(No Model.)

2 Sheets—Sheet 1.

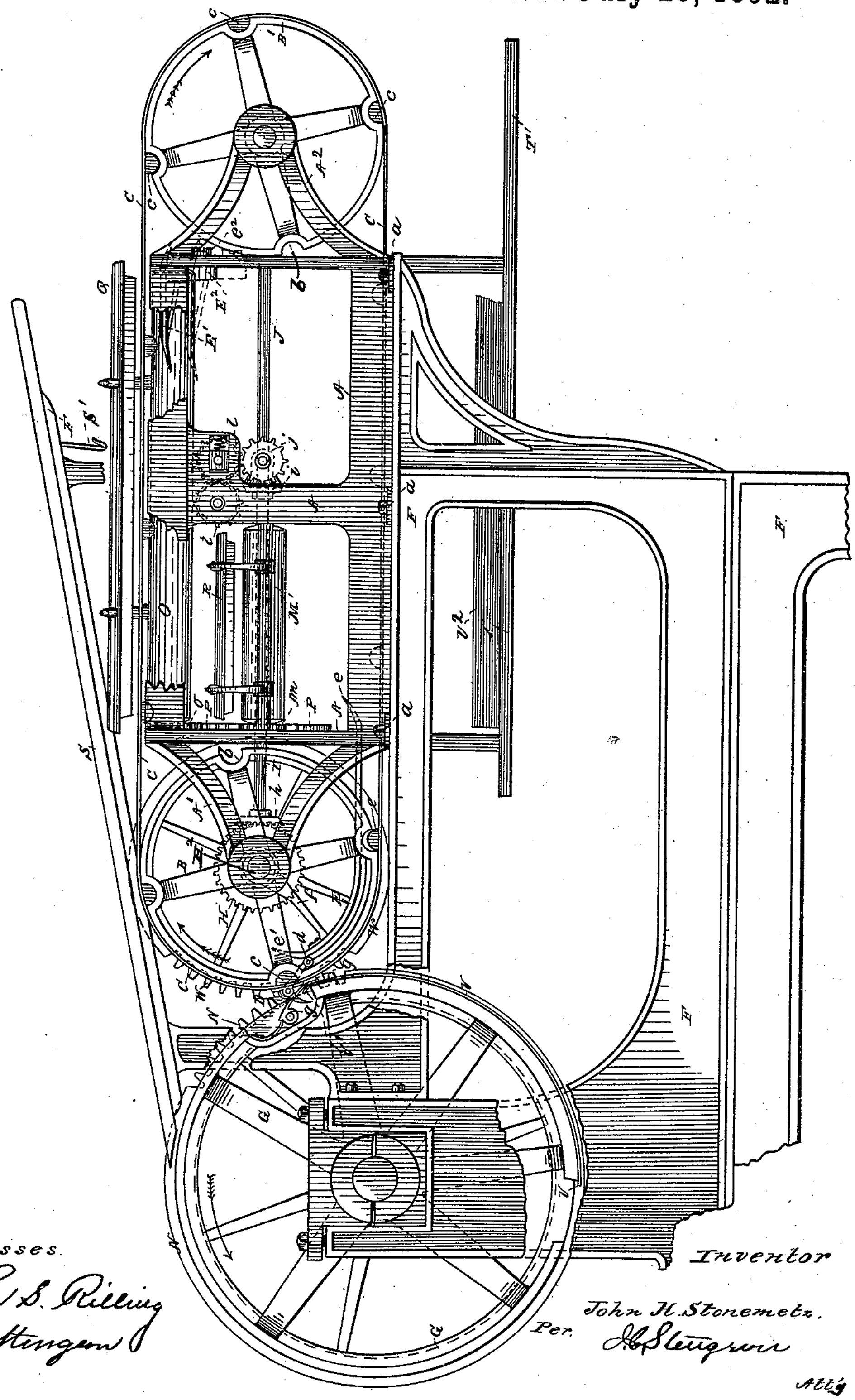
J. H. STONEMETZ.

COMBINED PAPER FOLDING AND SHEET DELIVERING MECHANISM FOR PRINTING PRESSES.

No. 479,768.

Patented July 26, 1892.

Fig. I.



Witnesses.

John S. Rilling

H. Wyttengen

Inventor

John H. Stonemetz.

Per. H. Stengrum

Att'y

(No Model.) 2 Sheets—Sheet 2.

