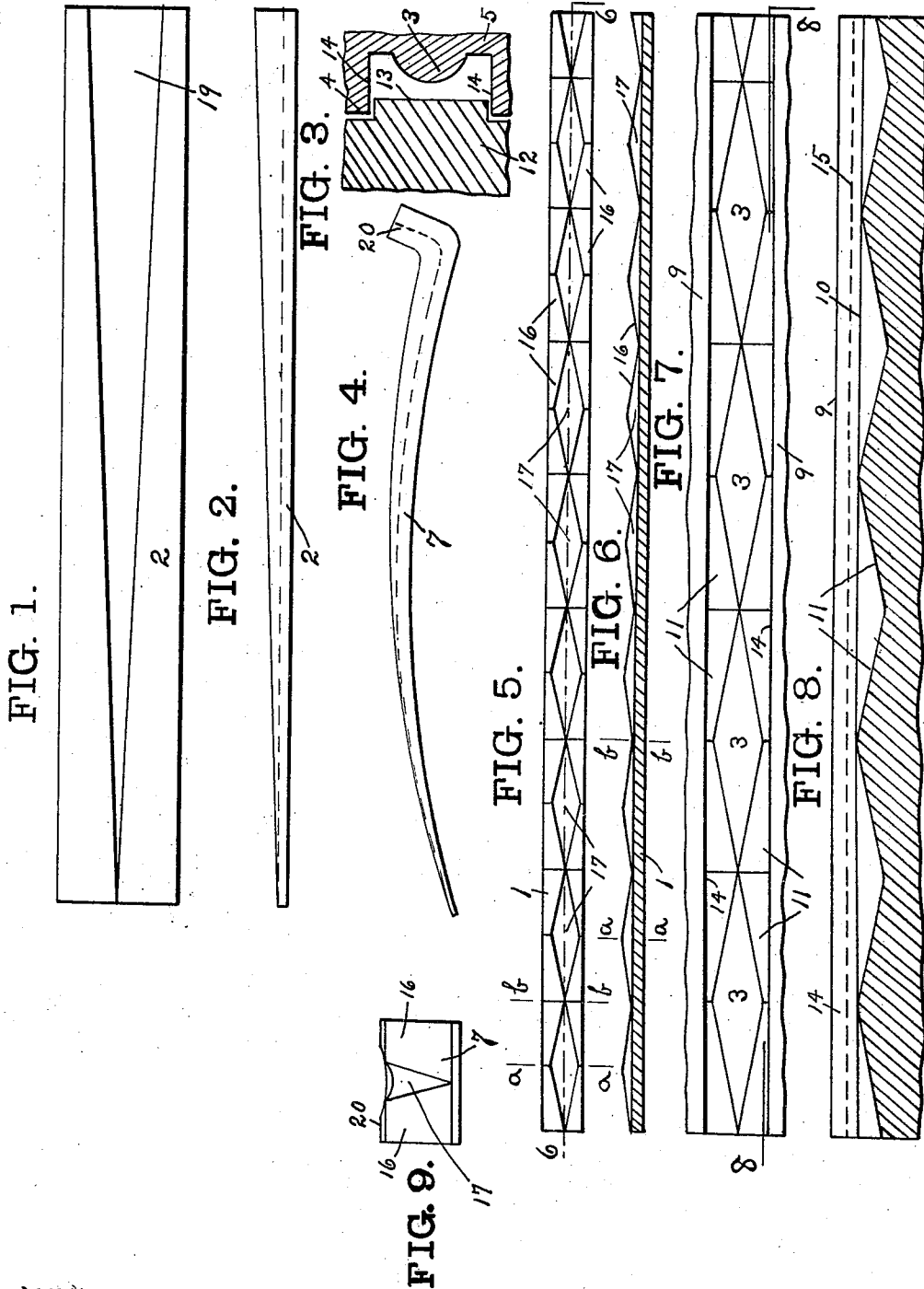


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PROCESS OF MANUFACTURING BRAKE SHOE KEYS.

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1,016,068.

Patented Jan. 30, 1912.



Witnesses.

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PROCESS OF MANUFACTURING BRAKE-SHOE KEYS.

1,016,068.

Specification of Letters Patent.

Patented Jan. 30, 1912.

Application filed October 31, 1910. Serial No. 589,966.

To all whom it may concern:

Be it known that I, WILLIAM D. FORSYTH, a citizen of the United States, and a resident of Youngstown, in the county of Mahoning and State of Ohio, have invented a new and Improved Process of Manufacturing Brake-Shoe Keys, of which the following is a specification.

