3 Sheets—Sheet 1.

A. H. MARINONI.

LITHOGRAPHIC PRINTING PRESS.

No. 87,950. Patented Mar. 16, 1869.

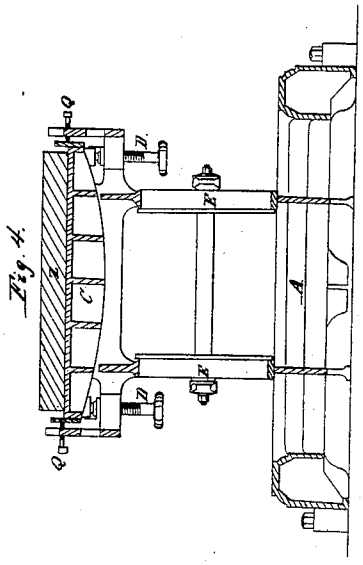

Fig. 4.

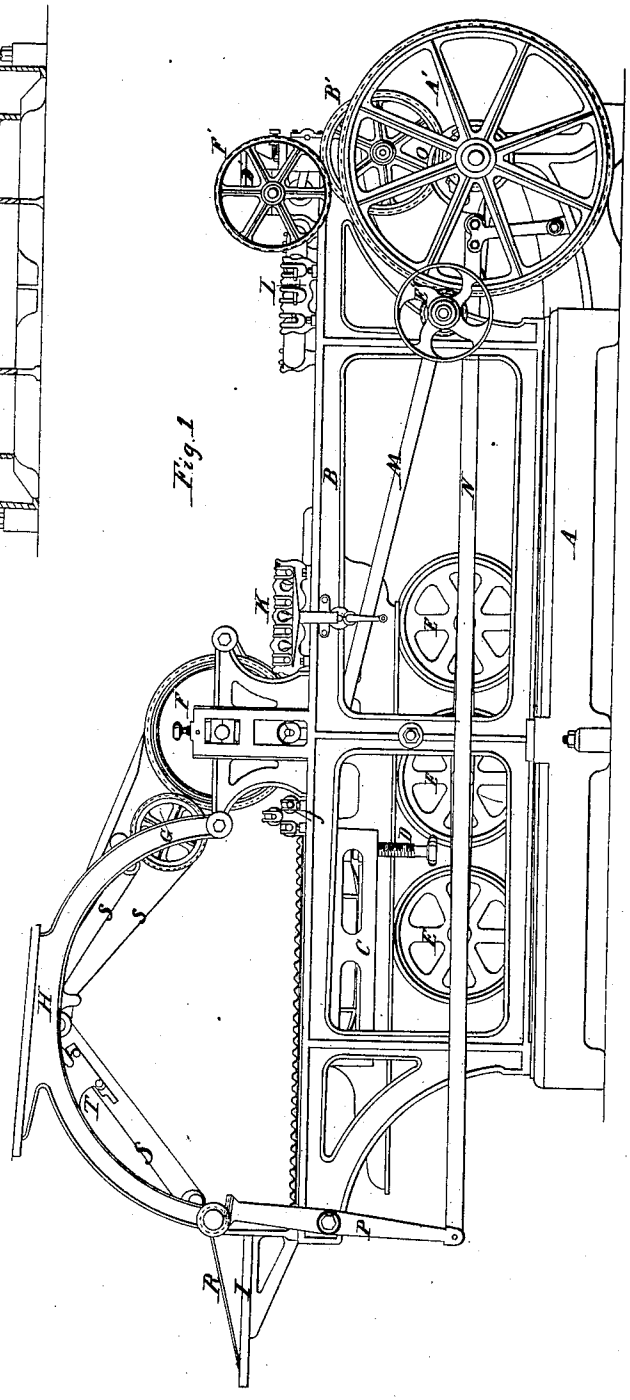

Fig. 1.

