(No Model.)

W. H. FOLSOM.

MANIFOLD PRINTING APPARATUS.

No. 440,892. Patented Nov. 18, 1890.

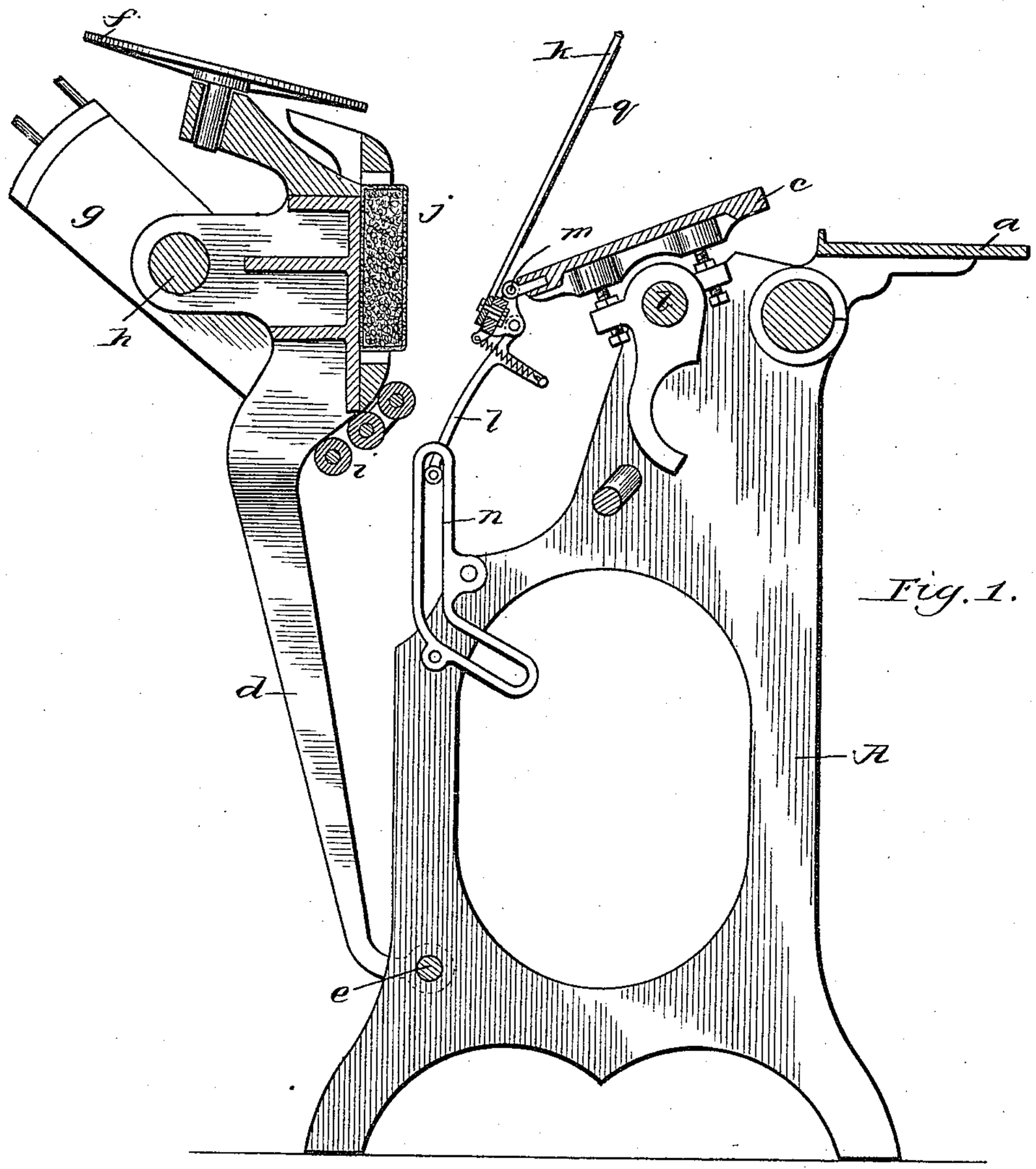

Fig. 1.

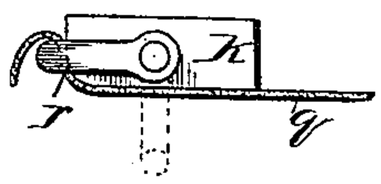

Fig. 3.

