

(No Model.)

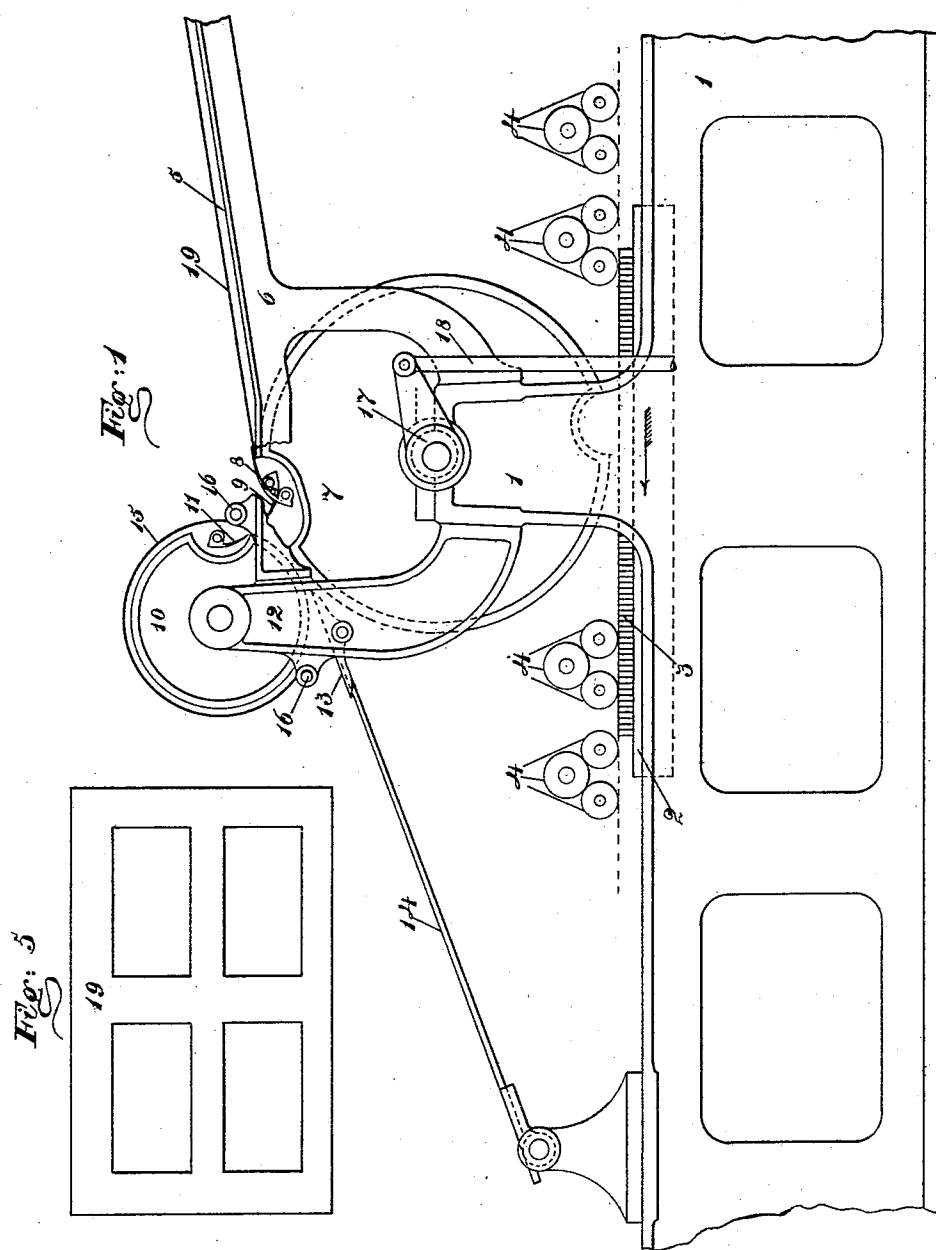
3 Sheets—Sheet 1.

W. S. HUSON.

MACHINE FOR PRINTING FROM COLLOTYPE OR ALBERTYPE PLATES.

No. 573,596.

Patented Dec. 22, 1896.



Witnesses:
Francis P. Reilly,
W. A. Brückel,

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W. F. Brückel,

Inventor:

W. A. Hudson

by P. M. Voorhees

Athy.

(No Model.)

