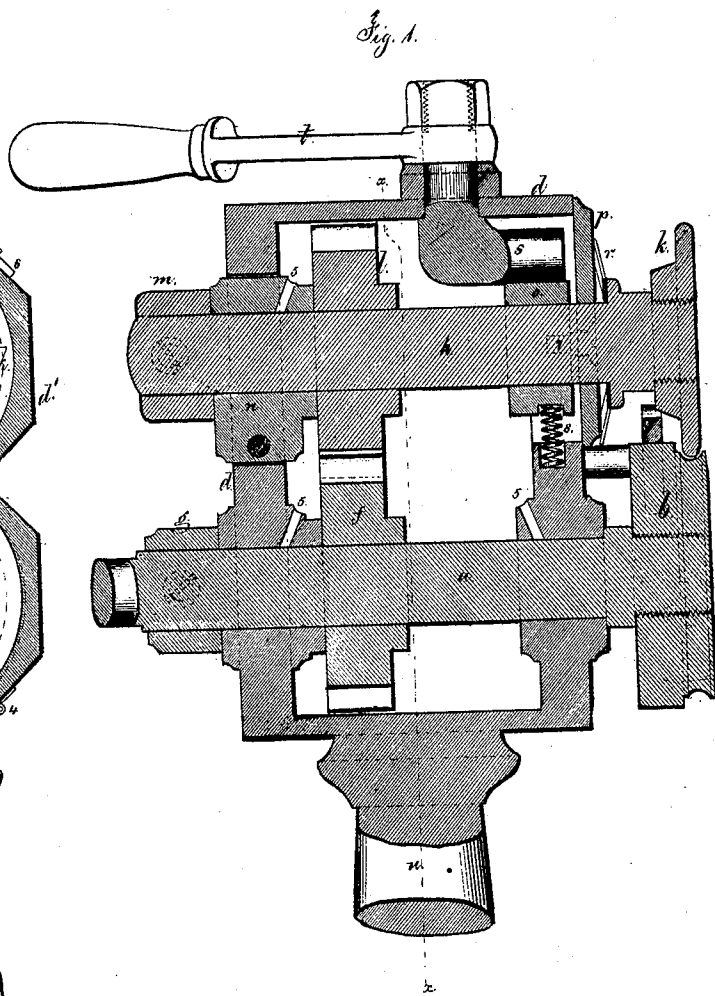
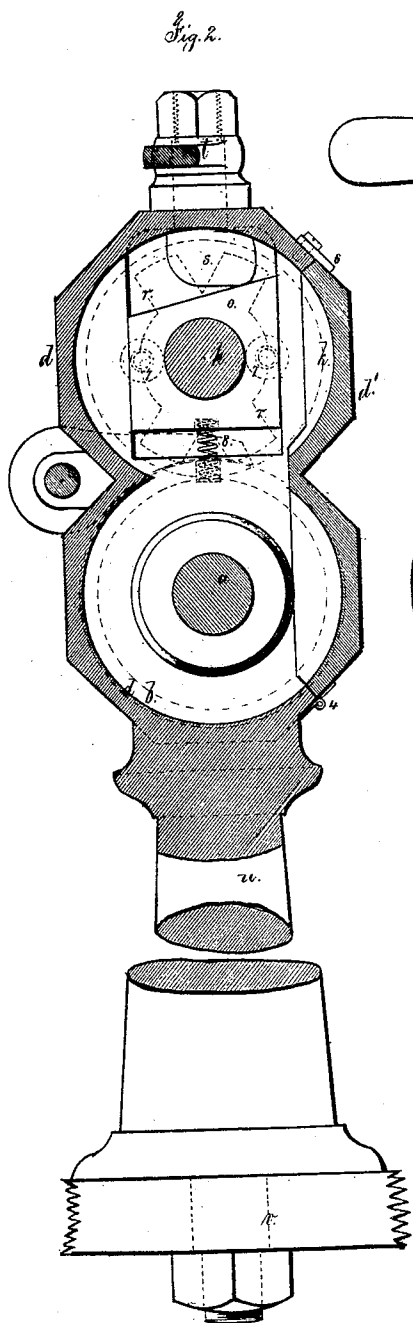


C. Brombacher,

Tinman's Machine.

No. 101,577.

Patented Apr. 5. 1870.



