G. F. BROCHON.

Improvement in Tinners' Tools.

No. 130,106. Patented Aug. 6, 1872.

Fig: 1,

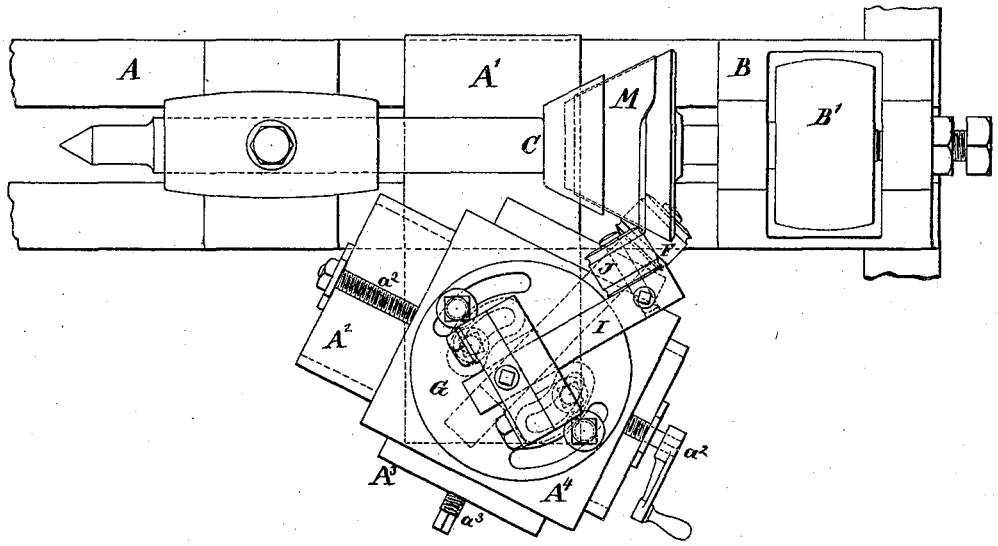



Fig: 2,

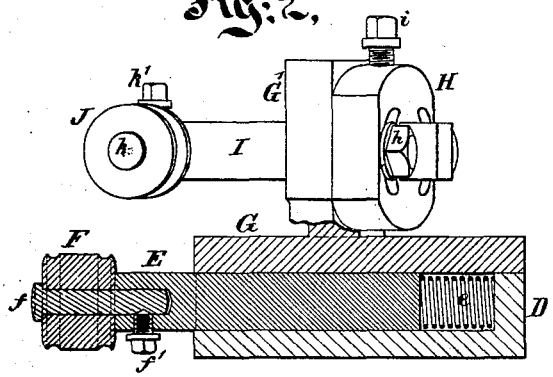



Fig: 3,

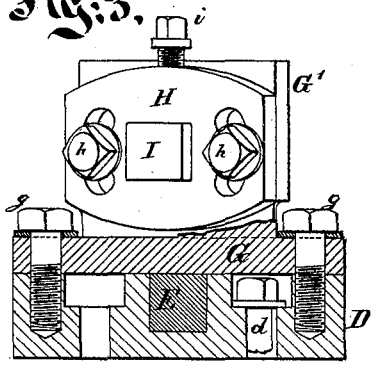
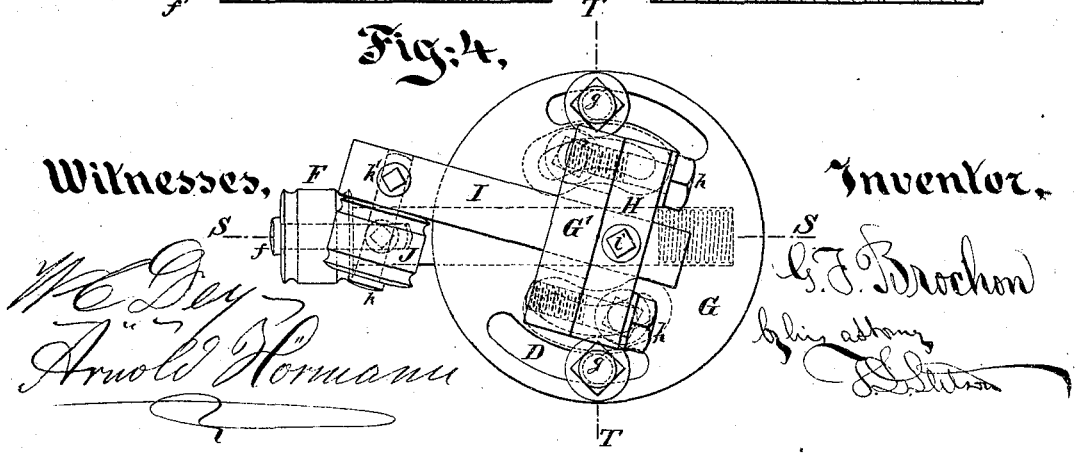



Fig: 4,

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# UNITED STATES PATENT OFFICE.

