(No Model.)

D. WILLEY & J. B. THURSTON.

GAGE FOR SETTING PLANER KNIVES.

No. 304,389. Patented Sept. 2, 1884.

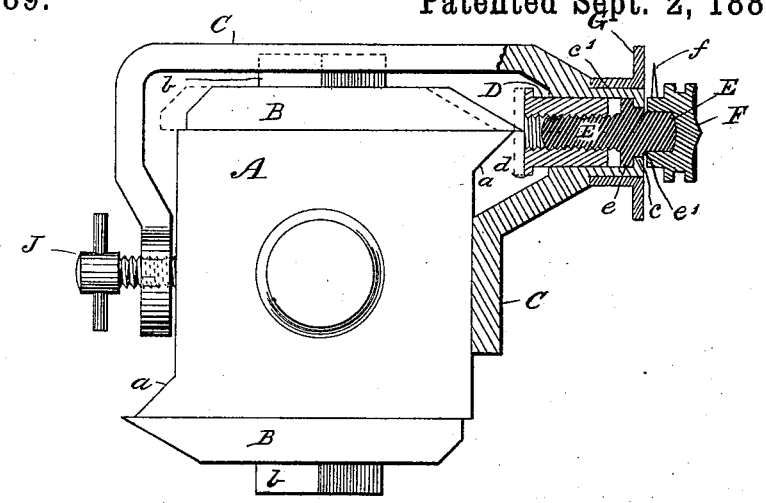

Fig: 1.

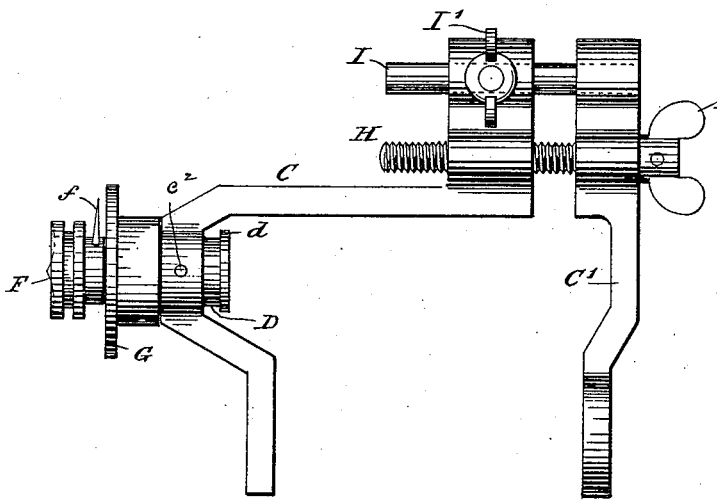

Fig: 2.

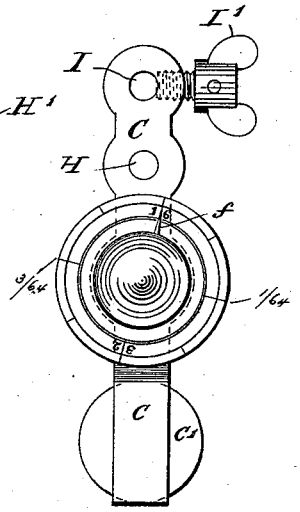

Fig: 3.

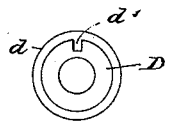

Fig: 4.

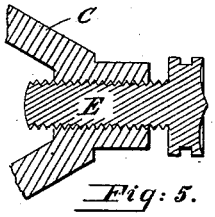

Fig: 5.

Witnesses.

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UNITED STATES PATENT OFFICE.

DANFORD WILLEY AND JAMES B. THURSTON, OF CONCORD, N. H.

GAGE FOR SETTING PLANER-KNIVES.

SPECIFICATION forming part of Letters Patent No. 304,389, dated September 2, 1884.

Application filed February 18, 1884. (No model.)

To all whom it may concern:

Be it known that we, DANFORD WILLEY and J. B. THURSTON, both of Concord, in the county of Merrimac and State of New Hampshire, have invented a certain new and useful Device for Setting Planer-Knives, of which the following is a clear and exact description.

The object of this invention is to enable an operator to set two or more cutters or knives upon a "cylinder," so called, so that the entire cutting-edge will be equally distant and accurate, one with the other or others, from the center of said cylinder, and thus avoid the liability of having one knife do all the cutting.

The invention consists of a clamp, which may be placed upon a cylinder or cutter-head, and secured in position by means of a thumb-screw, having at the proper point a sliding bolt or thimble, which may be moved to or from the cutting-edge of a knife by aid of a screw, and in connection with a dial or an index show the exact distance which the knife may project beyond the cylinder.

Reference may be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures, of which—

Figure 1 shows an end view of a cylinder or cutter-head, upon which is clamped one of the knife-sets in position as when in use. Fig. 2 is a side view of a knife-set having the clamp or frame constructed in two parts. Fig. 3 is a front view of the same, showing the dial or index. Fig. 4 is a detail end view of the sliding bolt or thimble. Fig. 5 shows a section of a clamp having simply a thumb-screw acting as a set.