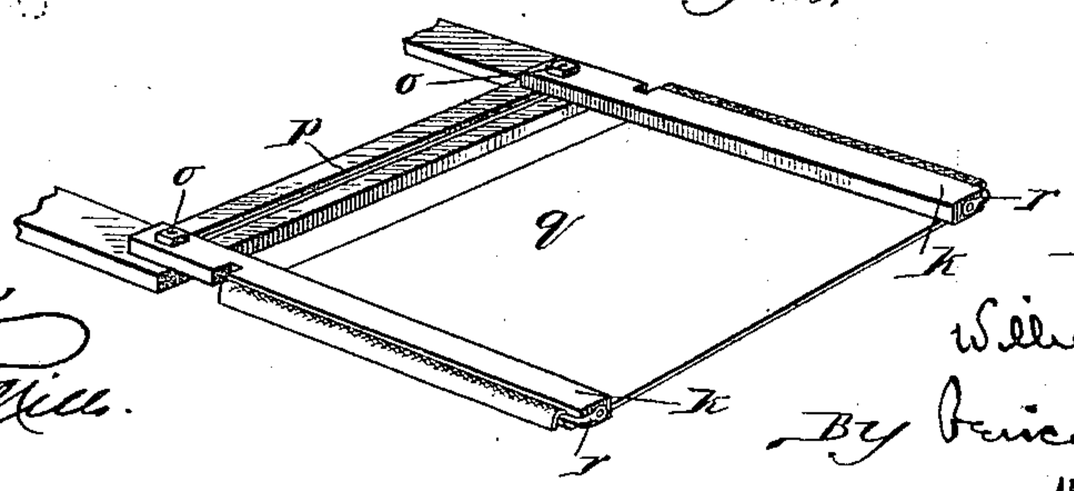

Fig. 2.

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MANIFOLD-PRINTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 440,892, dated November 18, 1890.

Application filed March 28, 1889. Serial No. 305,080. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. FOLSOM, of Ridgeland, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Manifold-Printing Apparatus, of which the following is hereby declared to be a full, clear, and exact description sufficient to enable others skilled in the art to which such invention appertains to make and use the same.

The invention relates to printing apparatus of that class wherein a sheet of paper or the like is perforated in any given pattern, lines, or characters to constitute a stencil-sheet, multiple impressions being then taken from such sheet by forcing ink through the perforations thereof onto a series of blanks presented *seriatim* to the face of the stencil original. This mode of printing in manifold has long been practiced, and it is the object of my invention to provide an improved power mechanism for accomplishing such work rapidly and of superior finish. The invention designs to sustain the stencil-sheet in a frame independently from the platen which carries the blank and from the bed-plate which sustains the inking-pad, the action of the several parts being so timed as to insure the interposition of the stencil-sheet between the platen and the inking-pad just prior to the finish of the movement which brings the pad and platen together. By such expedient the inking of the paper blank through the stencil-sheet occurs evenly and simultaneously at all points. The adjustments of pad and platen can be regulated to secure a fine full impression, while by having the stencil-sheet in a separate frame it is less liable to damage, displacement, or disfiguring.

The nature of the improvements will appear from the description following, and will thereafter be more distinctly pointed out by claims at the conclusion thereof.

Referring to the accompanying drawings, forming part of this specification, like letters of reference denote like parts of structure throughout.

Figure 1 is a view in side elevation, parts being shown in longitudinal section, of one form of printing apparatus embodying the invention. Fig. 2 is a detail view in perspective showing the stencil-sheet secured to its supporting-frame; and Fig. 3 is an end elevation of a part of such frame, showing the mode of securing the stencil-sheet thereto.

A convenient form of machine for the practice of the invention is obtained by modifying some one of the better types of job-printing presses now upon the market so as to adapt the same to the use of a stencil sheet in lieu of a form of type or stereotyped plate from which to made the impression.

The general features of structure exhibited in Fig. 1 of the accompanying drawings will be readily recognized as pertaining to a common form of job-printing press, and such features need not be described in detail, since the invention proper does not relate and is in nowise limited thereto, these being selected in way of illustration merely to better show one approved mode of practicing the invention.

