

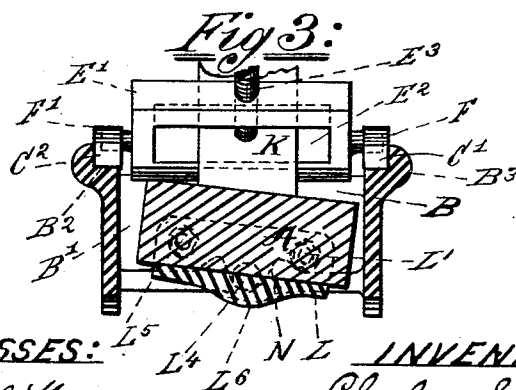
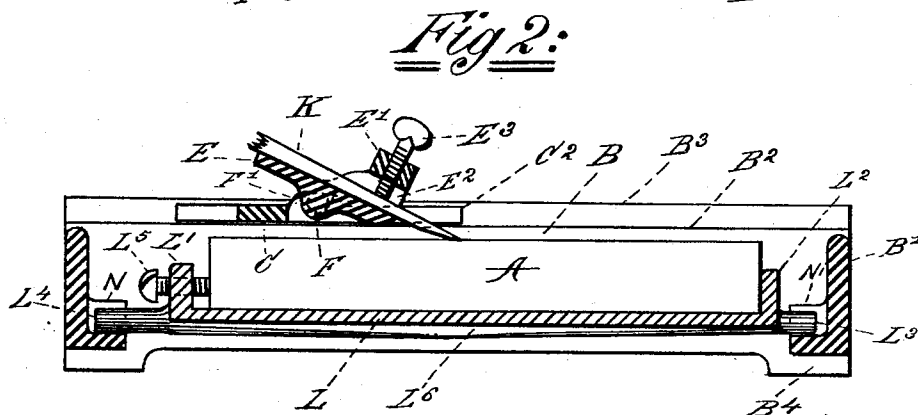
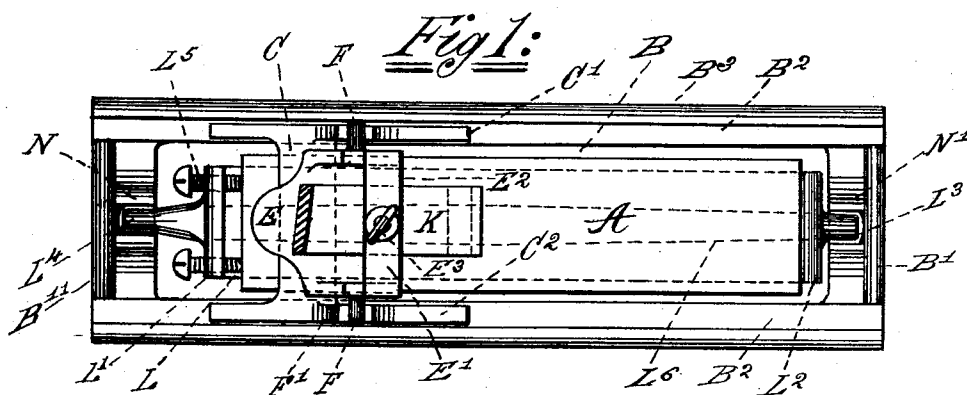
(No Model.)

C. SPRUCE.

APPARATUS FOR WHETTING AND SHARPENING THE EDGES OF EDGED TOOLS.

No. 480,634.

Patented Aug. 9, 1892.



WITNESSES:

Richard A. Healy
E. J. Kichener

INVENTOR:

Charles Spruce
Sy. John F. Kerr
Attorney

UNITED STATES PATENT OFFICE.

CHARLES SPRUCE, OF PATERSON, NEW JERSEY.

APPARATUS FOR WHETTING AND SHARPENING THE EDGES OF EDGED TOOLS.

SPECIFICATION forming part of Letters Patent No. 480,634, dated August 9, 1892.

Application filed January 25, 1892. Serial No. 419,167. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SPRUCE, of the city of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Apparatus for Whetting and Sharpening the Cutting-Edges of Edge-Tools, whereby the cutting-angle of the tool can be accurately formed and the face-edge kept square and true, of which the following is a specification.

This I accomplish by the apparatus described in this specification and illustrated in the drawings accompanying them, in which—

Figure 1 is a plan view of my device, showing the frame or box with sliding tool-carriage with tool set in contact with whetstone pivoted in a rocking cradle. Fig. 2 is a longitudinal section of the same. Fig. 3 is a cross-section in front of tool-carriage.

I will now describe more fully the advantages to be obtained by the whetting or sharpening edge-tools by the use of my newly-invented apparatus.

By the means of the tool-holder firmly securing the tool to be operated upon and the angle being adjusted by the use of a gage a simple pressure of the point of the tool or its edge upon the whetstone and a reciprocating motion giving to the sliding carriage a keen edge, true in form and perfectly square with the body of the tool, may be rapidly and easily produced, which, in the cases of cutters for woodworking-machines, &c., carpenters', pattern-maker's, and carvers' tools, is a matter of great importance; also, for cutting and whetting the angle edges of chisels for cutting the teeth of files, the accuracy of which is of the greatest moment, as the blow given to the tool when in use by the operator or the machine imparts to the teeth of a file the same degree of an angle to which the chisel may be whetted or formed. This will be more fully understood when I mention that whetting the edge by hand on an oil or whet stone of the ordinary construction, however expert the operative, it is very apt to produce a round and unequal edge, which being reproduced in obverse by the operation of cutting in the newly-formed teeth cut on a file-blank forms a weak and very irregular tooth, which when

hardened and used as a cutting-tool breaks off, leaving the new file in nearly the same condition as one that has been in use for a considerable time. The fact of the preservation of the truth of the angle in tools for woodworking-machines produces superior work and increased duty, inasmuch that different woods require different cutting-angles to the face of the tools for hard or soft woods; also, from the fact the whetstone itself being pivoted in an adjustable cradle the face of the stone is kept true and flat, obviating the necessity of frequent regulating.