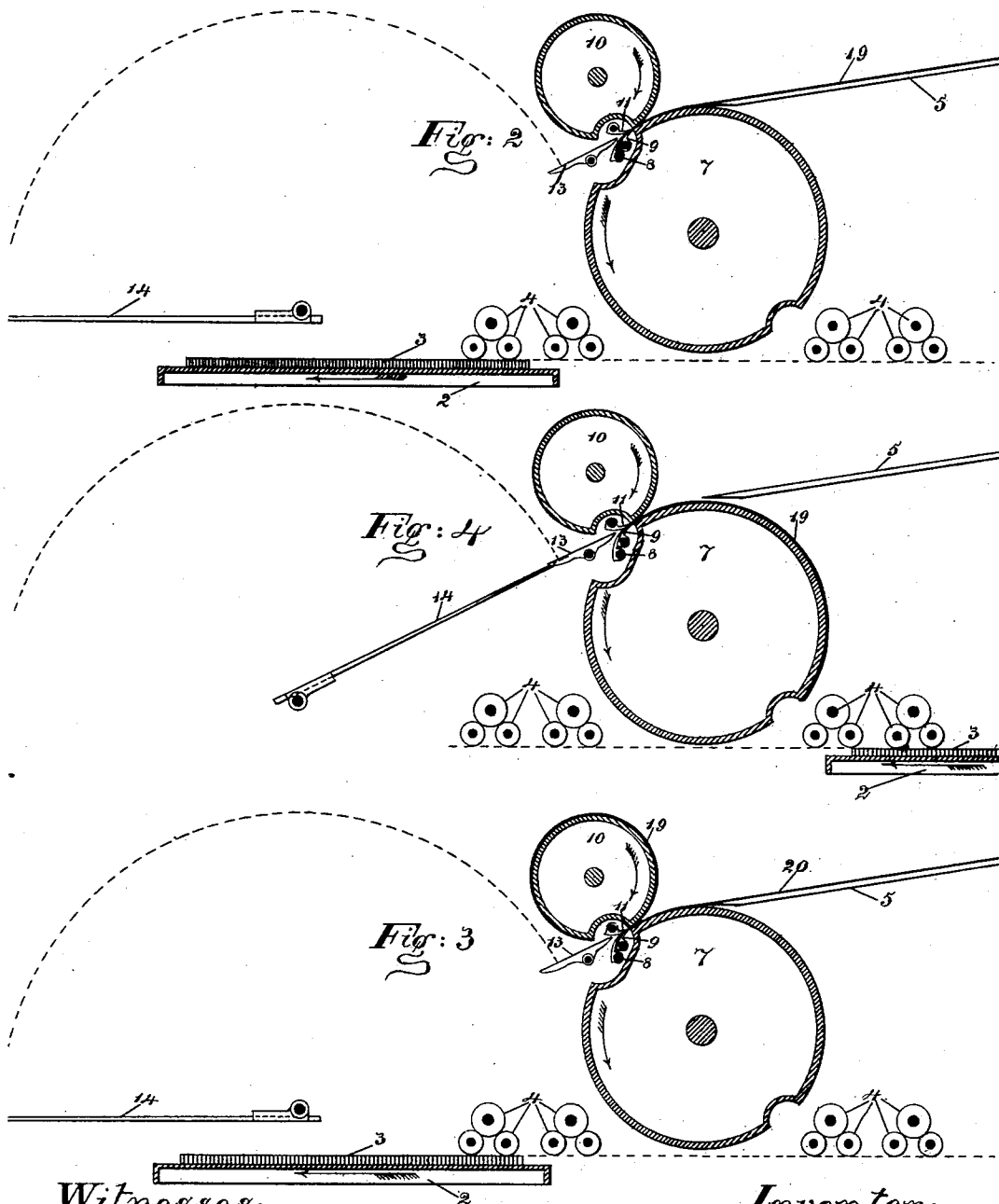
3 Sheets—Sheet 2.