This invention relates to the process of making keys for securing brake-shoes to brake-beams, and the object of my improvements is to provide a process which shall be effective in producing brake-shoe keys at minimum cost.

In the accompanying drawing, Figure 1 is a plan view of a key-blank cut from the rolled bar. Fig. 2 is a side elevation of the same. Fig. 3 is a cross section of the rolls to form rolled bars such as shown foreshortened in Fig. 5. Fig. 4 is a side elevation of a completed brake-shoe key. Fig. 5 is a foreshortened plan of the rolled bar from which the key blanks are cut. Fig. 6 is a longitudinal section on the line 6—6 of Fig. 5. Fig. 7 is a foreshortened plan view of a portion of a development of the periphery of one of the rolls by which the bar shown in Fig. 5 is rolled. Fig. 8 is a cross section of this roll on the line 8—8 of Fig. 7. Fig. 9 is a left end view of the key shown in Fig. 4.

Similar reference characters refer to like parts throughout the several views.

The usual manner of producing brake-shoe keys is to form a bar of even cross-section into a wedge and then trim off the edges of the wedge until the proper width is attained. This results in waste, first because the key is of unnecessary weight; and second, the metal trimmed from the wedges is of less value per pound than the original material. The process employed to form the key shown in Figs. 4 and 9, as hereinafter described, results in no waste of material by trimming, and avoids unnecessary weight in the finished key. While keys have been cast in proper form, cast keys are either too expensive or worthless.

The process forming the basis of this invention consists in rolling a bar 1 by means of unique rolls, shearing the bar to form blanks 2, and then bending the blanks to form keys 7.

The rolls for forming the bar shown in Figs. 5 and 6 may be of any proper diameter, so long as the circumference of the

grooving roll equals a multiple of double the length of a key blank. One roll is formed with the usual groove and the other with the circumferential rib, employed to produce bars of exact sizes. The bottom of the groove of one roll or the top of the rib of the other roll is formed with projections or dies 3, which are diamond-shaped in plan and substantially semi-circular in cross section at their middle portions. In the drawings, the projections are shown at the bottom of the groove. These projections taper toward their ends, not because the radial height of the projections changes, but because the radial heights of the bottoms of the spaces between the projections and the walls 14 change.

Considering the circumference of the cylindrical portion 4 of the roll 5 of Fig. 3, developed into a plane 9, Figs. 7 and 8, then the highest surface of the projections 3 will form a line 10, in Fig. 8. On each side of these projections are inclines 11. The opposite roll 12 has a cylindrical projection 13 which enters between the walls 14 of the groove in the first roll, and in the development in Fig. 8, forms the dotted line 15.

When a bar of metal of sufficient size is passed between the rolls, the edges will be formed into two consecutive series of inclines 16, (Figs. 5 and 6) which inclines are separated by round-bottomed grooves 17 having tapering ends, whose deepest depressions are at the apexes of the inclines. The blank-bar 1 is then formed at one pass through the rolls. The blank-bar 1 is next sheared transversely at the tops and bottoms of the inclines 16, on the lines *a—*a** and *b—*b**, Fig. 5, thus forming the blanks 2, having a thin lower end, and a thick upper end which is provided with a groove 19. The blank is then bent to conform to the curve of the brake-shoe and to produce a head 20. There is no waste of material either in the forming of the key 7, nor in the key itself, and as all the steps may be carried out by means of machines, the labor cost is very small.

The form of the rolls, the depth and cross section of the groove, and the general proportions may be changed without departing from the spirit of my invention.

Having now explained my process, what I claim as my invention and desire to secure by Letters Patent is:—

The process of manufacturing brake-shoe keys which consists in so rolling a bar as to

form on one of its surfaces a plurality of
consecutive inclines ascending and descend-
ing from apexes located at the ends of said
inclines, and semi-circular, tapering, longi-
tudinal grooves whose deepest depressions are
5 at the apexes of said inclines; then shearing
said bar transversely at the apex of said
inclines and again midway between the
apexes of said inclines to form key blanks;
10 and then bending blanks so as to give them

a predetermined curvature and to form a
head at the thick end.

In testimony whereof, I have signed this
specification in the presence of two subscrib-
ing witnesses.

WILLIAM D. FORSYTH.

In the presence of—

ELIZABETH M. BROWN,

GEORGE T. WILSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