I will now describe the construction of my newly-invented device.

A represents an oil or whet stone located in an open box-frame B and resting upon the upper surface of a rocking cradle L, Figs. 1, 2, and 3, and held in position firmly at its ends by the vertical lips L² at one end and set-screw L⁵ adjustable in the vertical lip L' at the other. On the under side of the cradle L and forming a part of the same is a stiffening longitudinal rib L⁶, at the extremities of which are located the pivots L³ L⁴, Figs. 1 and 2. The pivot L³ rests in an open bearing N', formed on a projecting lip, forming a part of the end B' of the frame B. The pivot L⁴, likewise, is received in a similar bearing N, formed in and on a projecting lip, forming a part of the end B'' of the frame B. Both of the bearings N N' are near the bottom of the frame and sufficiently high that the sides of the cradle L shall not touch the bench upon which the apparatus rests when in use, if the cradle inclines laterally, as in Fig. 3, for which purpose the feet B¹ are formed on the frame B. On the upper edges of the sides of the box or frame B are formed parallel and level slides B², the outer sides of which are provided with raised lips or guards B³, which are parallel with the center pivots N N' and each other, and at which angles with the faced slides B² upon which the tool-carriage C, with its extended arms C' C², slides freely and accurately longitudinally when operated by the hand. About midway or near where the extended arms C' C² are formed, Fig. 2, are raised open pivot-bearings F' F' on each side of its upper surface, in which the pivots F F' of the tool-

holder E is pivoted. The holder E is provided at its outer end with an enlarged and raised portion E', which has an opening of a rectangular form through it in a longitudinal direction 5 E², which permits the admittance of the tool K and which is secured firmly by the thumb-screw E³, which is adjusted in a tapped or threaded hole in the upper part of the tool-post E'. The under side of the tool-holder E, 10 at its front end, is rounded slightly to allow of the adjustment of the tool K without its touching the face of the stone, Fig. 2. The box-frame B is made preferably of cast-iron, and the sliding carriage, cradle, and tool- 15 holder of malleable iron or cast-steel, and can be fashioned or ornamented to a suitable design.

I will now describe the operation and use of my newly-invented device.

20 The stone A being inserted in the cradle L, the set-screws L⁵, located in the lip L', are then tightened until the end of the stone A is forced against the raised lip L² on the other end of the cradle L, which secured it firmly. 25 The cradle, with its inclosed frame-stone A, is then lowered into the interior of the frame B, until the pivots L³ L⁴ enter into and rest upon their bearings N N'. The requisite to which the edge of a tool is to be whetted or 30 sharpened being known, the tool-carriage is angled to the same degree with reference to the upper face of the whetstone in a longitudinal direction by placing a gage between 35 its front end and the face of the stone, the carriage being tipped until it rests firmly on the gage. The tool K is then inserted in the opening E² of the tool-post E' and secured firmly by the set-screw E³. The carriage E, 40 which, by its pivots F F resting in their bearings F' F', formed on the sliding carriage C, the arms C' C² of which rest on the slides B² B² and held in true parallel position by the guard lips or edges B³, formed on the frame or box B, the gage is then removed and the 45 carriage C, with its tool-holder E and tool K, is then passed to and fro or backward and forward in a longitudinal direction until a sufficient degree of sharpness or cutting-edge is given to the tool K, the edge of which is kept

by the pressure of the hand in constant contact with the face of the stone A. Tilting 50 the tool-carriage E on its pivots F allows examination of the progress of the operation of whetting to be made with facility. The stone A, rocking on the pivots L³ L⁴, resting on the 55 bearings N N' of the frame B and being held firmly in the cradle L by the set-screws L⁵, accommodates itself to the transverse angle of cutting-face of the tool to be operated upon, as shown in Fig. 3, where a tool known 60 as a "wood-turner's chisel" is shown in position for operating upon. For more convenient examination the carriage E, with the tool K in engagement, may be entirely removed by lifting it out of the bearings F' F', 65 which may be requisite to examine tools that require accurate and perfected edges. The stone being pivoted lengthwise of the frame and rocking transversely also better enables a perfect contact with even square-faced tools, 70 where cutting-faces are at right angles to their length, as in an ordinary chisel for cutting wood; also tends to keep the stone from wearing in hollow grooves or gutters, which would 75 be likely to be formed on its face were the stone held rigid.

With this description of my invention, what I claim is—

In an apparatus for whetting and sharpening the edges of edged tools, a tool-holder 80 mounted in bearings formed in a sliding carriage, and a sliding carriage for tool-holder provided with runners, in combination with a frame or box provided with slides, in which 85 said runners reciprocate or are moved longitudinally, an adjustable rocking frame or cradle within and near the bottom of said box, and an oil or whetstone secured in said rocking frame or cradle, adapted to rock laterally and permit the stone to accommodate 90 itself to the transverse angle of cutting-face of the tool to be operated upon, constructed substantially as shown and described, and for the purposes specified.

CHARLES SPRUCE.

Witnesses:

WILLIAM M. DREW,
HARVEY R. BANKER.