(No Model.)

H. A. CROSSLEY.

BALANCING KNIVES FOR WOOD WORKING MACHINES.

No. 285,236. Patented Sept. 18, 1883.

Fig. 1.

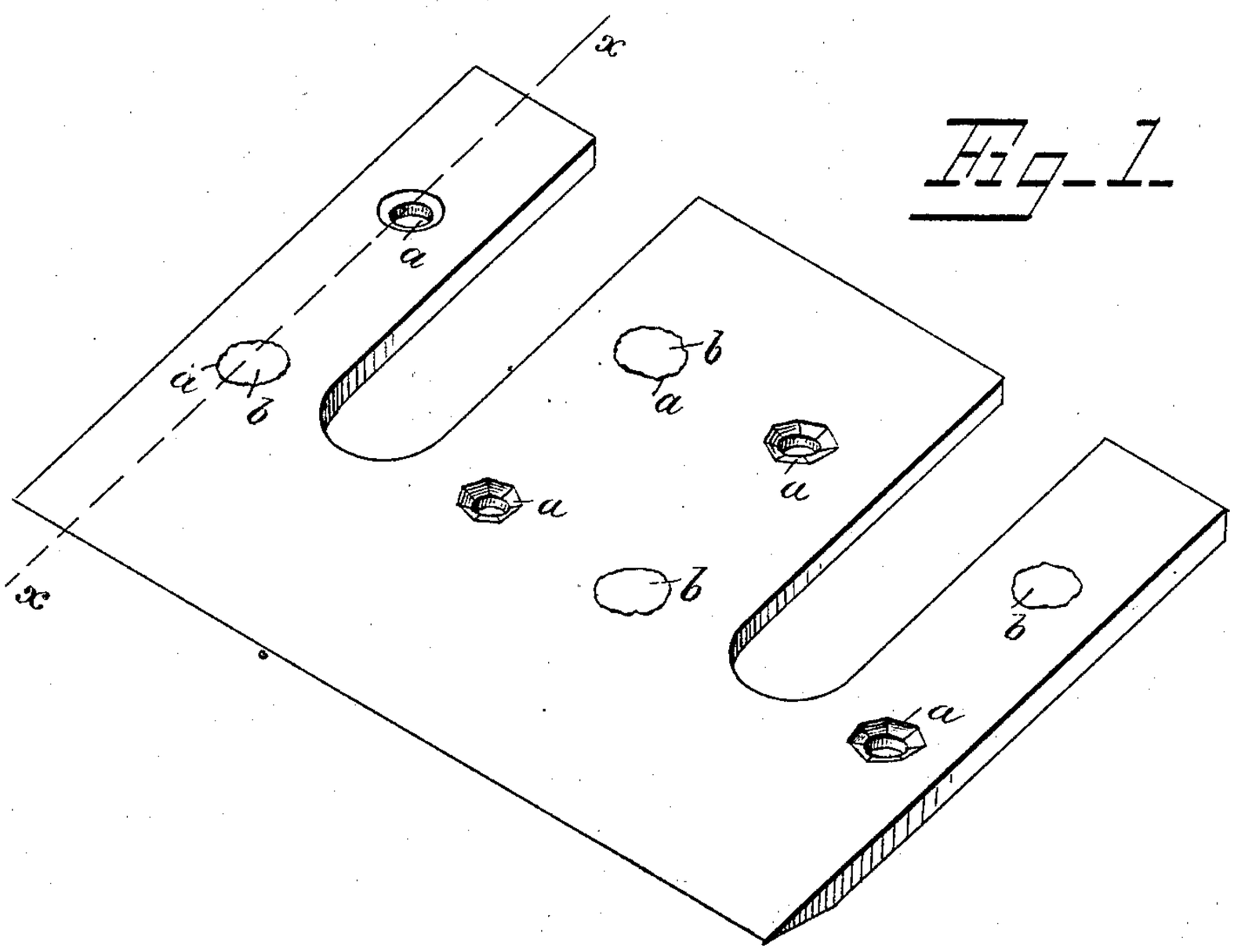

Fig. 2.

