(No Model.)

C. E. BILLINGS.

HOLDER FOR CUTTING OFF TOOLS.

No. 292,784. Patented Feb. 5, 1884.

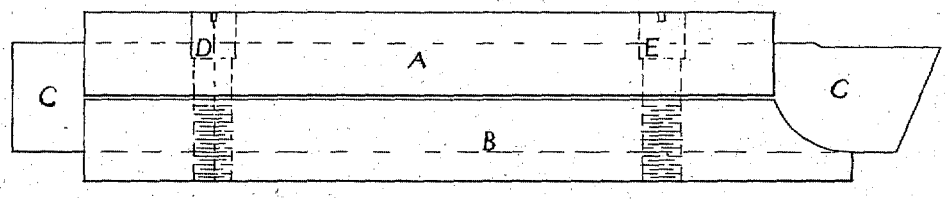

Fig. 1.

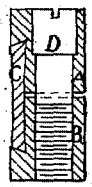

Fig. 2.

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UNITED STATES PATENT OFFICE.

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HOLDER FOR CUTTING-OFF TOOLS.

SPECIFICATION forming part of Letters Patent No. 292,784, dated February 5, 1884.

Application filed June 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BILLINGS, of the city and county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Cutting-Off Tools, of which the following is a full, clear, and exact description, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings.

My invention relates to that class of cutting-off tools which are used in metal-working lathes for the purpose of cutting off bars by turning therein a deep and narrow groove. The old way of making a tool of this class was to forge it from a single piece of bar-steel, making one end of the same thin for cutting, and the rest larger for rigidity and for insertion in the tool-post of the lathe. Thus the holder and the cutter were both in one piece. The frequent dressing down of the tool rendered necessary by this construction was inconvenient and expensive. Afterward tools of this class were made of two separate or separable parts—viz., a holder for insertion in the tool-post of the lathe, and a cutting-plate for insertion in the holder. Cutting-off tools constructed on this plan have required a delicate adjustment of the cutting-plate to the holder in respect of the size and shape of both, or have been inconvenient in form by reason of projecting screws, ears, &c.

The object of my invention is to allow in one and the same holder the use of a cutting-plate of any desirable width and thickness; also, to make the holder of convenient form for insertion in the tool-post of the lathe; and, lastly, to cause the holder, before the insertion of the tool in the tool-post, to grasp the cutter with such a degree of firmness as will prevent the displacement of the cutter in the holder while the tool is being inserted and adjusted by hand in the tool-post of the lathe, and then, after such insertion and adjustment, to utilize the force of the set-screw of the tool-post not only for the purpose of retaining the holder in the tool-post, but also for the purpose of retaining the cutter in the holder with all the necessary additional firmness. I attain these objects by the mechanism illustrated in the drawings aforesaid, in which like letters of reference denote the same parts.

Figure 1 is a side view of my improved cutting-off tool; and Fig. 2 is a cross-section of the same through the middle of the screw D, hereinafter mentioned.

A is a strip of metal of the general form shown in the drawings, having one vertical plane side, two horizontal plane sides, and a fourth side of irregular form, as hereinafter indicated. The ends of A may be cut off square. B likewise is a strip of metal of the general form shown in the drawings, having one vertical plane side, two horizontal plane sides, and a fourth side of irregular form, as hereinafter indicated. A and B, when placed in juxtaposition or contact with each other, in the manner indicated in the drawings, with their vertical sides in the same plane and their horizontal sides consequently in parallel planes, constitute the holder A B for the cutter C. The holder A B is made of proper size for insertion in the tool-post of the lathe, and is channeled out on one side, so as to form a broad but shallow recess of the general form shown in Fig. 2. This recess or channel is as long as the holder A B, though not quite as wide as A B, and is adapted to receive the cutter C, which can slide lengthwise therein. This channel, being partly in A and partly in B, is beveled internally at each side of said channel, to receive and retain the cutter C; hence the irregular form of the fourth sides of A and B above mentioned.

The segments A and B of the holder A B are held in their proper relative positions of juxtaposition or of contact above described, as the case may be, by the screws D and E, which are threaded only at and near the entering end, are countersunk in A, and are provided with a shoulder, so that A and B may be drawn together by turning up the screws, or may be loosened and suffered to separate a little from each other by unscrewing D and E. The screws or pins D and E are too short to reach entirely through both A and B when placed in position, and cannot protrude or extend below the lower surface of the segment B, but their entering ends are always within the body of B. The segments A and B are provided with proper screw-holes for D and E, which screw-holes are threaded internally in B, and are provided internally with a shoulder in A, adapted to meet and co-

operate with the before-mentioned shoulders in D and E, as shown in the drawings. The lower segment, B, extends a little farther forward longitudinally than the upper segment, A, so as to give a firm support for the lower edge of the cutter C. The segments A and B and the screws D and E constitute the complete holder. Instead of the screws D and E with shoulders and thread, as described, I have used plain pins movable in A and immovable in B; but I prefer the first construction.

C is the cutting-plate or cutter proper, and is formed of a strip of steel beveled at its upper and lower edges, as shown in the drawings at Fig. 2, and is dovetailed into the said channel in the holder A B. In guiding the cutter the bevel will be removed from the upper edge of C near the cutting-point or acute angle of C, as shown in Fig. 1.

Such being the construction of my machine, the mode of its operation is as follows: The screws D and E being somewhat loosened in A by partial unscrewing, the blade or cutter C is inserted in its holder A B in the position indicated in the drawings. The screws are then turned in until the cutter C is firmly clasped or clamped between A and B in the same position. The machine is then inserted in the tool-post of the lathe. The set-screw of the latter is then turned down upon A and binds A and B to each other and to the cutter C with additional firmness simultaneously. When so clamped, the tool is ready for use in the ordinary manner of using cutting-off tools.

The form of the holder A B, which is destitute of screw-heads, nuts, &c., projecting therefrom, allows the same to be inserted in the tool-post from behind, and makes it unnecessary to turn the tool-post around for the insertion of the tool; also, the cutter may be reversed and placed in the holder end for end, whereby the instrument is adapted to be used in a planer. The above construction also provides a convenient holder, A B, for the cutter C to hold the latter while being ground, for which purpose it is only necessary to tighten the screws D and E, as above described; also, the free motion of the stock-segment A upon the screws D and E when loosened, as above described, obviates all need of accuracy in the dovetailing above described, and allows cutters of slightly different sizes to be used in succession in one and the same holder A B.

What I claim as my invention is—

1. The combination of the cutter plate or blade C with the stock or holder, consisting of two segments, A and B, connected together by the screws or pins D and E, substantially as shown, and for the purpose specified, and operating substantially as set forth.

2. The improved tool-holder consisting of the two separable segments A and B, provided with the two screws or pins D and E, for holding said segments in their proper relative positions of contact or juxtaposition, as the case may be, said screws having their heads countersunk in A and their points within the body of B, in combination with the blade or cutter-plate C, all constituting a combined cutting-off tool and holder thereof having a uniform cross-section and a convenient external form for insertion in and withdrawal from the tool-post of a lathe.

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Witnesses:
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