(No Model.)

R. NIXON.

MANUFACTURE OF RAKES.

No. 368,681. Patented Aug. 23, 1887.

Fig. 1.

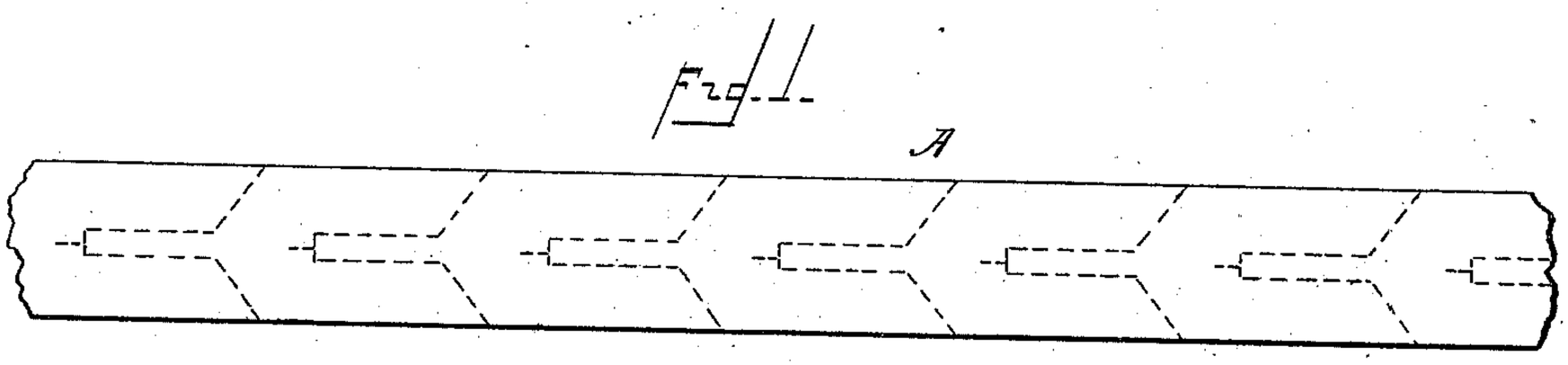


Fig. 2.

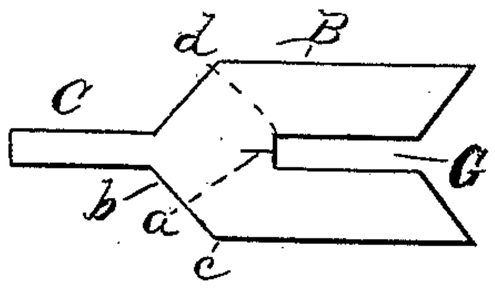


Fig. 3.

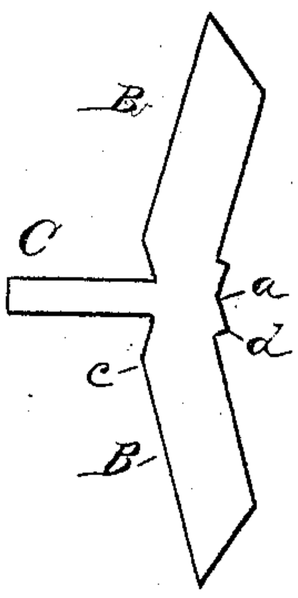


Fig. 4.

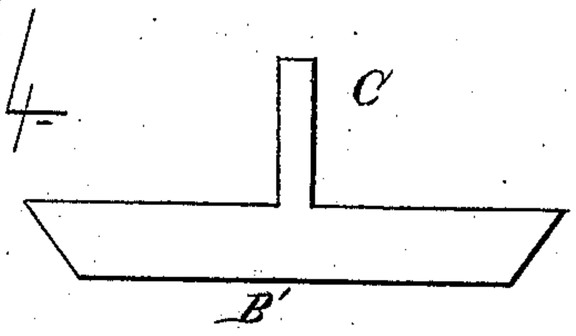


Fig. 5.

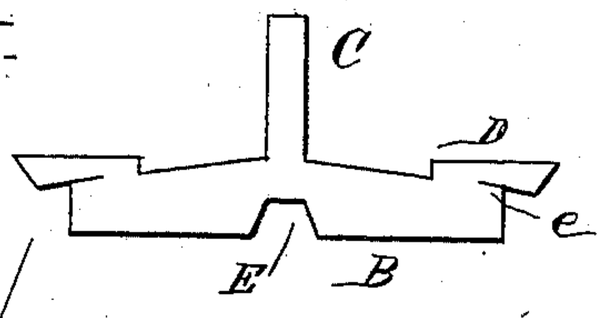


Fig. 6.

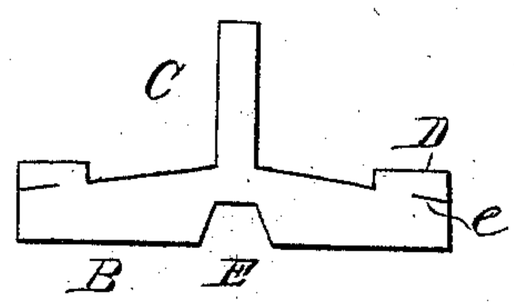


Fig. 7.