GEORGE F. BROCHON, OF PORTLAND, CONNECTICUT, ASSIGNOR TO THE HEATH & SMITH MANUFACTURING COMPANY, OF SAME PLACE.

## IMPROVEMENT IN TINNERS' TOOLS.

Specification forming part of Letters Patent No. **130,106**, dated August 6, 1872.

Specification describing an Improved Tinner's Tool, invented by GEORGE F. BROCHON, of Portland, in the county of Middlesex and State of Connecticut.

The tool is especially useful in turning over the edge of conical-shaped constructions of tin or sheet-iron. These conical constructions are much used for milk-pans, colanders, strainers, and various other wares, and the proper stiffening of the edge at the large end of the cone by ordinary tools involves some difficulty. My tool commences at any given point on the edge and traverses around, bending the edge first partly and then entirely over upon itself, so as to form a perfect edge and stiffen the work completely. A wire may be inserted, or not, as the character of the goods shall require. I employ two grooved rollers, peculiarly mounted with reference to each other, and capable of adjustability within wide limits to allow for different sizes and different degrees of coning. The tool may be used in turning over the edge of wares which are not conical at all, but are perfectly cylindrical.

The following is a description of what I consider the best means of carrying out the invention. The accompanying drawing forms a part of this specification.

Figure 1 is a plan view of a lathe with my improved tool attached. Figs. 2, 3, and 4 represent the improved tool alone. Fig. 4 is a plan view. Fig. 3 is a section, partly in elevation; the section is on the line T T in Fig. 4. Fig. 2 is a vertical section, partly in elevation; the section is on the line S S in Fig. 4. Fig. 1 shows a piece of conical ware in position in the lathe. It is represented as having been partially treated by the tool.

Similar letters of reference indicate like parts in all the figures.

A is the fixed frame-work of a lathe, provided with a suitable chuck and pulley, B B′, and a suitable tail-center, C, for grasping and turning around conical pieces of ware by the aid of a belt (not represented) traversing on the pulley B′. There is an adjustable platform, $A^1$, secured by screw-bolts or other efficient means (not represented) reaching forward from the lathe, and adapted to support the tool through the medium of the adjustable pieces $A^2$ and $A^3$, with their clamping-screws to aid in determining their position, and in slowly moving the tool in either direction, as will be readily understood. The clamping-screw $a^2$ on the long adjustable piece $A^2$ carries the adjustable piece $A^3$ and the tool mounted thereon bodily forward and backward obliquely, and is set at an angle exactly coincident with the obliquity of the cone. The other screw $a^3$ is mounted in the piece $A^3$, and traverses the tool at right angles to the other. The piece of tin-ware which is being treated is marked M. It is drawn as having the edge completely turned over at a single operation of the rollers; but it may be, and generally is, in practice, preferable to bring the rollers to bear on the edge of the tin and by degrees to roll it over completely by a succession of small rollings. In other words, the belt running on the pulley B′ is allowed to revolve the tin-ware M some ten or twenty times in order to complete the rolling and stiffening of the edge. This depends on the position in which the tool is set by means of the screw $a^2$. Usually the tool will be out of contact with the edge of the ware M when it is first introduced and commenced to be revolved in the lathe, and it will be gradually brought into contact as the tin rapidly revolves.

There is still another piece or movable platform, marked $A^4$, which I consider as a further adjunct of the lathe rather than as a part of my improved tool. The function of this latter piece $A^4$ is simply to support the tool and to carry it against the chuck of the lathe. The motion communicated by means of the screws $a^2$ $a^3$ is through the medium of the support or platform $A^4$, which slides on the piece $A^3$. The tool is capable of swiveling only on the piece $A^4$, and may be turned around and adjusted thereon at pleasure. D is the main foundation-piece of the improved tool. It is secured by two bolts, *d*, standing in curved slots in the piece D. One only of these screw-bolts *d* is represented in Fig. 3; both are indicated in dotted lines in Fig. 4. There is a straight channel of rectangular section extending nearly across this piece D, which receives a sliding bar, E, of corresponding section. A spring, *e*, tends to drive this bar outward with a gentle force, and press it against the chuck of the lathe to cause its roller F to take hold of and

