

N. J., under the personal supervision of Mr. Walter Scott, the inventor. Two cuts of the machine are given. The elevation cut gives a perspective view of the machine, while the diagram shows the passage of the paper through the machine.

In order that the curious in such things and the seeker-after-knowledge may the more readily understand the workings of the machine we subjoin a key. The letters on the diagram have been reduced so much that they are somewhat indistinct, but the practical reader will not have any great difficulty in tracing out the different parts. The following is the key :

A represents the first distributing cylinder, *a*, *a*, vibratory distributing rollers; B, fountain roller; *b*, ductor roller; C, C', transmitting gears; D, first plate or type cylinder; *d*, *d*, *d*, form-inking rollers; E, first impression cylinder; *e*, *e*, web supporting roller; *e'*, smoothing bar; F, second impression cylinder of large size, and provided with a set-off sheet; G, second plate or type cylinder; *g*, *g*, *g*, form-inking rollers; H, second distributing cylinder; *h*, *h*, *h*, vibrating distributing rollers; I, fountain roller; *i*, ductor roller; J, driving gear; K, male cutting and folding cylinder; *k*, cutting blade; *k'*, folding creaser; L, female folding and cutting cylinder; *l*, first folding grippers, which are held in position by means of springs, and opened by a crank on end of rod; *l'*, second folding grippers; M, folding cylinder; *m*, folding creaser; *m'*, transferring grippers; N, carrying roller; *n*, cord passing around the female cylinder; O, carrying tapes; P, P, rollers; Q, packer; R, folding cylinder; S, folding creaser; T, receiving board; U, paper-roll stand; V, wheel and screw to regulate margin; W, web or roll of paper.

The operation of the machine is as follows: The web of paper passes over the rollers *e*, *e*, in

front of the smoothing bar *e'*, and between the cylinders D and E, where it receives the first impression by the printing cylinder D, which is continually inked by the rollers *d*, *d*, *d*; it then passes around underneath the first cylinder impression E, and over the second impression cylinder F, thus presenting the clean side of the web to the second printing cylinder G, which gives it the second impression, the type or plate being inked continuously by the rollers *g*, *g*, *g*, by means of the rotation of the cylinder. The printed web now passes down between the cutting and folding cylinders K and L, where it is severed by the knife *k*, the leading end of the web passing around the cylinder K by the action of the atmosphere against its surface. When the cylinders have made half a revolution the centre margin of the printed paper comes opposite the creaser *k'*, which forces it into a groove in the cylinder L, where it is held by the grippers *l*, which were previously opened by means of a cam to receive it. The double edge of the sheet then passes around cylinder L to cylinder M, to which it is transferred by the grippers *m'*, and drawn around until the creaser *m* forces it into the bite of the gripper *l'*. The twice-folded sheet then passes up between L and N, the rear end being severed from the web as before mentioned, and is led off of L by the cords *n*, thence between the tapes O and between the rollers P, P, and in front of the packer Q, which delivers each paper on to the receiving board T. When more than two folds are desired, the guide fingers *p* are pressed down below the level of the tapes O, and the paper allowed to pass on to the folding cylinder R, when they receive another fold by the creaser S, or as many more folds as may be desired, and are laid on the receiving board in the same manner as previously described, but with this difference, they will be laid in the opposite direction.