3 Sheets—Sheet 2.

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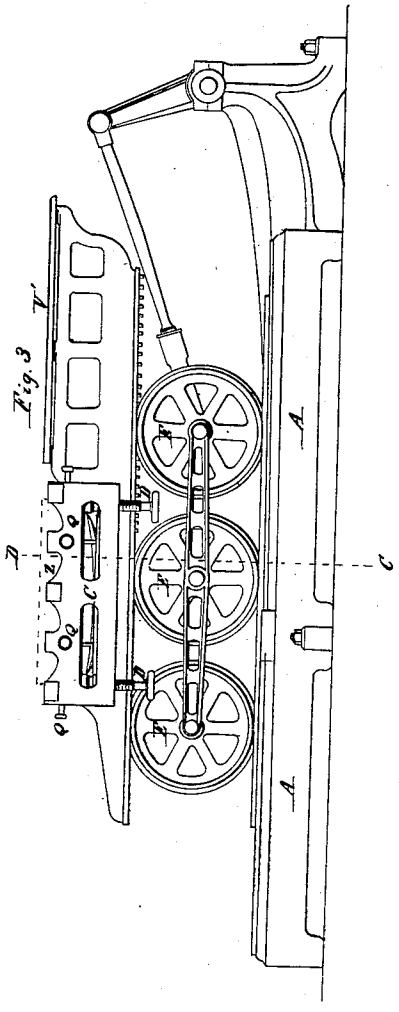

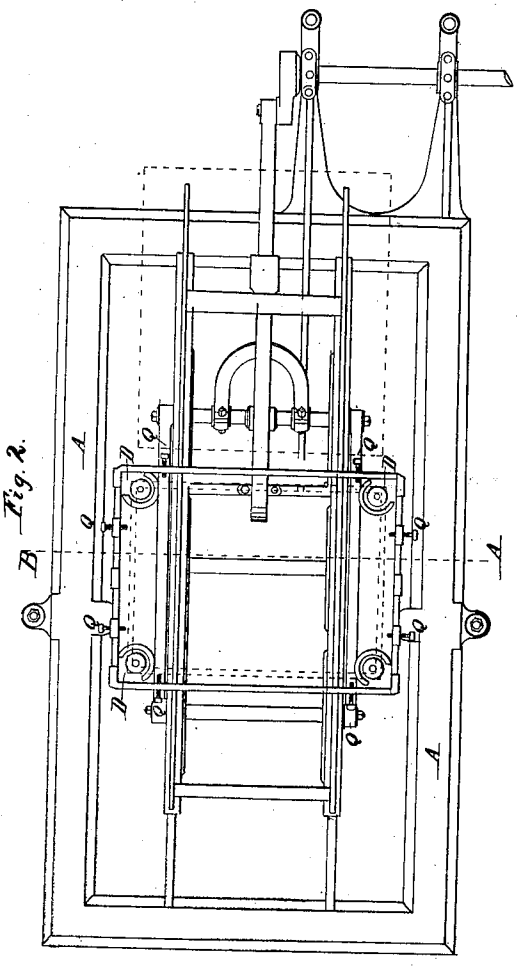

3 Sheets—Sheet 3.

A. H. MARINONI.

LITHOGRAPHIC PRINTING PRESS.

No. 87,950. Patented Mar. 16, 1869.

