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NEW SERIES.

BURROUGHS' PAPER-CUTTING MACHINE.

There is great satisfaction in occasionally examining a machine which shows a knowledge of mechanical principles on the part of the inventor, and a common-sense adaptation of them to the several effects which he desires to produce. Such satisfaction we have had in going through with the several parts of Burroughs' Paper-cutter. We do not doubt that, not only job-printers and bookbinders, but machinists also will be interested in following us through the description which, with the aid of the accompanying cut, we hope to make clear.

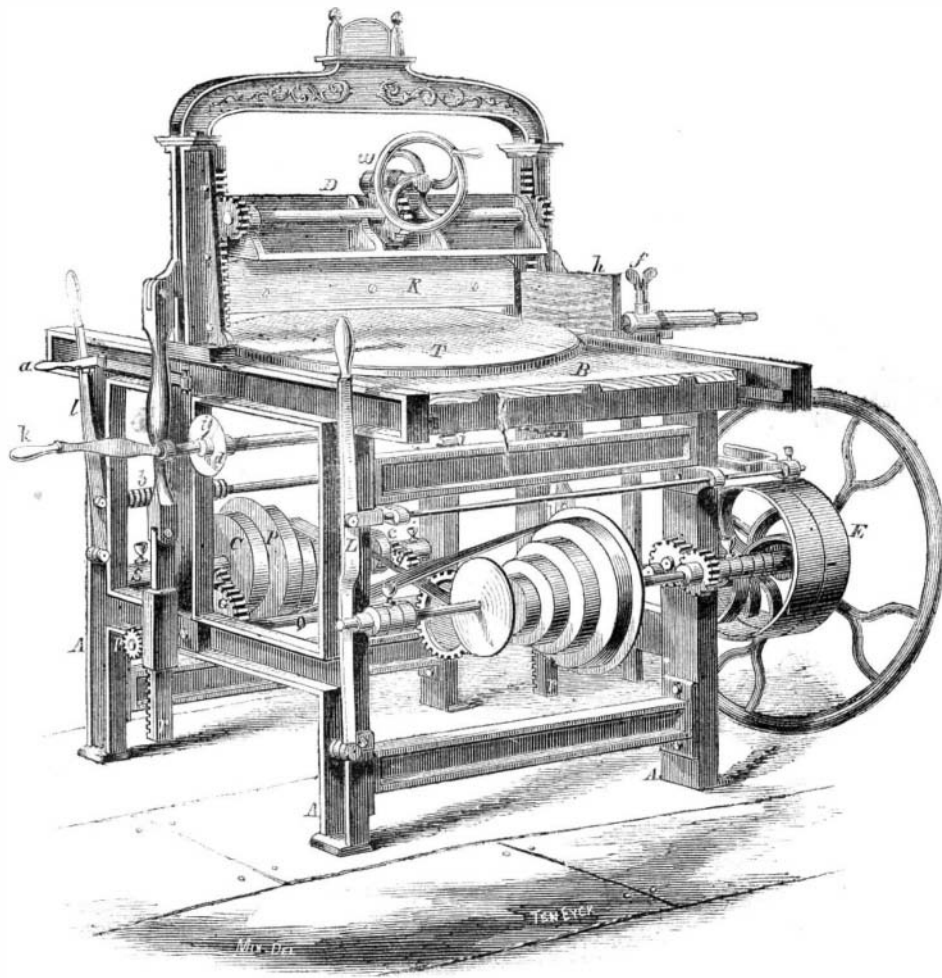
A A A is an iron rectangular frame, on which the whole is constructed. T is the turning-table, on which the paper is placed, and K the knife which is drawn down through the paper, with a combined vibratory and descending motion. The vibratory motion is given to the knife by means of a device not fully shown in the perspective cut, as it is on the further end of the machine. A vibrating arm works in a slot in the knife-frame, which slot is of sufficient length to permit the vertical motion of the knife. The vertical motion is produced by two pinions, *p*, working in the racks, *r r*, at the ends of the machine. The two pinions, one of which is shown at *p* are fastened upon the shaft, S, through which runs the smaller shaft on which the pulleys, P (of various sizes for adjusting the velocity) are fastened. This series of pulleys may be regarded as one pulley, and it has a friction clutch at each end; the large clutch, C, being fastened to the hollow shaft, S, which is geared to the small shaft, *s*, in a way to draw the knife down, while the small clutch, *c*, is geared to the shaft, *s*, in a way to carry the knife up. The small shaft on which the pulley, P, runs is slipped to and fro, through the large shaft S, by means of the lever, *l*, a fork, not shown in the cut, being fastened firmly to the rod about which the spiral spring is wound, and coming down by the side of the series of pulleys. When the lever, *l*, is drawn out from the frame, the large clutch, C, is tightened and brought into action, by which means the gearing, G, is turned and the knife brought down. When the lever, *l*, is drawn back against the frame by the spiral spring, *b*, the small clutch, *c*, is tightened and brought into action, by which the gearing, *g*, is turned and the knife carried up. When the lever, *l*, is drawn out from the frame, it is held by the latch on the small horizontal lever, *a*. The lever, *a*, works on a fulcrum, which is hidden in the engraving by the vibrating rod which connects the knife, *k*, with the rack, *r*, and is provided at its short end with a pin which rises in the knife-frame to a

