

THE
ENGINEER'S AND MECHANIC'S
ENCYCLOPÆDIA,
COMPREHENDING
PRACTICAL ILLUSTRATIONS
OF
THE MACHINERY
AND
MACHINES EMPLOYED IN EVERY DESCRIPTION OF MANUFACTURE
OF THE
BRITISH EMPIRE.

With nearly Two Thousand Engravings.

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IN TWO VOLUMES.

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“ How much useful knowledge is lost by the scattered forms in which it is ushered to the world! How many solitary students spend half their lives in making discoveries which had been perfected a century before their time, for want of a condensed exhibition of what is known!”—BUFFON

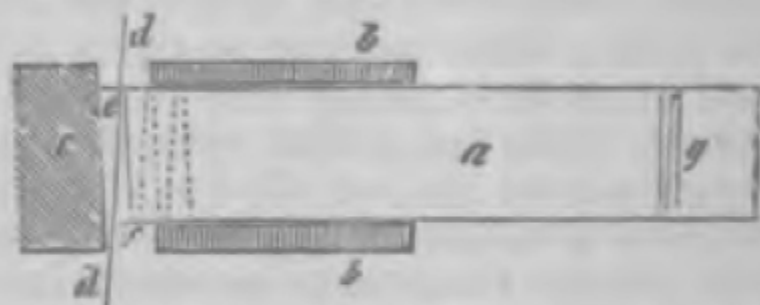
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ended with considerable success.

Cut or pressed iron nails.—Sheets of rolled iron, of the thickness of the intended nails, are cut into strips or ribands, that are in width equal to the length of the intended nails; being then held horizontally, with a flat side upwards, the ends are pushed in a slide against a regulated stop, under a cutter, fixed to a powerful lever, or, as is generally the case, to the lower extremity of a fly-press, which cuts off a portion constituting a brad, or nail. In making brads or sprigs, which have no heads, and are merely wedge-formed pins, the strip of iron is turned upside down, alternately, at every cut, which keeps the inclination of the angle of the cut uniform throughout the length of the strip of iron without any waste. In making brads with half-heads, or bills, the strip of iron is kept with the same side upwards, and the position of the cutter is alternately reversed by making a half turn backwards and forwards; thus are formed two *billed-brads* out of one parallelogram. To make this matter under-

stood, we add the annexed illustration:—*a* represents a strip of sheet-iron, which is passed between two guides *b b* against the stop *c*; the line *d d* marks the direction of the edge of the cutter, which may be supposed to have descended and cut off a portion *e*, forming a brad: it will now be seen that if



the strip *a* be turned upside down, and pushed against the stop *c*, the next portion *f* will take the place and position of *e*, and, consequently, be cut off by the next descent of the cutter *d d*; and thus, by repeatedly turning the strip over and back again, and pushing it forward every time with one hand, while the other is occupied in working the lever of a fly-press, the brads are formed with great rapidity. It will be seen, likewise, on reference to those lines marked *g* in the figure, that they represent two brads, with half-heads, or bills, which, being placed in that manner, head to point, it is obvious that, by turning the cutter half-way round alternately, they will be cut both alike, out of one parallelogram, as represented. Except for making the larger kind of cut nails, the strength of boys and women is fully competent, who are, consequently, employed in most manufactories, each of them working a distinct press; and headless nails are thus made by each worker with nearly the rapidity and regularity of the ticking of a watch. Ingenuity has, however, devised much more expeditious modes of working, of which the machine we shall next describe is a respectable specimen. It is a recent invention of Messrs. Ledsam and Jones,