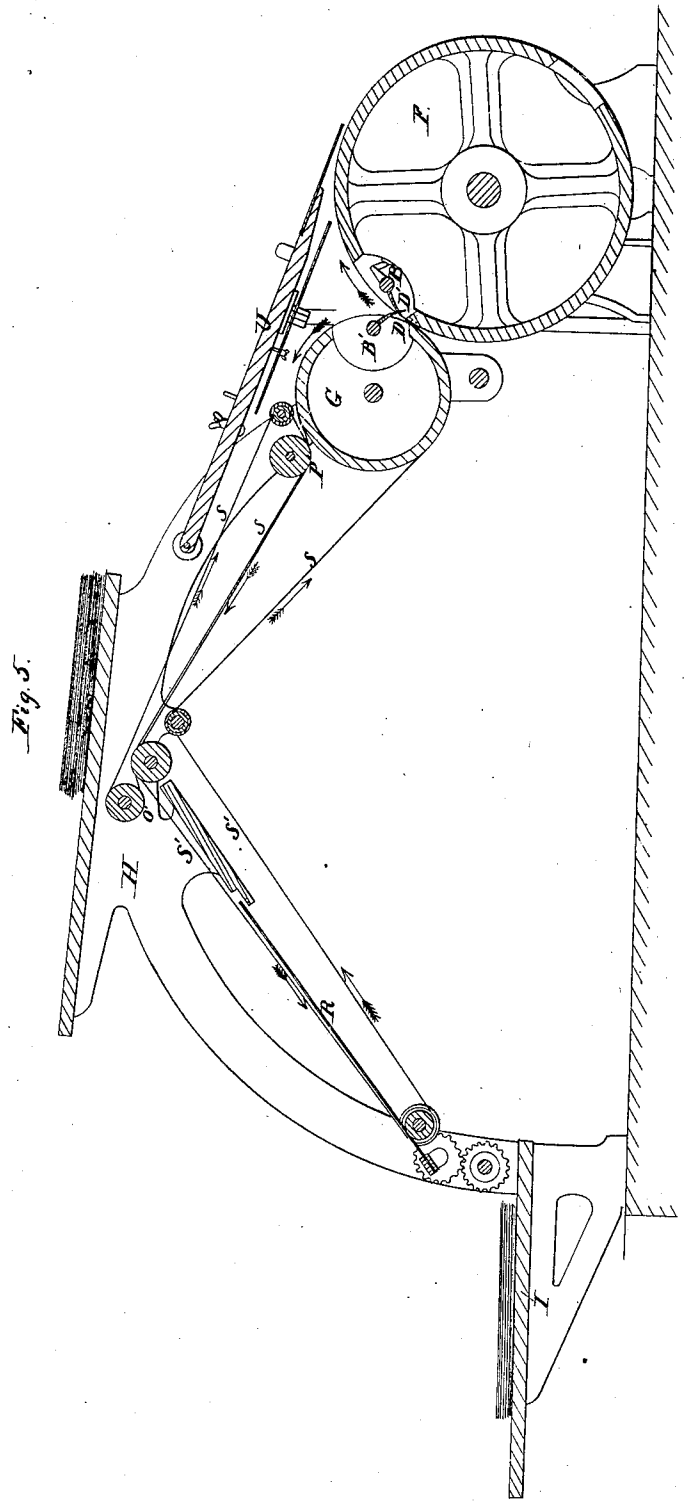

Fig. 5.

United States Patent Office.

AUGUSTE HIPPOLYTE MARINONI, OF PARIS, FRANCE, ASSIGNOR TO RICHARD M. HOE.

Letters Patent No. 87,950, *dated March* 16, 1869.

IMPROVEMENT IN LITHOGRAPHIC-PRINTING PRESSES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, AUGUSTE HIPPOLYTE MARINONI, builder, of Paris, France, have invented "Improvements in Apparatus for Lithographic Printing;" and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed sheets of drawings, making a part of the same.

My invention refers to a new or improved apparatus for lithographic printing. This I have represented in the annexed drawings, which make a part of the present specification.

Figure 1 shows an elevation view of the whole apparatus.

Figure 2 shows a plan view of the frame, the plate-carrying slide, and the motion thereof.

Figure 3 shows an elevation of the frame, the slide, and its motion.

Figure 4 shows a section of the apparatus through A B C D of figs. 2 and 3.

Figure 5 is a longitudinal section of the machine above the frame, showing the nip of the sheet by the printing-cylinder nippers, whereby it is led on the strings, and also the strings which lead it on the receiver, which lays it mechanically on the table.

Similar letters of reference indicate like parts in all the drawings.

My invention consists—

First, in the combination, with the reciprocating carriage of a cylinder lithographic press, of an adjustable bed, upon which the stone is placed for adjusting the stone, both vertically and laterally.

Second, in a mechanism for lifting the inking-rollers from the stone, or inking-table.

Third, in the combination, with the receiving-cylinder, provided with gripers and cords or tapes, of the sheet-fliers.

To enable others skilled in the art to construct and use my invention, I will describe the construction and operation of the same.

The frame which supports the various parts of the machine is formed of the base-plate A and side frames B B, firmly bolted, or otherwise secured together.

On the base-plate are secured two rails, on which the wheels E of the carriage C travel, and two similar rails on the under side of the carriage C, rest on the wheels E. Motion is imparted to the carriage by means of the train of wheels A' B', the pinions working the same, and the connecting-rod and crank on the end of the main shaft, which has bearings in an extension at one end of the base-plate A.

The carriage C supports an adjustable bed, C', on which the stone Z is placed. The adjustment of this bed is regulated vertically by the four screws D.

The printing-cylinder F, on which the sheet is received from the feed-table, and held to receive the impression, is provided with bearings in the upper part of the side frame B.

An arched frame, H, bolted to the frame, supports the mechanism which receives the sheet from the cylinder, and transfers it to the receiving-table I. This mechanism is composed of a small cylinder, G, geared with the impression-cylinder, and provided with a set of gripers arranged on a shaft, and an arrangement of tapes, S S', and rollers, P', and a fly-frame, R, operated by the cam O on the main shaft, through the medium of the rod N and lever P.