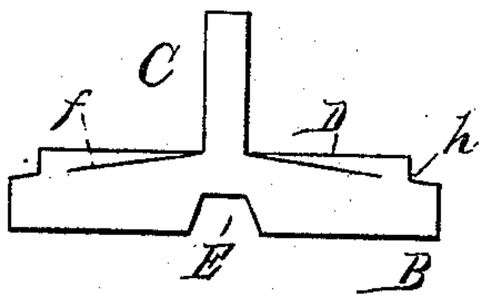


Fig. 8.

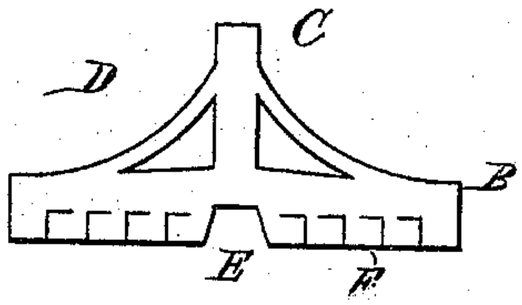


Fig. 9.

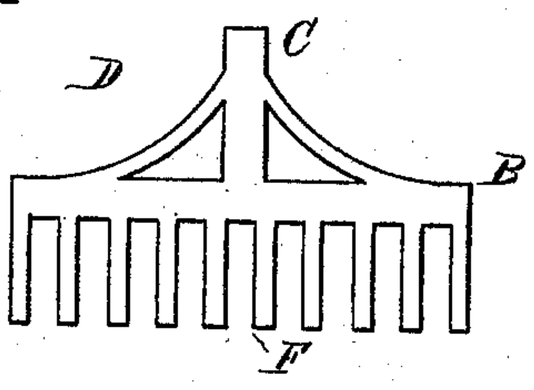
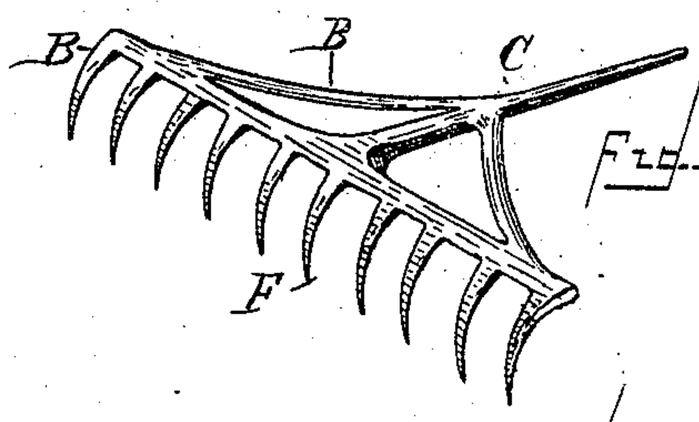


Fig. 10.



WITNESSES.

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M. D. Peck

UNITED STATES PATENT OFFICE.

ROBERT NIXON, OF CORTLAND, NEW YORK.

MANUFACTURE OF RAKES.

SPECIFICATION forming part of Letters Patent No. 368,681, dated August 23, 1887.

Application filed May 20, 1887. Serial No. 238,843. (No model.)

To all whom it may concern:

Be it known that I, ROBERT NIXON, a citizen of the United States, residing at Cortland, in the county of Cortland and State of New York, have invented certain new and useful Improvements in the Manufacture of Rakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to the manufacture of rakes commonly known as "garden," "lawn," or "road" rakes and the like; and the novelty consists in the method of forming the rake-head, tang, braces, and teeth in one piece of metal.

The object is to strengthen and cheapen such articles in their construction by requiring a less number of heats and to save time and labor; and it consists in the process hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a plan view of a blank, showing in dotted lines the way in which the blank is cut by dies to have the portion cut out of the center of one blank to form the shank of another. Fig. 2 is a plan view showing the blank for a single rake as formed by the action of the first die. Fig. 3 is a plan view showing the sides of the blank bent outward and toward the tang to form the head. Fig. 4 is a view showing the sides of the blank at right angles with the tang ready to be stamped with the second die to form the various parts for the rake. Fig. 5 is a plan view showing the blank stamped and in a still further stage of progress indicating the particular parts that go to form the rake. Fig. 6 is a view showing a slight modification of Fig. 5. Fig. 7 is a view showing another modification of Fig. 5. Fig. 8 is a plan view showing the braces drawn out from the head and united to the tang. Fig. 9 is a view showing the braces united to the tang and the teeth drawn out, and Fig. 10 is a perspective view of a finished rake from the blank.

Like letters of reference refer to corresponding parts in each figure of the drawings.

The invention is designed as an improvement upon the processes heretofore in use for the manufacture of rakes. In this art it is desirable to construct the head, tang, braces, and teeth in a single piece cut from a bar of steel or iron without any considerable waste of material.