J. H. STONEMETZ.

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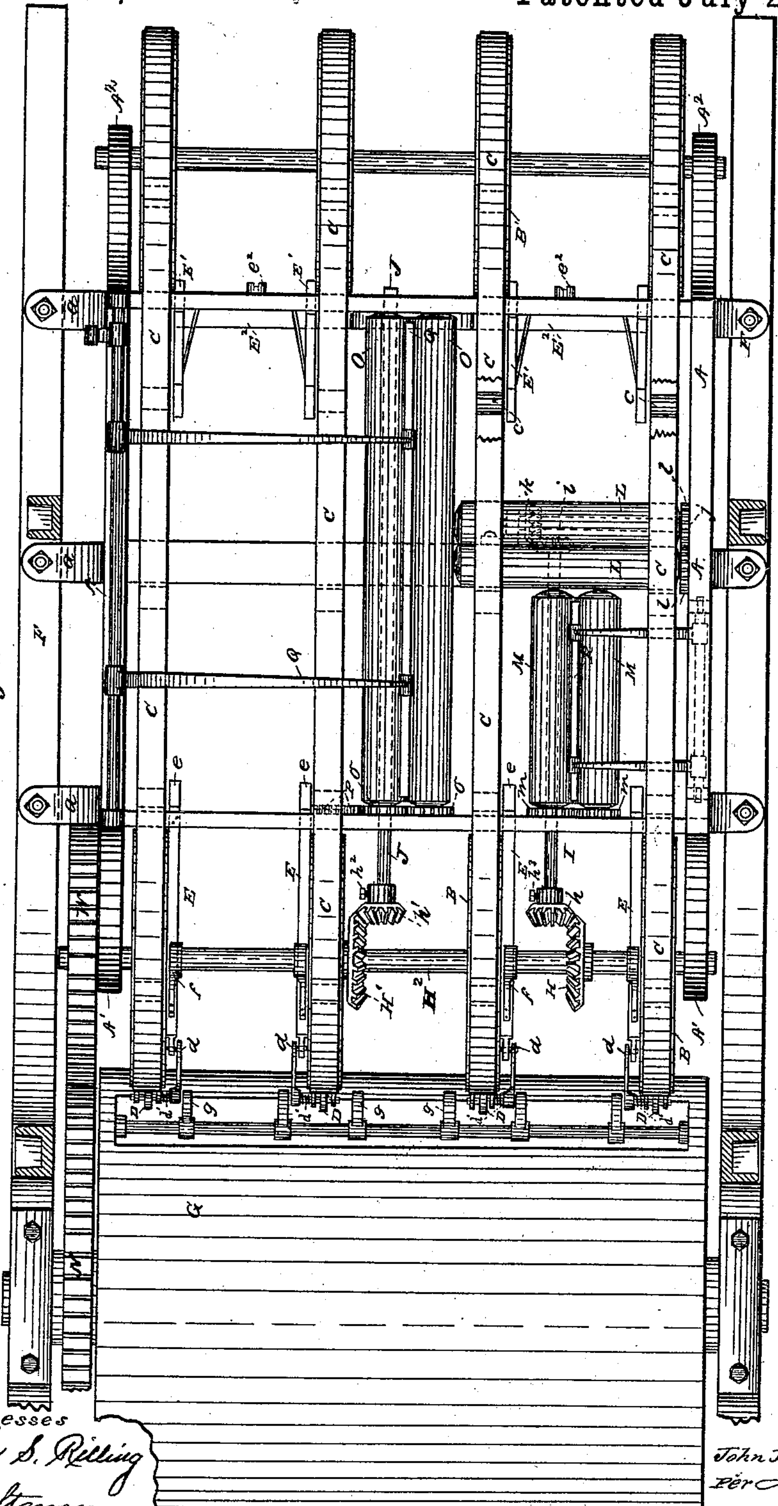

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN H. STONEMETZ, OF ERIE, PENNSYLVANIA.

COMBINED PAPER-FOLDING AND SHEET-DELIVERING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 479,768, dated July 26, 1892.

Application filed January 2, 1886. Serial No. 187,371. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. STONEMETZ, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in a Combined Paper-Folding and Sheet-Delivery Mechanism for Printing-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to combined paper-folding and sheet-delivery mechanism for printing-presses; and it consists in the improvements hereinafter set forth and explained.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a printing-press with my improved combined paper-folding and sheet-delivery device thereon. Fig. 2 is a top or plan view of the same.

Like letters refer to like parts in both figures.

In the construction of my improvement, A A′ A^2 represent the side frames of my machine, A being the frames of the folding-machine, and A′ and A^2 frames or brackets projecting out from the ends of the frame A. In the frame A′ is mounted a cross-shaft H^2, upon which is mounted large tape-wheels B, and in the frame A^2 is also mounted a similar shaft provided with similar tape-wheels B′. These tape-wheels B B′ are provided with recesses *b* in their faces at intervals around the periphery thereof. Around these tape-wheels B B′ are placed carrier-tapes C, provided with lugs *c*, which fit into the recesses *b* in the faces of the tape-wheels B B′, these tapes C passing entirely around the folding-machine, over it in traveling one way and under in traveling back. The tapes C are also each provided with a gripper D, the operation of which will be hereinafter explained. The shaft H^2 is provided on one end with a gear-wheel W, which intermeshes with a gear-wheel N on the end of the impression-cylinder G of a printing-press. The shaft H^2 is also provided with bevel gear-wheels H and H′, the wheel H intermeshing with the bevel-gear *h* on the shaft I for driving folding-rolls, and the wheel H′, with the bevel-gear *h*′ on the shaft J, also driving folding-rolls, the shafts I and J being connected with the folding-rolls and folding-blades of the machine by mechanism of ordinary construction. It will thus be seen that the entire carrier-tape and folding mechanism is driven by the shaft H^2, the gear-wheel W intermeshing with the gear N on the impression-cylinder G of the press and moving simultaneously therewith.

