F. A. STEVENS.

METHOD OF FORMING SAWS.

APPLICATION FILED JULY 20, 1917.

1,250,377. **Patented Dec. 18, 1917.**

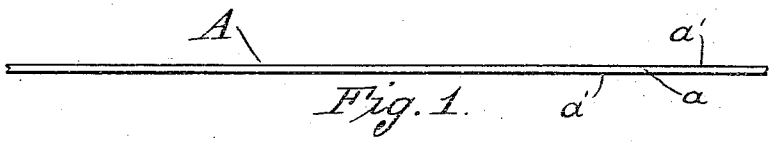


Fig. 1.

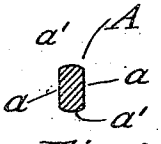


Fig. 2.

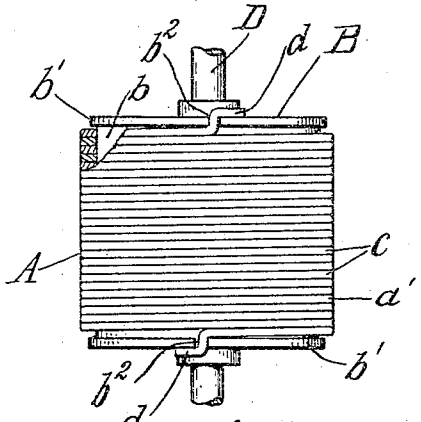


Fig. 3.

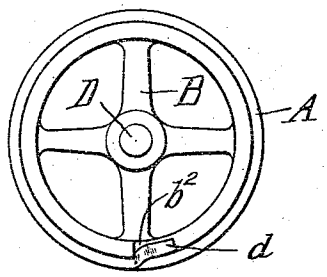


Fig. 4.

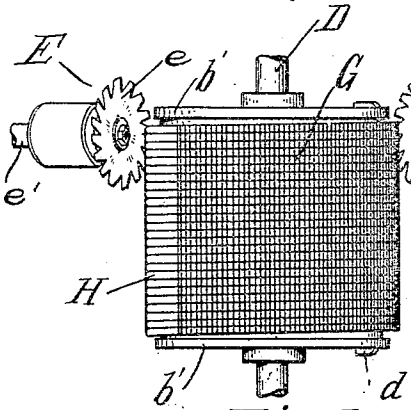


Fig. 5.

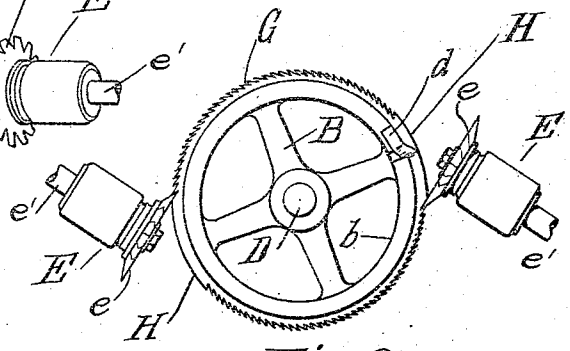


Fig. 6.

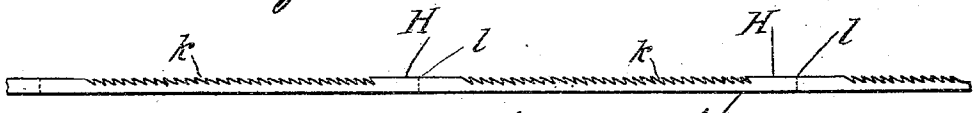


Fig. 7.

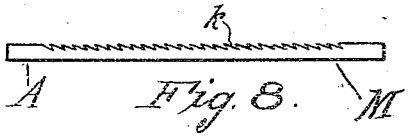


Fig. 8.

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UNITED STATES PATENT OFFICE.

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METHOD OF FORMING SAWS.

1,250,377. Specification of Letters Patent. Patented Dec. 18, 1917.

Application filed July 20, 1917. Serial No. 181,692.

To all whom it may concern:

Be it known that I, FREDERICK A. STEVENS, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Methods of Forming Saws, of which the following is a specification.

My invention relates to a method of constructing saws of small dimensions; such, for instance as jig saws, jewelers' saws, and the like.

Heretofore saws of this character have been furnished exclusively by foreign countries where the low price of labor only has permitted a profitable production by the method in use.

