April 12, 1932. G. STAEHLE 1,853,470

TOOL FOR SMOOTHING WOODEN SURFACES

Filed Oct. 10, 1930

Fig. 1.

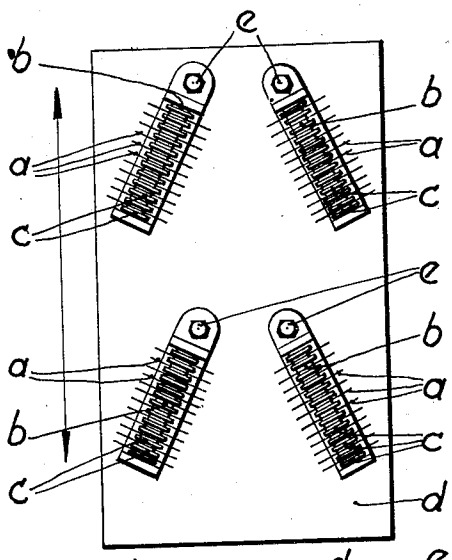


Fig. 2.

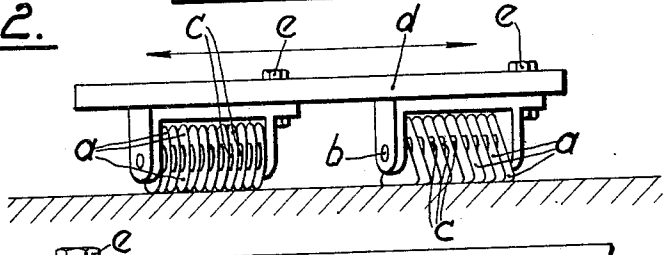


Fig. 3.

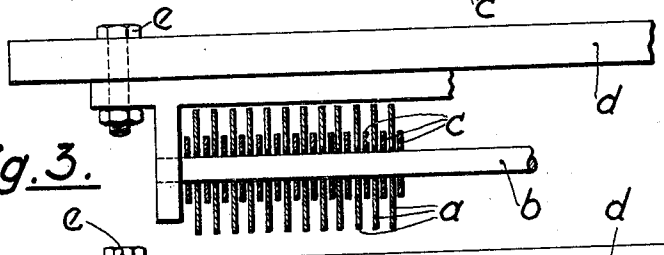


Fig. 4.

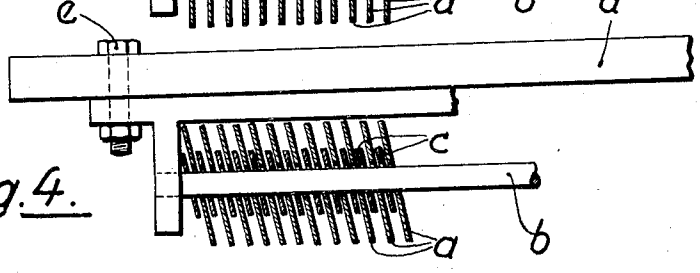
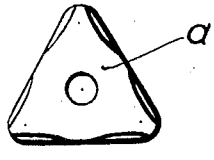


Fig. 5.



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UNITED STATES PATENT OFFICE

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TOOL FOR SMOOTHING WOODEN SURFACES

Application filed October 10, 1930, Serial No. 487,885, and in Germany May 12, 1930.

In the case of the tool for smoothing wooden surfaces, which has become known by reason of my British Patent No. 264,699 the tools consist of thin discs, which are assembled into a roll-like unit, and which are assembled on a rapidly revolving disc. The tool which is the subject matter of the present invention is another constructional form thereof. The present constructional form of the tool consists essentially therein, that the tool executes a reciprocating motion instead of a rotary movement. This allows it to be designed as a hand tool, and to work on surfaces which are otherwise rather difficult to work upon.

The reciprocating movements of the tool during working necessitates a different mounting and arrangement of the disc shaped circular knives or cutters. These cutters or knives are according to the present invention mounted on their spindles, on which they are assembled one behind the other, with or without play, so that they cant over during and owing to the to and fro movement. They cant when moved forward to one side and cant to the other side when moving backwards, and consequently either one or the other cutting edge cuts, and thus they are continuously kept sharp. They execute in cutting a rotary movement which may of course be effected by a direct drive of the stationary inclined discs in such a case.

In place of the circular discs or in conjunction therewith it is possible to use knives or cutters of a different contour, they may for instance be of a triangular shape, this shape or another similar suitable contour enabling the knives or cutters to work very close to the vertical wall abutting to the horizontal surfaces.

The object of the invention is more clearly explained in the drawings by means of a constructional form given as an example.

Figures 1 and 2 show a bottom and a side view of the arrangement of the knife rolls as adapted to a reciprocating movement of the tool.

Figures 3 and 4 show the knife or cutter rolls in side views, both before the start and during working.

Figure 5 is a plan or top view of another constructional form of the cutter or knife discs.

The tool itself is composed of individual thin knife or cutting discs, which are assembled so as to form a roll-like unit. They are arranged, one surface behind the other, loose and rotatable on the horizontal spindle *b*, and are kept apart at the proper distance by means of intermediate discs or washers *c*, play being allowed between all of them.

These knife or cutter rolls or spindles are arranged on sockets or brackets *d*, comprising a base which are moved to and fro, as shown by arrows in Figures 1 and 2, the movement being effected either mechanically or manually. It is preferable to arrange the cutter or knife rolls so that they are oblique to the direction of movement, and in such a manner that the individual rolls are disposed at an angle to each other. By means of altering the inclination as for instance by means of turning them around the fixing bolt *e* serving as a rotational pivot, it is possible to vary and adjust the thickness of the shavings i. e. the depth of the cut. The rolls may be positioned in relation to one another in any suitable manner.

According to the invention the knife or cutting discs *a* are mounted in such a manner on their spindle *b*, that by reason of allowing sufficient play, they automatically assume an oblique or inclined position as shown in Figure 4, and thus only work with one edge, which acts as a cutter. According to whether the tool is moved forwards or backwards, so one or the other of the two cutting edges is at work alternately and by reason of this, and also by reason of the very great thinness of the knife or cutter blade, the edges are continuously kept sharp.

The cutter or knife discs *a* may have any suitable or desired contour. In Figure 5 a triangle disc with rounded off corners is shown, this shape enabling the tool to smooth the surfaces right up to or nearly up to a vertical wall, as indicated in Figure 5, provided the knives or rolls are mounted sufficiently far outwards on the socket or bracket *d*.

What I claim is:—

1. A tool for smoothing wooden surfaces comprising a base; and a plurality of cutter rolls angularly mounted on said base relative to the direction of movement of the tool, said rolls having cutters capable of assuming inclined position.

2. A tool for smoothing wooden surfaces comprising a base; and a plurality of cutter rolls angularly mounted on said base relative to the direction of movement of the tool, each roll having a plurality of spaced discs mounted on a spindle so that there is play between the discs to permit the discs to assume inclined positions.

3. A tool for smoothing wooden surfaces comprising a base; and a plurality of cutter rolls angularly mounted on said base relative to the direction of movement of the tool, each roll having a plurality of spaced discs mounted on a spindle and each disc being of polygonal form or contour.

In testimony whereof I have hereunto signed my name.

GUSTAV STAEHLE.