(No Model.)

F. W. STARR.

METHOD OF MAKING CORRUGATED FASTENERS.

No. 427,632. Patented May 13, 1890.

Fig. 1.

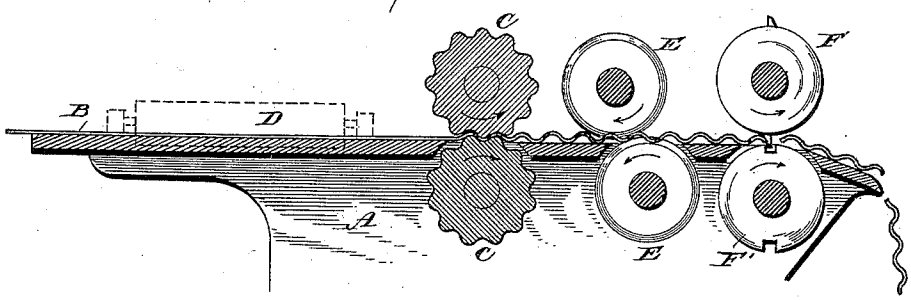


Fig. 2.

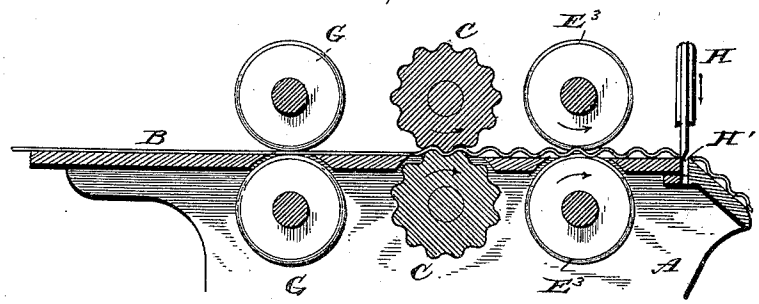


Fig. 3.

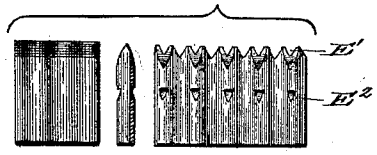
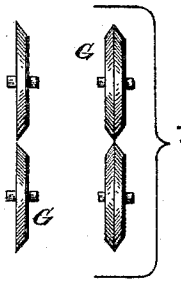
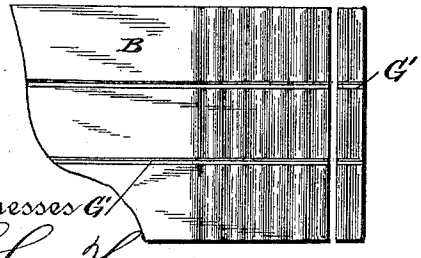


Fig. 4.





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METHOD OF MAKING CORRUGATED FASTENERS.

SPECIFICATION forming part of Letters Patent No. 427,632, dated May 13, 1890.

Application filed March 20, 1889. Serial No. 304,009. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND W. STARR, a citizen of the United States, residing at Springfield, in the county of Clark, State of Ohio, have invented certain new and useful Improvements in the Method of Making Corrugated Fasteners, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to provide a process whereby to produce fasteners of the class patented to me January 29, 1889, No. 390,900, and particularly of the kind for which I have applied for Letters Patent of even date herewith, Serial No. 304,011. This process may be accomplished by any form of mechanism; and I wish it to be distinctly understood that this application is not for the purpose of obtaining a patent for any form of mechanism whatever, but for a method of treatment of sheet metal to produce fasteners of the kind above alluded to. In the description of this process it will be necessary to describe and show some typical forms of mechanism, none of which are to be claimed or are so intended; and to this end I have made the accompanying drawings, in which—

Figure 1 is a side elevation of certain parts of a typical machine for carrying out the process desired to be patented, certain other parts of this machine being shown in section. Fig. 2 is a vertical longitudinal section of another form and arrangement of such typical machine, certain portions of said machine being shown in side elevation. Fig. 3 is a side and an end elevation of the form of fastener preferably produced by my process. Fig. 4 shows two forms of pressure-wheels, which are adapted to be employed in the carrying out of the process I have invented. Fig. 5 is a view of a strip of sheet metal partially completed and as it appears while undergoing the process I have invented.

A represents a table or support of any kind, upon which the metal is placed to be passed through the mechanism desired to be used. As the metal is passed over this table, it is successively subjected to some form of corrugating roller or rollers, in combination with slitters and pressure-rollers, as described hereinafter.

My object is to provide a spike or fastener which shall have a corrugated body for purposes of strength, and shall be provided with sharpened and draw-cut edges, as shown in Fig. 3.

C is a pair of corrugated rollers, through which the sheet is drawn in the ordinary manner.