On the main shaft there is a cam-pin, which at each revolution operates a lever secured to a shaft, from which project two arms, in which arms the inking-roller has its bearings, and by the rocking of this lever the roller is alternately in contact with the reservoir-roller and the inking-table *u*, which gives a perfect supply of ink.

There is also, on the main shaft, a cam, which operates a rod, M, one end of which is pivoted to a slotted, or toothed arm, in which a pin on one side of the impression-cylinder rests at proper intervals of time, and holds the cylinder at rest during the backward movement of the bed C'. A portion of the gear on the impression-cylinder is cut away, so that the rack will pass under it, and at the proper time the cam-lever M, through the mechanism before described, re-engages the gear on the cylinder-head with the rack, and thus the impression-cylinder revolves in one direction only, namely, with the forward motion of the carriage.

The impression-cylinder F and the receiving-cylinder G are geared together, and the geared teeth on the receiving-cylinder are about one-third longer than those on the impression-cylinder, and as that portion of the gear on the impression-cylinder which is cut away for the backward travel of the carriage, is disconnected with the gear on the receiving-cylinder, the connection is made by a toothed segment on the outer face of the gear on the impression-cylinder.

Both the impression and the receiving-cylinders are grooved longitudinally for the gripers and their mechanism.

The gripers on both the impression and receiving-cylinders consist of crank-shaft B B', fig. 5, provided with griping-fingers D D', fig. 5, which shafts have bearings in the cylinder-heads; and upon the shaft of each there is secured an arm projecting opposite to the crank, which arm rests upon a spring that shuts the gripers upon the sheet.

The gripers are opened by the crank travelling over cams of proper shape, attached to the frame-work of the machine.

The impression-cylinder is grooved, so that the gripers on the receiving-cylinder can open into the

groove and take hold of the printed sheet as it is carried forward by the impression-cylinder, and deliver it to the tapes, which carry it to the fly.

As the gripers form no part of my invention, a more detailed description is considered unnecessary.

The arrangement of the distributing, inking, and wetting-rollers L K J, and ink-trough D′, will be readily understood from the drawings.

The arrangement of the carriage, with its trains of mechanism, will be readily understood from the drawings, and a description in detail is considered unnecessary.

The apparatus for lifting the inking-rollers from the stone, consists of a T-shaped arm, which slides on a bearing, the lower end of which arm rests upon an eccentric working on a pin, to which is attached a handle, and by turning the handle the rollers are raised from the stone, or form, as plainly shown in fig. 1.

Operation.

The operation of the machine will be as follows:

The lithographed stone Z is laid upon the bed-plate C, which rests upon the travelling carriage C′, and is properly adjusted for a perfect register, by the screws Q, as shown in fig. 4, and the ink-fountain and rollers are properly adjusted to supply the ink. The sheets to be be printed are then fed from the table V to the impression-cylinder F, when they are seized by the gripers and carried forward with the impression-cylinder and printed, and then delivered to the gripers on the receiving-cylinder, which carry the sheet to the cords or tapes and rollers that deliver it to the fly, as plainly shown in fig. 5. The fly is then operated through the medium of the cam O, and rod N, and segment-arm P, which works in a pinion on the fly-shaft, as shown in fig. 1.

The rod N, which operates the fly, is reacted by a spring, applied in any proper way for the purpose.

The receiving-cylinder G is provided with grooves for the tapes to lie in, so they will not come in contact with the impression-cylinder, and all the tape-rollers are grooved for the tapes, excepting the roller which is above the receiving-cylinder.

The roller located near the fly, is also grooved to receive the blades or arms of the fly, so that they may be on a plane with the tapes, as the sheet is delivered to them to be piled upon the table I.

The importance of the adjustable bed for lithographic printing will be apparent. The stones are of variable thicknesses, and a perfect impression is of the utmost importance. This is readily attained by me, by the means described.

Having thus fully described my invention,

What I claim, is—

1. The combination, with the reciprocating carriage of a cylinder lithographic press, of an adjustable bed, for adjusting the stone, both vertically and laterally, substantially as described and specified.

2. The T-shaped lifter, and its mechanism for lifting the inking-rollers from the stone and inking-table, substantially as described and specified.

3. The combination of the sheet-flier with an impression-cylinder without tapes, and a receiving-cylinder, provided with both gripers and cords or tapes, substantially as described and specified.

HT. MARINONI.

Witnesses:

VICTOR DE HAGMANN,

ALFONS PONTARD.