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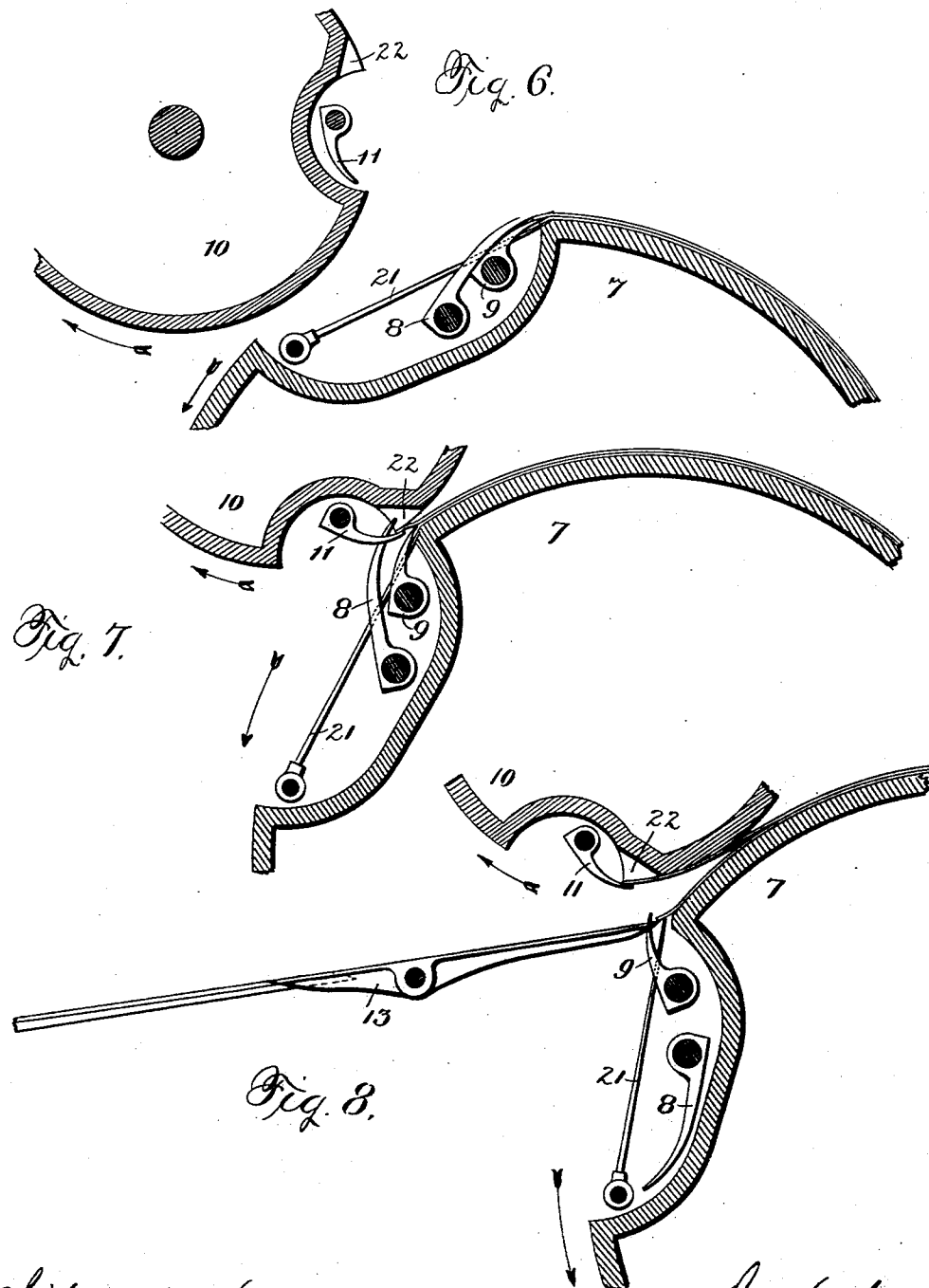
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MACHINE FOR PRINTING FROM COLLOTYPE OR ALBERTYPE PLATES.

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Witnesses
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L. A. Williamson.

Inventor
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UNITED STATES PATENT OFFICE.

WINFIELD S. HUSON, OF TAUNTON, MASSACHUSETTS, ASSIGNOR TO THE CAMPBELL PRINTING PRESS AND MANUFACTURING COMPANY, OF NEW YORK, N. Y.

MACHINE FOR PRINTING FROM COLLOTYPE OR ALBERTYPE PLATES.

SPECIFICATION forming part of Letters Patent No. 573,596, dated December 22, 1896.

Application filed November 12, 1890. Serial No. 371,211. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD S. HUSON, of Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful Machine for Printing from Collotype or Albertype Plates, which invention is fully set forth and illustrated in the following specification and accompanying drawings.

In printing from collotype or photogelatin plates there is required to be interposed between the printing-plate and the sheet to be printed a frisket or mask-sheet to prevent contact of the sheet to be printed with the plate beyond the outline of the picture proper and to give a definite outline to such picture. With this end in view it is the object of this invention to provide a printing-machine which, while printing from such gelatin or collotype plates, will automatically manipulate the mask-sheet and deliver the printed sheets also automatically.

To this end the invention consists of the device described and claimed in this specification and illustrated in the accompanying three sheets of drawings, in which—

Figure 1 is a side elevation of so much of what is generally known in the art as a "two-revolution cylinder printing-machine" as is necessary to illustrate the invention. Figs. 2, 3, and 4 are diagrammatic elevations showing the different positions of the parts of the press while a sheet is passing through the machine. Fig. 5 is a plan of the mask-sheet or frisket, and Figs. 6, 7, and 8 are diagrams illustrating the transfer of the mask-sheet and the delivery of the printed sheet.