In constructing my improved machine it is made of suitable size to be placed under the feed-board directly behind the impression-cylinder of the press, the ordinary delivery-cylinder and fly mechanism having been first removed from the press. When placed in the press substantially as shown in Fig. 1, the grippers D on the carrier-tapes C operate to receive the printed sheet from the impression-cylinder G direct. The grippers D are provided with arms *d* and spiral springs *d*′, these springs *d*′ serving to retain the grippers D in a normally-closed position. Attached to the frames or brackets A′ by means of downward-projecting arms *f* are curved shoes E, the ends whereof turn upward at *e e*′, and at the upper corner of the frame A of the folding-machine is also adjustably attached curved shoes E′, these shoes E′ being arranged to be adjusted up or down, as shown in dotted lines E^2, by means of set-screws e^2.

In the operation of this mechanism when the conveyer-tapes C carry the grippers D around to the shoes E the points *e* thereof receive the arms *d*, and as they pass under the shoes E the arms *d* are pressed downward, so as to open the grippers D in the position shown in Fig. 1, in position to receive the edge of the next printed sheet from the impression-cylinder G as it is being released by grippers *g* thereon, and as the arm *d* passes out from under the point *e*′ of the shoe E the pressure being released, the springs *d*′ close the grippers upon the edge of the sheet and the conveyer-tapes carry it up over the top of the folding-machine until the arms *d* of the grippers D engage with the shoe E′, when it is released, while the folding-blade Q, acting at that instant, tucks the sheet between

the first folding-rolls O, whence it passe through the several sets of folding-rolls. In case, however, it is desired to deliver the sheets without folding—as, for example, while printing the first side of a newspaper—the folding-machine is disconnected by loosening the set-screws h^2 h^3 and moving back the beveled gears h and h' out of mesh with the bevel-wheels H H', and the folding-blade Q is fastened up by means of a hook S' and the movable shoes E' are set down, as shown in the dotted lines E^2, so as to not engage the gripper-arms d, the conveyer-tapes C then carrying the sheet over the top of the folding machine and around the tape-wheels B' until the arms d of the grippers D engage with the points e on the lower shoes E, which instantly open the grippers D, releasing the sheet and allowing it to fall upon the table T under the folder, as illustrated in Fig. 1 at v^2. It will thus be seen that my improved machine performs interchangeably the functions of both a delivery mechanism for printing-presses and of a folding-machine attached thereto, the same being substantially a part of the mechanism of the press, enabling it to perform both the functions of printing and folding papers at one and the same time or of printing and delivering sheets without being folded, at the will of the operator.

I have thus shown a simple and convenient combination of mechanism for utilizing my invention; but I am aware that many portions thereof may be modified and changed by those skilled in the art to which it appertains and good results obtained without departing from the spirit of my invention, my invention relating rather to the combining, with an ordinary printing-press, of a combined paper-folding and sheet-delivery mechanism than to the specific construction of the mechanism used.

Having thus fully described my invention, so as to enable others skilled in the art to which it appertains to construct and use the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, with a printing-press, of a paper-folding machine provided with a set of conveyer tapes, bands, or chains having sheet-grippers thereon and adapted to convey sheets from the press into and over and beyond the folder, and two sets of gripper-trippers, one of which is adapted to be adjusted to open the grippers and release the sheet over the first set of folding-rolls and the other to open the grippers and release the sheet after it has passed over the folder, substantially as and for the purpose set forth.

2. The combination, in a paper-folding machine, of conveyer tape-wheel at each end of said machine with conveyer-tapes having grippers thereon, said tapes operating on said tape-wheels and passing over the folder in one direction and back under the folder in the other, and gripper-tripping mechanism for opening the grippers and releasing the sheet, substantially as and for the purpose set forth.

3. The combination, with a printing-press, of a paper-folding machine having conveyer tape-wheels adjacent to the impression-cylinder and operated by gearing from the press, carrier-tapes having sheet-grippers thereon and passing around said tape-wheels and over the folding-machine in one direction and back under it in the other, and adjustable mechanism for opening the tape-grippers and releasing the sheet on the top of the folder, and also mechanism for opening the tape-grippers as they pass under the folder for releasing a sheet and for gripping another sheet, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. STONEMETZ.

Witnesses:

JOHN S. RILLING,

F. W. GRANT.