A represents a blank in the form of a bar of steel which is cut by proper dies into separate rake-blanks having an angular head, B, composed of sufficient metal to make the head, braces, and teeth integral with the shank C, projecting from one side of its center, with which to form a tang. The shoulders *b* of the two wings of the head B of the rake-blank, as shown in Fig. 2, are at an obtuse angle to the shank C, while their bodies are parallel thereto, and between the wings there is a slot, G, equal in width to that of the shank formed in stamping out the adjacent rake-blank from the blank-bar A. From the center of the end of the slot G there is a slit, *a*, extending upward toward the shank, which is on one side of the body of the blank that unites the two wings of the head. This slit *a* is for the purpose of enabling the wings to be bent or spread outward to form a right angle with the shank without leaving greater width of metal at this point than at other portions of the wings.

In Fig. 3 are shown the wings of the head in process of bending, at which point the angular portions *c* and *d* on the wings are forged down to form a smooth surface on the upper and lower sides as the wings are still further bent to form a head at right angles with the shank C, as shown in Fig. 4. With the rake-blank thus prepared another suitable cutting-die is placed upon it to produce the blank shown in Fig. 5, in which D represents brace-blanks partially cut from the head and extending beyond it, which are drawn or forged out and bent over and welded to the shank to form strong braces from near the ends of the head to the tang, which are found desirable in rakes used for heavy service. An oblique slit, *e*, is made by the die in each end of the head, extending inward and upward toward the shank, separating the outer portion of the brace-blank D from the head to enable it to be turned over and drawn out, leaving its attachment at a suitable distance from the end of the head. On the inner or shank side of the attachment of the brace-blank D to the head an oblique

slit, *f*, is extended on the same line with slit *e*, which emerges from the upper surface of the blank at the point of union of the shank with the head, leaving a triangular piece of metal, which is detached and removed by a vertical cut of the same die at the inner edge of the attachment of the brace-blank, for the purpose of rendering the head lighter and more shapely, with less labor, when completed. By the same operation of the die the spacing-nick E may be made for the separation of the center teeth, or, if desired, this nick may be made when the teeth are cut, after the brace is completed, as shown in Fig. 8, leaving the full strength of the head B intact until the braces are drawn out and welded to the shank or tang.

When it is desired to make rakes for light use, as for lawns, a portion of the material of the braces shown in Fig. 5 can be dispensed with and a lighter brace made. For this class of rakes the brace-blank D is formed without the extension, as shown in Fig. 6, and turned over and drawn out to the shank in the same manner as that shown in Fig. 5.

As illustrated in Fig. 7, I may utilize the triangular strip of metal for the braces D, cut from the head by the oblique slit *f* on the inner side of the attachment of the brace-blank to the head, instead of that on the outer end. In this case that portion of metal above the oblique slit *e* is removed by a vertical cut of the die at the outer edge of the attachment of the brace-blank to the head, leaving a notch, *h*, on the upper side of the ends of the head. By this construction the necessity of turning the metal upon itself or from one side to the other in drawing out the brace is avoided, thereby preserving its grain and enabling it to have a much stronger hold at its point of union with the head of the rake.

When the blank-brace D (shown either in Figs. 5, 6, or 7) is drawn out and united to the shank C, as illustrated in Fig. 8, the teeth F are cut by a suitable die in any well-known way and are drawn out, as shown in Fig. 9, when the shank is extended to form a tang and the teeth are finished and the rake completed, as shown in Fig. 10. Thus constructed, the head, tang, braces, and teeth are of one piece of metal, the tang, braces, and teeth each having a distinct and separate attachment to the head.

In practice, by the use of my improvement the expense of manufacturing rakes is reduced by enabling them to be made in a much shorter period of time, and they are found to be more durable than results from any method heretofore adopted.

I am aware that it is not new to form the shank of a metallic rake integral with the head thereof by cutting them from a blank and drawing out the shank to form a tang, and such I do not claim, broadly; but

What I do claim as new, and desire to secure by Letters Patent of the United States, is—

1. An improvement in the art of making rakes, consisting in stamping a blank to form projections for the tang, braces, and teeth integral with the head, and with independent connections thereto, and in drawing out the projections to form braces to the tang and teeth for the head, as set forth.

2. An improvement in the manufacture of rakes, consisting in stamping a blank with the shoulders of the wings of the head at an obtuse angle to the shank, and in bending the wings to form a head at right angles with the shank, and in stamping the blank to form brace-blanks on the upper side of the head near its ends, and in drawing out the brace-blanks and securing them to the shank, as set forth.

3. An improvement in the manufacture of rakes, consisting in making a blank in one piece, with the head and tang at right angles to each other, and in stamping the blank to form brace-blanks integral with the head near its ends and extending beyond the ends, by a slit in the ends of the head, and by drawing out the brace-blanks to form braces, and in bending them over and securing them to the tang, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT NIXON.

Witnesses:
JOHN HULSLANDER,
C. H. NEARING.