height just sufficient to cause this pin to be pressed by the descending knife, when the edge of the blade reaches the turning-table. This pressure raises the latch of the lever, *a*, and allows the lever, *l*, to be drawn back by the spring, *b*, which slips the interior shaft on which the pulley, P, runs, throws the large clutch, C, out of action, and the small clutch, *c*, into action, and thus changes the descending motion of the knife into an ascending motion.

The object of this self-operating action is to save the

of the table. After the book is placed, roll along the bed B, by means of the handle, *k*, until the edge of the book is under the knife; bring down the clamp, D, firmly upon the book, start the machine and cut the edge. Then raise the clamp, and roll the table, T, one quarter around (which is measured by notches cut in its edge), bring the edge of the book under the knife, and proceed as before. The power is applied by means of a belt brought upon the pulleys, E, and the belt is slipped from either the tight or loose pulley to start or stop the machine by means of the lever, T. We have seen one of these machines in operation; they seem to work with all the ease and accuracy which might be anticipated from the admirable arrangement of the several parts.

The patent was granted Aug. 9, 1859, to E. Burroughs, of Rochester, N. Y., to whom orders for the machine may be addressed. Any further information may be had at the Inventors' Exchange, No. 37 Park-row, this city, where a model is on exhibition.



BURROUGHS' IMPROVED PAPER-CUTTER.

table from being cut. The turning table, T, on which the paper is laid, revolves upon a pivot in its center, and rests upon the bed, B, which is moved back and forth horizontally in the frame, by means of the pinion, *j*, working in the rack on the underside of the bed. The pinion, *j*, is turned by the crank, *k*, and the distance to which the bed is thus moved may be measured with precision by the index, *i*, turning before the dial-plate, *d*. The paper is held in place on the table by the clamp, D, which is moved up and down by means of the endless screw or worm, *w*, which turns the pinions that gear into horizontal racks, as shown in the cut. To facilitate the placing of the paper or book in proper position on the table, the board, *h*, is arranged at right angles with the knife, and by a telescopic arrangement may be moved back and forth, being held in position by set screws, one of which is shown at *f*. To trim a book, place the back of the book against the board, which should be drawn out a sufficient distance to allow the book to lie on one side

wise irritate the scalp, tending more than any other cause whatever to the formation of scurf. It cannot be too strictly impressed upon the minds of parents, if they would see their offsprings blessed with a good head of hair, to refrain as much as possible from the use of the small-tooth comb; a moderately hard brush is quite sufficient to keep the head and hair clean, and should be used the first thing in the morning, on account of the hair being more supple at that time than any other. When children suffer from a scurfy head, the following wash used occasionally will remedy the evil at once, and will eventually cure the complaint. Take of salts of tartar, four drachms; tincture of cantharides, 20 drops; spirits of camphor, 20 drops; lemon juice, half a pint. Dissolve the salts of tartar gradually in the lemon juice, till the effervescence ceases; then add the other ingredients, and after leaving it exposed to the air for a short time, it may be perfumed and bottled for use. This is the finest and most innocent hair-wash that can be made.

HAIR-BRUSHES AND COMBS.—Children should be taught, from their earliest remembrance, the importance of keeping the hair clean, not so much by the use of the comb as the brush. Two sorts of combs are used, fine and coarse, made either of ivory or bone; when the brush has been well used, there is seldom any necessity for the fine-tooth comb; and the intention of using the coarse comb is merely to disentangle the hair and prepare it for the brush. Nothing is more injurious to the skin of the head than the frequent application of the small-tooth comb, the points of the teeth of which scratch and other-