WITNESSES,

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UNITED STATES PATENT OFFICE.

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BALANCING KNIVES FOR WOOD-WORKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 285,236, dated September 18, 1883.

Application filed February 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, HARRY A. CROSSLEY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Balancing the Knives of Wood-Working Machinery, of which the following is a full, clear, and exact description.

This invention is in the nature of an improvement in provision for balancing the knives or cutters used on the cutter-heads of wood-working machinery.

Before my invention, so far as I am aware, it has been customary to effect this object in the following several ways: First, as the knives require sharpening they may all be removed and ground down to approximately the same extent, so as to preserve an equal weight in all, but this is objectionable, in that it necessitates grinding some knives that do not require it, and, besides, it involves a loss of time and out-put in the machine; second, masses of metal grooved to fit a way or spline on the cutter-head have been employed where a single knife has been used; third, plugs of lead have been screwed into sockets in the cutter-head, but no nice compensation can thus be made, and such masses and plugs are liable to fly off under the action of centrifugal force, to the jeopardy of operatives and stock.

Now, my invention consists in balancing the knives of cutter-heads of wood-working machinery by providing the knives or cutters themselves with holes in the body of such knives, shaped and arranged to receive plugs of metal, which are firmly secured in place in said holes and can be decreased, as by removal or filing away, or increased, as by additional insertions, to accurately compensate for all variations in the weight of the knives incident to wear and resharpening, substantially as hereinafter specified and claimed.

In the accompanying drawings, in the two figures of which like parts are similarly designated, Figure 1 is a perspective view of a stave-jointer knife embodying my invention, and Fig. 2 is a cross-section thereof on the line *x x* of Fig. 1.

Back of the edge of the knife, cutter, or blade, in the body of such knife, I provide holes *a*, of any size, number, location, shape, and arrangement. A preferred form of such holes is one wherein a perforation is counterbored from opposite faces of the knife, so that the central orifice shall flare outwardly on opposite sides of the blade. These counterbores may have polygonal sides or be made with a number of facets, or the holes may be made of the shape of an hour-glass; but, as before said, their shape is immaterial so long as they preserve the requisite of an opening with opposite superficial depressions of larger diameter than the central orifice. The knife may be put upon the market with one (more or less) or all of its holes filled with soft metal—such as lead—as indicated at *b*, and, referring to Fig. 2, left-hand side, this filling will fill the central orifice and be spread out as heads in the cavities or depressions on both sides thereof, and be thus held in said hole immovably, like an upset or clinched rivet, being thereby utterly precluded from accidental dislocation, as by the centrifugal force of the rotation of the cutter-head. These fillings are further retained in place by the location of the knives on the cutter-head. The balancing of the knives so constructed is effected by the increment or diminution of this filling, and thus by a very simple and inexpensive means I effect the ready and convenient balancing of the knives with the greatest accuracy and to any degree.

I do not limit my invention to a stave-jointer knife, but, as is quite obvious, it is applicable to knives or cutters of all kinds of wood-working machinery where correct balancing is essential or desirable.

What I claim is—

1. The knife or cutter for wood-working machinery, provided with holes, as described, in the body of the knife itself, to receive fillings of ponderous material sufficient in weight to compensate for the material of the knife removed in repairing a dull or injured knife, whereby the knife is balanced with respect to the other knives on the cutter-head without manipulation of such other knives, substantially as set forth.

2. A knife or cutter for wood-working machinery, provided with countersunk orifices

shaped and arranged to receive ponderous filling inserted therein to balance the knife or cutter, substantially as described.

3. A knife or cutter for wood-working machinery, provided with one or more holes, each having a central orifice, with counterbored ends, combined with extraneous ponderous fillings applied and upset or clinched in one or more of said holes, substantially as described, for balancing said knife or cutter.

In testimony whereof I have hereunto set my hand this 14th day of February, A. D. 1883.

HARRY A. CROSSLEY.

Witnesses:

GEO. W. KOHN,

FELIX NICOLA.