The standard or main frame A of the machine sustains the table *a* at one side thereof, whereon the blank sheets rest and carries, also, on suitable journals *b* the rocking platen *c*. What is usually denominated the "printing-bed," as at *d*, is journaled, as shown at *e*, to the main frame A, and at its upper end is furnished with the inking-plate *f* and with the inking-roller frame *g* which latter is journaled, as at *h*, in an offset of the bed-frame *d*. A series of inking-rollers *i* is carried by the frame *g*, and during the movements of the machine traverses back and forth across the face of the bed-frame *d* and inking-plate *f*, as well understood. Instead of securing the usual type-form to the front face of the bed-frame *d*, there is mounted in lieu thereof an inking-pad *j*, which may be of the ordinary molasses, glue, and glycerine composition, or be formed of a cover of textile fabric having an inner filling, or be otherwise constructed in manner to insure an even and sufficient distribution of printing-ink upon the surface thereof. This pad may be of what is termed the "fountain-type," that is furnished with a reservoir at the back thereof, which automatically supplies the face of the pad with ink for printing, and so dispense with the use of the inking-roller *i* and the inking-plate *f*. It is preferred, however, to

use these latter-named parts, and in conjunction therewith to employ for the inking bed or pad *j* the ordinary printer's composition before referred to. At the front edge of the platen *c* is pivoted the frisket-frame *k*, which has a movement of its own independently of the action of the platen *c*, such movement being controlled by the arm *l*, attached to the heel of the frisket-frame below the pivot-point *m*, which joins said frame to the platen. The arm *l* traverses back and forth in the race *n*, and thus turns the frisket into position to bring the face thereof intermediate and directly opposite the inking-pad *j* and platen *c*, just prior to the finish of the reciprocating movement which brings said parts together. Each arm *k* of the frisket-frame may be adjustably secured by bolt and nut, as at *o*, to the slotted cross-piece *p* of the frisket, by which expedient, or other like device, the frisket may be adjusted to receive stencil-sheets of various size and to retain the same snug and flat during the printing operation. The stencil-sheet *q* has its ends retained against the arm *k* of the frisket-frame by means of the turn-rods *r*, pivoted to each arm and capable of being turned at will to snugly inclose the edge thereof, retaining the end of the stencil-sheet between them. This stencil-sheet *q* may be of paper, silk, or other material ordinarily employed in this class of multiple printing and may have the patterns, characters, or reading-matter which it is desired to reproduce perforated thereon in well-known manner. In practice it may be desirable to have the stencil-sheet backed with a blanket consisting of one or more plies of canton-flannel or the like, as well known in the art of printing, such blanket serving to strengthen the stencil-sheet and to aid in the flow and even distribution of the ink over the surface thereof.

The several parts being constructed and organized substantially as before described, it is clear that the usual operation of the machine will bring the blank sheet mounted upon the platen *c* to a point opposite the inking-pad *j* at a time when the frisket *k*, carrying the stencil-sheet, is directly interposed between the platen and pad. The final reciprocating movement which brings these parts together forces the ink from the pad *j* through the perforations of the stencil-sheet onto the blank sheet carried by the platen *c*, reproducing thereon the pattern with which the stencil is marked. When the parts recede, they ultimately assume the position shown by Fig. 1 of the drawings, at which juncture the printed sheet may be withdrawn and a new blank placed in position upon the platen in readiness to repeat the operation. The inking-pad *j*, being made of proper size in keeping with the dimensions of the stencil-sheet, presses upon this latter smoothly and evenly throughout its entire surface at the moment the imprinting is accomplished, thereby insuring a clear and perfect reproduction upon the blank sheet. The frame, which carries the inking-pad *j*, and the platen *c* also are each capable of adjustment to and fro, as well understood, so that in reciprocation these parts will be brought together snugly and firmly without undue strain, and yet with sufficient force to insure a perfect imprint by the stencil-sheet. Since this latter is supported in the frisket-frame independently from the inking-pad and platen, it allows of free access to and constant inspection of the parts named at the same time that the stencil-sheet is relieved from the rough usage and risk of displacement or disfiguring, which might occur if no separate frisket-frame were used to carry the same.

As already indicated, the invention is not limited to any one form of machine, and may therefore be easily adapted to others than the particular construction exhibited in the drawings.

Obviously the special details of structure may be varied within the skill of the mechanic to effect without departing from the spirit of the invention, which, it will be understood, is therefore not limited to such details.

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

1. In manifold printing apparatus, the combination, with the platen and with the inking-pad moving to and from each other, of the intermediate frisket-frame carrying the stencil-sheet, said stencil being impressed between the platen and pad at all points simultaneously, substantially as described.

2. In manifold-printing apparatus, the combination, with the platen to receive the blanks and with the frisket-frame having the stencil-sheet mounted therein, of the moving bed provided with an inking-pad opposite said platen and with suitable inking-rollers to traverse the face of said pad, said stencil being impressed between the platen and pad at all points simultaneously, substantially as described.

3. In manifold-printing apparatus, the combination, with the frisket-frame having the arms or standards *k*, of the turn-arm *r* to secure the end of the stencil-sheet, substantially as described.

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