commence the process of rolling over the edge of the tin-ware M. This roller F turns on the pivot *f*, set into the end of the bar E, by the aid of the set-screw *f'*. G is a top platform or flat circular plate, fitting upon the upper surface of the platform D, and adjustable in position thereon by means of the screws *g*, which stand in curved slots therein, as represented. Both these screws *g* are shown in Figs. 3 and 4. The piece G has firmly attached a broad upright portion, G', which forms a support for the other adjustable roll through the medium of the adjustable plate H, bar I, and pin or pivot *k*. The plate H is adjustable on the upright portion G' by means of two screw-bolts, *h h*, which stand in curved slots in the piece H and allow the latter to be inclined to various degrees. There is a square hole through the plate H, which receives the bar I, of corresponding section, and allows it to be adjusted endwise therein, being held in any position desired by means of the set-screw *i*. It will be understood that there is a large round hole in the upright G', large enough to allow the square bar I to pass freely through and be turned in any position without touching. The grooved roller J is fixed on the bar I by means of a pivot, *k*, held by a set-screw, *k'*. It will be observed that while the roller F is pressed up to its work by the constant gentle force of the spring *e* the roller J, which succeeds it in its action on the edge of the ware M, is stiffly held in position, and is pressed up only by the action of the screw $a^3$. I find by trial that this arrangement is the best for seizing the edge of the tin, deflecting it gently outward at first, and afterward seizing it more firmly and curling it over.

In the operation of the tool the screw $a^2$ is turned by hand to carry the entire tool and its connections to the right and toward the operator, so as to be clear of the ware M entirely. Having thus removed the rollers F and J entirely out of the way, the tail-center C is liberated and the previously-treated piece of ware M is removed, and a new piece inserted and again seized by the proper adjustment of the tail-center. There may be automatic or spring apparatus for this purpose, as will be readily understood. So soon as the new piece of ware M is properly in position and is rapidly whirling on the chuck the right hand of the attendant is applied to the crank and the screw $a^2$ is turned so as to move the tool along in the line of the obliquity of the cone. This soon brings the rollers F and J both into contact with the edge of the ware M. The lowermost roller F first touches the edge and commences to curl it outward. Then the next roller J seizes and completes the operation of turning it over. I have before explained that if the tool is moved sufficiently fast the whole operation of turning over the edge may be performed in one revolution of the ware M, but that ordinarily it will be treated at several successive operations. In either event the time is inappreciable, and so soon as the edges seem to be completely turned over and finished the motion of the hand-screw $a^2$ is reversed and the tool again carried back out of the way, the tail-center liberated, and the finished ware removed. The operation may thus be repeated rapidly as long as may be desired.

It is unnecessary to remark that after the entire lot of any given size and shape of cone has been treated a lot of goods having the same inclination of the cone and a smaller or larger size may be treated on the same chuck, and a readjustment only of the tool will be required, while if it is required to treat a lot of goods having a different inclination of the cone a different chuck and tail-center must be substituted, and a readjustment of the parts $A^2$ $A^3$ will be required. Mechanics accustomed to this class of work will readily understand when it is simply explained that the screw $a^2$ must always be parallel to the side of the cone of the goods M.

I have represented a groove on each end of each roller F and J, and I prefer to so construct the rollers, in practice, in order to increase their durability by allowing them to be turned end for end when required. It will be understood that only one groove in each roller is used at any one time.

I am aware that rollers variously grooved and arranged have been long employed in analogous positions for treating thin wares, and that it has been common to adjust them in a great variety of positions. But I am not aware that any one has before employed or suggested a single compact tool having the capacities of mine or capable of treating with the same facility and perfection the edges of conical ware.

Having now fully represented my tool and sufficiently explained its operation to enable those skilled in the art to avail themselves of its advantages, I claim as my invention—

1. The two rollers F and J, mounted in adjustable positions on the movable support D, and adapted to be moved forward by the screw $a^2$, or an equivalent traversing means, so as to act on the edge of conical ware M, which is revolved in contact with the rolls, and smoothly fold over and stiffen the edge, as herein set forth.

2. In combination with the above, the spring *e*, pressing the roller F to its work with a constant gentle force, as specified.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

GEO. FREDERIC BROCHON.

Witnesses:
JNO. H. HALL,
THEO. P. AUSTIN.