At D is shown an emery-roller, which is preferred as a means of cutting down the edges of the sheet before corrugations. A roller of this kind may advantageously be employed upon each side of the sheet, where the sheet is used so wide as to allow of the formation of two spikes end to end on the same.

The edges of the sheet having thus been sharpened and the rollers having corrugated the same, there are placed a pair of slitting-wheels, preferably of emery, as at E, which cut through the thickness of the sheet, so as to slit the same longitudinally in such widths as may be desired for the length of the fasteners. These wheels should run considerably faster than the rollers C, in order that a clean cut may be made. This is especially desirable where it is desired to make a middle sharpened cut, in which case, as will be described farther on, there will be no roller D employed. In order that the edges of the wheels E will not grind against one another, it is best that they be placed one a little ahead of the other, as shown. The sheet having been thus sharpened, corrugated, and ground, the next thing is to cut in the direction of the width of the spikes in order to complete the process. For this purpose various mechanisms may be employed, one of these forms being shown in Fig. 1, in which there is a roller F, provided with cutting edges or knives of any kind upon its periphery at suitable intervals. These cutters work into grooves or counter-edges in the roller F′, running in the same direction with but underneath the roller F. Of course I do not limit this mode of action to accomplishment by a grooved roller under a cutter-roller, as this order may be inverted, or, indeed, any other form of roller substituted, without departing from the spirit of my invention. All these rollers are connected by appropriate gearing to make them run in such direction or at such velocities as may be desirable.

Fig. 1 shows one of my fasteners falling from under the cutters.

It is evident that the order of corrugating and sharpening need not be strictly adhered to in this process; but the function of cutting and grinding may be performed by one set of rollers E, placed behind, instead of in front of, the corrugating-rollers.

G is a pair of pressure-rollers designed to spin the metal and penetrate by pure pressure through the body of the sheet before it enters the corrugating-rollers. This pressed ridge is shown in multiple in Fig. 5 at G'. These rollers are shown in two forms in Fig. 4, and it is there seen how they may produce the V shape of edge shown in Fig. 3. This form of pressure-slitter will tend to produce burrs upon the edges of the metal, and it is best where they are used to also employ sharpening or grinding wheels E, as shown in Fig. 1. By means of this arrangement I have found it possible to make a razor edge, and as the V form is thus imparted with rigorous exactitude to a sheet previously corrugated the effect is evidently to produce a V visible in side elevation, as at E', Fig. 3. This V makes it possible to produce a drawing cutting-edge, whereby this form of spike may be driven into the wood as easily across the grain as with it, as set forth in the above-specified application.

It is of course best that the emery-wheels E should be employed after corrugation of the sheet, as otherwise the V-cuts would not be likely to register with the corrugations of the sheet.

Of course it is evident that the V-cuts visible in side elevation need not necessarily be produced, and without this V the spike is shown in Fig. 3 at the left-hand side of the same and presents the form of spike patented to me as above recited.

The grooves E^2 (shown in Fig. 3) subserve the function of holding the spike in the wood firmly, and take the place of barbs already known in some forms of fasteners. This notch is produced in all the spikes at once by means of the wheels E^3 in Fig. 2, which are preferably directly over one another and do not come together, thus differing from the rollers or wheels E in that one of the latter is forward of the other, and they are intended to pass entirely through the sheet.

Any number of spikes desired may be made from one strip of metal by making a sufficient number of grooves G'.

In Fig. 2 I have shown a different form of cutter from that shown in Fig. 1. This is a reciprocating cutter H, of any well-known pattern, sliding into a groove H' directly under the same, and according to the gearing of this knife or cutter in relation to the other parts of the machine the width of each spike can be regulated at will. Of course the gearing in any instance may be varied at will in kind and number as long as this mode of treatment of the metal sheet is followed.

What I claim is—

1. The herein-described step in the process of making fasteners, which consists in longitudinally severing on beveled lines a strip of previously-corrugated sheet metal, substantially as described.

2. The herein-described process of making fasteners, which consists in corrugating a strip of metal, sharpening the edges thereof, and severing it longitudinally into strips and transversely to form separate fasteners, substantially as described.

3. The herein-described process of making fasteners, which consists in corrugating a sheet of metal, sharpening one or more edges thereof, and finally transversely severing it into fasteners, substantially as described.

4. The herein-described process of making fasteners, in which the following steps are employed, namely: corrugating the metal, sharpening the edges, severing it longitudinally into strips, and severing the strips into fasteners, substantially as specified.

5. The herein-described process of making fasteners, comprising corrugating a sheet of metal, sharpening the edges of the same, and notching it on both sides, substantially as described.

6. The herein-described process of making fasteners, consisting in severing a sheet longitudinally, corrugating it, sharpening the edges of the same, and notching it, and finally cutting the strip transversely into fasteners, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FERDINAND W. STARR.

Witnesses:
E. B. STOCKING,
H. SUTHERLAND.