The essential objects of my invention are to provide a process of manufacture involving a minimum amount of labor and expense; to insure uniformity and accuracy of structure; to enable a single operator to produce a maximum number of saws during an extremely short period of time; to avoid the formation of fins upon the teeth; to enable the simultaneous formation of a plurality of saws without the continuous attention of the operator; and to so utilize space as to avoid any waste of stock.

To the above ends essentially my invention consists in such steps and combinations of steps as fall within the scope of the appended claims.

In the accompanying drawings which form a part of this specification

Figures 1 and 2 are a front view and a transverse section respectively of a length or strip of steel from which the same are to be made,

Figs. 3 and 4, a front elevation with a portion broken away and a plan view respectively of a drum and the coiled blank thereon.

Figs. 5 and 6, front and plan views respectively of the same showing the serrating tools operating upon the coiled blank,

Fig. 7, a plan view of the serrated blank after removal from the drum, and

Fig. 8, a like view of a completed saw.

Like reference characters indicate like parts throughout the views.

In carrying out my novel process a long blank or strip of steel A is employed. In Fig. 1 the length of this strip is represented as less than its actual dimensions in order to save space. This strip is flat having broad side faces a, and narrower front or edge faces a'. It is in one of the latter faces that the saw teeth are to be formed.

This strip is first coiled about some rounded object, preferably of cylindrical form, such as a drum B. In this instance the drum body b has end flanges b' provided with open marginal slots or cavities b^2. In coiling or winding the strip around the drum body the broad flat faces a rest one upon the other in the resultant convolutions c. To prevent loosening of the convolutions it is preferable that the ends d of the strip be fastened. In this case these ends pass through the slots b^2 and are bent over the outer faces of the drum ends. The convolutions, c rest in a compact series in tight contact with each other with one of their narrow edges a' exposed. The drum is mounted on a shaft D which in turn is so driven from any convenient source of power as to receive intermittent rotary motion. The step by step rotary motion is measured by the distance between each saw tooth. If preferred the shaft D may be mounted to also reciprocate.

The coiled or spirally arranged blank is thus in a condition to be operated on by a cutting tool, such as a milling cutter, E. These may be one or more in number. In the present instance there are two in simultaneous use. Each cutter head e is in this case fast to a shaft e', rotatably mounted. These shafts are preferably simultaneously driven from a common source of power and each head e is disposed at an angle to the periphery of the drum and to the spirals c on the drum. If desired the members E may be reciprocated.

The cutters and drum may be connected with each other and coöperate in a connected mechanism if desired.

In any instance either the drum reciprocates relatively to the cutters, or the cutters reciprocate relatively to the drum; and it is possible for both the cutters and drum to reciprocate in opposite directions.

The cutters begin their operative contact with the convolutions c at one end of the drum and then move longitudinally of the drum or cylinder but transversely of the convolutions thus cutting the exposed edge a' of the convolutions transversely and forming grooves, angular in cross section, in the spiral sheath. The grooves are longitudinal of the drum. After each channel

has been cut the drum moves a partial rotation the width of a tooth and the cutters are again brought into contact with the convolutions, and another groove is formed. This operation is repeated a predetermined number of times at regular predetermined distances apart. An uncut area H is left upon the spirals for a purpose to be later stated. Each of the latter areas, one or more, extend lengthwise of the drum, and by moving any cutting implement longitudinally of the drum and in contact with the convolutions along a line midway the width of each area H, a plurality of saws are produced.

If preferred, after the described grooving operation, the strip A may be removed from the drum, and the same is then straightened and appears as shown in Fig. 7. It is apparent that the grooves G form series of teeth or serrations *k* separated at intervals by the areas H. By any suitable cutting tool the strip may now be severed transversely at the points *l* indicated in the drawings, forming a plurality of complete saws M, as shown in Fig. 8. The saws are finally hardened and tempered.

I claim,—

1. The method of forming saws consisting in winding a continuous metal strip into a compact series of convolutions, and next cutting a series of parallel grooves angular in cross section transversely of the convolutions.

2. The method of forming saws consisting in winding a continuous flat metal strip into a compact series of convolutions with their flat faces engaging each other to form a cylindrical sheath with an edge of each convolution exposed, and next cutting a series of parallel grooves in the edges longitudinally of the sheath.

3. The method of forming saws consisting in winding a metal strip into a series of convolutions to form a cylindrical body, next cutting a series of parallel grooves longitudinally of the body, said series of grooves being so disposed as to leave blank areas between each series, and finally severing the strip at points in the blank areas.

In testimony whereof I have affixed my signature.

FREDERICK A. STEVENS.

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