A represents a cutter-head or cylinder, and B the knives or cutters, which are held thereon by the cap-screws *b*.

C is the clamp, which may be constructed in one piece, or may be formed in two parts, C C′, as shown in Fig. 2. By using the former construction numerous patterns must be made from which to cast clamps which will fit cylinders of various dimensions; but by constructing the clamp as shown in Fig. 2 it may readily be adapted to the various sizes of cylinders, and for this reason the construction shown in Fig. 2 is probably preferable. One end of the clamp C carries the setting mechanism, and the other has simply the clamping-screw J. The setting mechanism consists of a sliding bolt, D, threaded to the screw E, the thumb-piece F of which carries the indicating-needle *f* and a movable dial or index, G.

In Fig. 1 part of the clamp C is broken away in order to show that portion and the setting mechanism in section, by which it will be seen that the clamp C is chambered out from the inside part way or nearly through to the outside, with a hole of the proper size to receive the bolt D, the balance of said hole being of smaller bore, by which means the shoulder *c* is formed, against which the flange *e* of the screw E will bear when the thumb-piece F is forced against the shoulder *e′*, as when all the parts are put together ready for use. The thumb-piece F is provided with some suitable needle-point or indicator, *f*, the purpose of which will be hereinafter described.

The dial G is bored so as to be a snug fit for its bearing *c′*, but not so tight but that it may be revolved by hand when it becomes necessary, as will be subsequently explained.

The sliding nut D is prevented from any rotary movement by the slot *d′*, into which will project the pin c^2, which may be driven through a hole made in either side of the clamp C, as shown in Fig. 2.

In order to put the parts comprising our knife-set together, we must first place the dial G in position on its bearing *c′*. Then the nut D should be screwed part way onto the screw E, and both passed into the chambered portion of the clamp C. The thumb-screw F may then be driven onto the butt-end of the screw E, and the sliding nut D be so turned as that the slot *d′* will be in position to receive the pin c^2, after which the set will be ready for use. When the clamp C is secured to a cylinder, as in Fig. 1, the cap-screws *b* should then be loosened and the knife B slipped back to the position shown by dotted lines in Fig. 1, and by turning the thumb-piece F to the left the sliding nut D will be moved out and against the beveled projection *a* of the cylinder A, which we regard as the starting-point for our set.

It should be here mentioned that the screw E is cut sixteen threads to the inch for convenience in marking the dial G, which may then

be marked as in Fig. 3—*i. e.*, divided into quarters and eighths, two or four of which divisions may be figured and the rest not.

The projections *a* of the cylinder A, as made by different manufacturers, are liable to vary. For this reason it becomes necessary to arrange the dial G movable on its bearing *c'*, in order that it may be accommodated to the different positions in which the indicator *f* may be left after the sliding nut D has been moved out and against the projection *a* of the cylinder.

In order to illustrate the operation of our set, let us imagine the nut D to have been placed against the edge *a* of the cylinder A. Now, suppose it be necessary to have the cutters B extend out beyond the edge *a* exactly five sixty-fourths of an inch. We first turn the dial G until the indicator *f* points to figure 16 on the dial. We then turn the thumb-piece F to the right one whole revolution, and as far beyond as the division marked $\frac{1}{64}$, as shown in Fig. 3, and by sliding the cutter B until its cutting-edge rests against the nut D the knife will then project beyond the beveled edge *a* exactly five sixty-fourths of an inch—the distance required. To secure accuracy there should be two of the "sets" used, one upon each end of a cutter-head. Some cylinders carry three knives, and in such cases the clamp must be constructed in a different form; but the setting mechanism will be the same in both cases.

The setting mechanism might be more cheaply constructed by simply threading the screw E to the casting or clamp C, thereby dispensing with the nut D; but as there would then be a liability of turning the screw E while it was bearing against the cutting-edge of the knife B, and thereby destroying said edge, we consider the construction comprising the nut E preferable.

By using a clamp formed in two parts, C C', as in Fig. 2, said clamp may be spread to fit a large cylinder by aid of the rod I and its thumb-screw I', and then clamped thereon by the screw H and its head H'.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A clamp for cutter-heads, having setting mechanism operated by a screw, which registers upon an index or dial any given distances which may be required to set the cutters over or beyond the edge of said cutter-head, substantially as described, and for the purpose set forth.

2. A clamp for cutter-heads, composed of two parts, one of which is provided with setting mechanism operated by a screw, which registers upon an index or dial any given distance which may be required to set the cutters over or beyond the edge of said cutter-head, substantially as and in the manner described and set forth.

3. A clamp for cutter-heads, having setting mechanism consisting of a sliding nut, D, operated by a screw, E, threaded both to the said clamp and the nut D, all constructed and operating substantially as described, and for the purpose set forth.

4. A clamp for cutter-heads, composed of the parts C C', provided with the screw H, rod I, and screw I', the part C having setting mechanism consisting of the sliding nut D, operated by a screw, E, threaded both to the part C and said nut D, all constructed and operating substantially as described, and for the purpose set forth.

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