably mounted upon transverse bars 13, which are secured at their opposite ends to the chains. As shown, the end of the bar 13 forms a pivot for a pair of links 14 of the chain and is rigidly secured, by means of the pins 15, to an oppositely-extending pair of links 16 of the chain. A friction roller or wheel 17 is loosely journaled on the end of the bar 13 between the links 16 and is adapted to travel between a pair of oppositely-arranged guides 18 and 19, which are arranged parallel with each stretch of the chains to positively control the movement of the grippers. For the purpose of positively controlling the bar 13 the links 16 are extended somewhat and are provided at opposite sides with the friction-rollers 20, which engage the guides 18 and 19 and, with the roller 17, prevent the bar 13 from turning on its axis.

Each of the gripping devices comprises a body portion 20^a, which embraces a bar 13 and is adjustably secured thereon by suitable clamping-screws 21, a key 22 being provided to keep the gripper in its proper angular position upon the bar. Each gripper is provided with a fixed jaw 23 and a pivoted jaw 24. In order that the pivoted jaw may engage the outer edge of the web, it is mounted on an axis which is at right angles to the bar 13 and parallel with the path of movement of the web. The axis of the gripper 24 is formed by a stud-shaft 25, which is rigidly secured to the body portion 20^a of the gripper and upon which the gripper 24 is loosely pivoted. The gripper is normally held in its closed position by means of a coil-spring 26, which is secured at one end to the stud 25 and at the opposite end to the pivoted jaw 24. The jaw 24 is provided on the opposite side of its axis with an arm having a friction-roller 27, which is adapted to engage a suitable operating-cam. For the purpose of slightly opening the gripper to release the sheet means other than said arm is provided, the same consisting in the construction shown of a pin or bolt 28, mounted in a suitable recess in the body portion 20^a directly above the pivoted jaw 24. This pin is normally held out of engagement with the jaw by means of a spring 29, and it is provided at its upper end with a friction-roller 30, which is adapted to engage a suitable cam.

In order that the grippers may engage the web before it passes the cutting mechanism, and thus keep it under positive control, the forward shaft 9, upon which the carrier is mounted, is arranged in advance of the cut-

ting mechanism, so as to bring the grippers into the path of the web in advance of the cutting mechanism, and the paper-carrier is driven at the same speed as the cutting mechanism by means of an intermediate gear 31. A cam 32 for opening the grippers and allowing them to close upon the edge of the web is adjustably mounted upon transverse bars 33 and 34, it being understood that one of these cams is provided at each side of the machine. A cam 35 is provided at each side of the opposite end of the machine for the purpose of opening the grippers to release the sheets, said cams being adjustably mounted on the transverse bar 36. As the sheets are released by the grippers they fall by gravity on the inclined receiving-table 37 and slide toward the lower end thereof and are thus piled in a uniform pile thereon. The tails of the sheets may be supported during their passage from the cutting mechanism to the receiving-table by any suitable means, as by a series of star-wheels 38. The mechanism may be driven from any suitable source of power by means of a driving-gear 39.

It will be seen that the paper-carrier may be adjusted to manipulate webs of different widths by simply adjusting the various gripping devices on one or both sides of the machine laterally on the bars 13 and adjusting the opening and closing cams 32 and 35 to bring them into coöperative relation with the grippers and that this may be done without adjusting the cutting mechanism.

The web is led to the delivery mechanism from the printing-press or any other desired source over a guide-roller 40, where it is seized by the first set of gripping devices on the paper-carrier. These gripping devices will carry the web past the cutting mechanism, and before the latter is brought into operation to sever the web another set of gripping devices will seize the web and positively carry it forward after the portion carried by the first set of gripping devices has been severed therefrom. The carrier may be made as long as desired, so as to retain the sheets in a separated and suspended condition for a length of time sufficient to allow the ink to partially dry or set before the sheets are delivered upon the pile.

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

What I claim as new, 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 a paper-carrier constructed

to engage the web before it passes the cutting mechanism and adapted to manipulate webs of different widths, 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 a continuously-moving paper-carrier adapted to engage the opposite edges of the paper before it passes the cutting mechanism, and means whereby the paper-carrier may be so adjusted as to engage the opposite edges of paper of different widths, substantially as described.

3. In a mechanism for severing sheets from webs of paper or similar material, the combination with mechanism for cutting a web transversely, of a continuously-moving paper-carrier adapted to engage the opposite edges of the paper before it passes the cutting mechanism, and means whereby the paper-carrier may be so adjusted as to engage the opposite edges of paper of different widths said means being so constructed as not to interfere with the cutting mechanism, 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 for engaging the opposite edges of the web before it passes the cutting mechanism, said paper-carrier being so constructed that it may be adjusted to engage the opposite edges of webs of different widths without adjusting the cutting mechanism, substantially as described.

5. 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 web before it passes the cutting mechanism, said carrier having laterally-adjustable web-engaging members, substantially as described.

6. In a delivery mechanism for web-printing presses, the combination with a pair of rotary cutters for severing the web transversely, of an endless flexible paper-carrier constructed to engage the opposite edges of the paper, said carrier having laterally-adjustable web-engaging members, substantially as described.

7. In a delivery mechanism for web-printing presses, a paper-carrier comprising a pair of endless chains, a series of transverse bars mounted on said chains, and grippers adapted to engage the opposite edges of a web, said grippers being adjustably mounted on said bars, substantially as described.

8. In a delivery mechanism for web-print-

ing presses, a paper-carrier comprising a pair of endless chains, a series of transverse bars mounted on said chains, guides for positively controlling said bars and preventing them from turning on their axes, and grippers adapted to engage the opposite edges of a web, said grippers being adjustably mounted on said bars, substantially as described.

9. A gripper comprising a body portion having a fixed jaw and a spring-pressed pivoted jaw, a plurality of independent contact devices carried with said grippers for opening the spring-pressed jaw, and independent means for operating said contact devices, substantially as described.

10. In combination, a gripper comprising a body portion having a fixed jaw and a spring-pressed jaw, a cam and connections for opening the jaw to receive the paper, and a cam and independent connections for opening the jaw to deliver the paper, substantially as described.

11. In combination, a traveling gripper comprising a fixed jaw and a movable jaw, means including a connection traveling with said gripper for operating the jaw to receive the paper, and means including another connection traveling with the gripper for operating the jaw to deliver the paper.

12. In combination, a carrier, a gripper thereon comprising a fixed jaw and a movable jaw, means arranged on one side of the path of movement of the carrier for operating the gripper to receive the sheet and independent means arranged on the other side of the path of movement of the carrier for operating the gripper to deliver the sheet.

13. In combination, a carrier having an orbital path of movement, a transverse member mounted on said carrier, a gripper mounted on said transverse member and adjustable longitudinally of the same, and means for operating said gripper mounted independently of the carrier and adjustable in position to correspond with the position of the gripper.

14. In combination, a carrier comprising a pair of endless chains, a transverse bar mounted on said chains, a gripper mounted on said bar and adjustable longitudinally thereof, and means for operating said gripper mounted independently of said carrier and adjustable to correspond with the location of the gripper.

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

GEORGE E. PANCOAST.

Witnesses:

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