In the drawings the detail mechanisms for operating the various parts of the printing-press are omitted, as being well known in the art as applicable to this form of machine and not involved in this invention, as, for instance, the bed-actuating and gripper and fly mechanisms, the details of the inking and cylinder raising and lowering mechanism, &c., all such being common to two-revolution machines alike for the operation with or without mask-sheets.

Referring now to the drawings and in detail, 1 represents the main frame of the ma-

chine, and 2 the usual reciprocating plate or form bed, upon which may be placed the printing plate or form 3. The inking-rollers are represented by 4 4, and 5 represents the feed-board, supported upon brackets 6, secured to the frame 1.

7 represents the impression-cylinder, making two revolutions to each impression, and in this impression-cylinder are mounted in the usual way two series of grippers, as 8 and 9.

A transfer-cylinder 10 is journaled partly above and to one side of the impression-cylinder in bracket 12, and this transfer-cylinder carries a set of grippers 11. The grippers 8 and 11 are operated in any of the well-known ways to coact for the transfer of a mask-sheet 7 from cylinder 7 to cylinder 10, and vice versa, and grippers 9 are operated to take the sheet to be printed from the feed-board and release it at the proper time for delivery.

It will be seen that the transfer-cylinder is located upon the opposite side of the impression-cylinder relatively to the feed-board, or that the transfer-cylinder is located, in connection with the impression-cylinder, between the point where the sheets are fed to the impression-cylinder and the point where the impression-cylinder presents the sheets to the printing-surface, whereby the mask-sheet will be properly laid on top of the sheet to be printed to protect the same.

The usual strippers 13 may be used to guide the printed sheet from the impression-cylinder after the grippers 9 have released the same and to guide the sheet to the usual fly 14.

A shield or apron 15 is used to cover up the transfer-cylinder at a short distance from its surface to prevent the tail end of the mask-sheet from falling on the feed-board while passing around it. Said apron is mounted on its ends upon rods 16, secured at their ends in brackets 6 and 12.

A cylinder 17 is journaled in eccentric boxes 17, which are oscillated at the proper times by the connection of rods 18 to suitably-moving parts of the machine in a well-known way to raise and lower the impression-cyl-

der 7 from and into contact with the plate or form 3 on each alternate movement.

If desired, and preferably, a series of the usual lifter-fingers may be used in connection with the grippers 9 to lift the forward end of the printed sheet onto the strippers 13, although these lifter-fingers are not necessary, but are shown in a third sheet as illustrating the exact means preferably used.

The cylinders 7 and 10 have spur-gears secured to their outer ends, which are omitted in the drawings for the sake of clearness, whereby the cylinder 10 is driven by cylinder 7 at an equal peripheral speed, bringing the grippers 8 and 10 always in a position to co-act for the transfer of the mask-sheet, as described below.

The operation of the machine is as follows: A mask-sheet 19 is first fed to the grippers 8 of cylinder 7 and immediately transferred to the grippers 11 of cylinder 10, as shown in Fig. 2. The cylinder 7 now makes its non-printing revolution, during which the mask-sheet makes two revolutions upon cylinder 14. Now at the proper time a sheet 20 to be printed on is fed from the feed-board to the grippers 9 of the cylinder 7, and upon the arrival of the grippers 8 in juxtaposition with the grippers 11, as shown in Fig. 3, the latter open, releasing, and the former close upon, the mask-sheet, which is thus taken upon cylinder 7 over the sheet to be printed. As the printing revolution of cylinder 7 continues, the sheet is printed, and upon the arrival of the parts at the position shown in Fig. 4 the grippers 8 first open to release and the grippers 11 close to take the mask-sheet again upon cylinder 10, and immediately thereafter grippers 9 release the printed sheet, which may be picked up by the lifter-fingers 21 to pass upon the strippers 13 and down upon the fly 14. During the next revolution of the impression-cylinder the mask-sheet is controlled by the gripper 11 of the transfer-cylinder 10, the mask-sheet 19 being held to the transfer-cylinder for two revolutions thereof, the transfer-cylinder being made preferably one-half the diameter of the impression-cylinder. Another sheet to be printed is then fed from the feed-board 5 at the proper time and the mask-sheet 19 taken by the impression-cylinder, as before described, to protect the sheet to be printed, and thus the operation continues.

The third sheet of drawings shows the transfer of the mask-sheet and the delivery of the printed sheet upon a larger scale.

Fig. 6 shows the cylinder 7 with the printed and mask sheets upon its printing-surface, the leading edge of the mask projecting beyond the edge of the printed sheet, and also beyond the edge of printing-surface of cylinder, and held by grippers 8. The printed sheet is shown as flush with the leading edge of surface of cylinder 7, being retained thereon by grippers 9. Under the printed sheets

are lifter-fingers 21, used to raise the sheet at the proper time over the points of strippers 13.

Fig. 7 shows the transfer of the mask-sheet from cylinder 7 to transfer-cylinder 10, the leading edge of cylinder 10 and grippers 11 being set slightly in advance of the corresponding ones on cylinder 7, so that the grippers 11, in grasping the mask, will clear the edge of the printed sheet which is held by grippers 9. 22 designates recesses in cylinder 10 through which the points of grippers 8 pass in opening or closing.

Fig. 8 shows the delivery of printed sheet 80 to strippers 13. Immediately after the mask has been transferred the grippers 9 are opened, and at the same time lifter-fingers 21 are operated to raise the edge of printed sheet over the strippers 13. The edge of the printed sheet may be also led over the points of strippers 13 by means of small pieces of stiff cardboard secured to the cylinder under the sheet and slightly bent, so as to raise the sheet when the grippers 9 are opened; also, the strippers 13 may be operated to project their points under the leading edge of the sheet at the proper time. These methods of delivery are common, but the lifter-fingers are shown as conveying a more comprehensive way of delivering the sheets.

From the foregoing the separation and transfer of mask without taking or tearing the printed sheet and delivery of printed sheet are made plain. The grippers 8, 9, and 11 and lifter-fingers 21 may be operated by a mechanism similar to that shown in Patent No. 457,715, dated August 11, 1891, in which the operation is akin to that in this invention. Therefore after the machine has been started in operation all the operator has to do is to feed in the sheets to be printed upon, and the mask-sheet will be automatically manipulated by the transfer-cylinder and automatically put in place and properly handled in connection with the sheet to be printed.

It is obvious that the invention herein described and illustrated as applied to a flat-bed machine is equally applicable to a machine printing from rotary curved printing-plates.

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

1. The combination in a printing-machine of an impression-cylinder, a transfer-cylinder coöperating therewith and located so that a mask-sheet transferred from the same to the impression-cylinder will be laid on top of the sheet on the impression-cylinder before said sheet reaches the printing-surface, gripper devices arranged in the impression-cylinder and transfer-cylinder so that the mask-sheet will be continuously transferred back and forth between the transfer-cylinder and impression-cylinder, and delivery devices coöperating with the impression-cylinder for tak-

ing the printed sheets from the impression-cylinder and delivering the same, substantially as described.

2. The combination in a printing-machine
5 of an impression-cylinder, a reciprocating
bed and feed-board, a transfer-cylinder co-
operating with the impression-cylinder and
located on the oppositeside thereof relatively
to the feed-board, gripper devices arranged
10 in said transfer and impression cylinders so
that a mask-sheet will be continuously trans-
ferred back and forth between the same, and
delivery devices coöperating with the im-
pression-cylinder, substantially as described.
15 3. The combination in a printing-machine
of an impression-cylinder, a transfer-cylinder
located in connection with the impression-
cylinder between the point where sheets are
fed to the same and the point where the im-
20 pression-cylinder contacts with the printing-
surface, gripping devices arranged so that a
mask-sheet will be continuously transferred
back and forth between the impression-cyl-
inder and the transfer-cylinder, and a shield
25 arranged to keep the mask-sheet in position
on the transfer-cylinder, substantially as de-
scribed.

4. In a printing-machine, the combination
of an impression-cylinder having a set of
gripping devices for the sheet to be printed, 30
and a second set of gripping devices for a
mask-sheet, and a transfer-cylinder having
gripping devices for alternately delivering
the mask-sheet to the impression-cylinder
and stripping said mask-sheet from the im- 35
pression-cylinder, substantially as described.

5. In a printing-machine, the combination
with an impression-cylinder carrying two sets
of grippers, and a transfer-cylinder carrying
grippers, the said cylinders being timed to- 40
gether, and the several sets of grippers being
operated to coact so that a frisket or mask-
sheet fed to the impression-cylinder will be
thereafter automatically and alternately
transferred from the impression-cylinder to 45
the transfer-cylinder, and from the latter back
to the impression-cylinder, as required in
course of printing sheets, substantially as de-
scribed.

WINFIELD S. HUSON.

Witnesses:

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WM. C. HAWKINS.