Charles Brombacher
Witness, *L. W. Terrell* atty
Geo. D. Walker.

United States Patent Office.

CHARLES BROMBACHER, OF TARRYTOWN, NEW YORK.

Letters Patent No. 101,577, dated April 5, 1870.

IMPROVEMENT IN TINMAN'S MACHINE.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern :

Be it known that I, CHARLES BROMBACHER, of Tarrytown, in the county of Westchester and State of New York, have invented an Improvement in Tinman's Machines, and the following is declared to be a correct description of the same.

This machine is for bending up the edges of sheet metal and inserting the wire, and performing other work usual in this class of tinman's machinery.

I make use of a case that is constructed so as to exclude dust and dirt, and small pieces of sheet metal and foreign substances from the gears and journals, and to keep the oil-holes free from dirt.

I also place the center, upon which the upper shaft swings, on the level, or nearly so, of the points of contact of the rollers, so that the upper roller may swing or lift nearly vertically off the lower roller.

In machines of this class the sliding box of the upper shaft is usually acted upon by a screw, that requires, generally, two or three turns in entering and releasing the work.

I effect this operation by one movement of a swinging lever, so that but little time is consumed, and the operation is very much facilitated.

In the drawing—

Figure 1 is a vertical section, longitudinally, of the shafts, and

Figure 2 is a cross-section, at the line *x x*.

The lower shaft *a* is provided with the roller *b* at one end, and the crank-handle at the other end.

This shaft is passed into journal-boxes, formed in the case *d*. I find that bushings and separate boxes are not required. I therefore form the bearings for said shaft by holes bored through the case *d*.

The gear-wheel *f* is fastened upon the shaft *a* by a screw or key, and a collar, *g*, outside of the case, prevents end motion in the shaft *a*.

The shaft *h* carries a roller, *k*, at one end, as usual, and the gear *l* is fastened thereon, and a collar or washer, *m*, prevents end motion, the gear-hub and collar *m* being on opposite sides of the bearing *n*.

The bearing *n* is attached to the case *d* by a bolt or pin, 2, that passes through the same about midway between the shafts *a* and *h*, and hence is about in line with the point of contact of the rollers *k* and *b*, so that the said part of the roller *k* may lift vertically, or nearly so, when the outer end of the shaft *h* is raised, instead of swinging outwardly, as usual in the machines heretofore made, with the trunnions or axis of motion in line with the center of the shaft *h* at the back bearing.

The opening in the case *d* for the bearing *n* is of nearly the same size and shape as said bearing, so as

to allow the bearing to swing on the pin 2, but exclude dust and dirt.

The case *d* is made of a size and shape to contain the shafts, gearing, &c.; and one side of the case is formed with a door, *d'*, hinged at 4, so as to be easily opened to give access to the parts, and allow for introducing oil into the holes 5 of the respective journals; and when this door *d'* is closed, dust and dirt are effectually excluded. A button or catch at 6 secures this door *d'*.

The swinging end of the shaft *h* passes through a box, *o*, that is in an opening provided for it in the case *d*, and said box moves up and down with the shaft.

In order to close the case *d* at this point, I use a plate, *p*, that has a hole for the shaft *h* to pass through, and is pressed to the surface of the case *d* by a spring, *r*.

In order to prevent the plate *p* turning around upon the shaft *h*, and also to keep the box *o* from slipping back upon the shaft *h*, I connect the box and plate by screws, shown by dotted lines at 7, there being sufficient play or looseness at the heads of the screws to allow of the motion of the parts as the shaft *h* is raised by the spring 8, or depressed by a cam-lever acting upon the top of the box *o*.

The top of the box *o* is made as an incline, as shown in fig. 2, and I employ a swinging cam-stop, *s*, that is connected, through the top of the case *d*, with the lever *t*.

It will now be evident that the movement of the lever *t* in one direction will allow the roller *k* to be raised, in consequence of the cam-stop *s* moving down the incline of the box *o*; thus liberating the work between the rollers. The reverse movement brings the rollers upon the work, so as to hold them while the edge of the sheet metal is turned or wired.

The standard *u* is cast with the case *d*, and has a sufficiently broad base, and a bolt, *v*, to pass through the work-bench and be secured by a nut below, thus avoiding the large mortises and holes usual for receiving machines of this class, and supporting them upon the bench.

I claim as my invention—

1. The case *d*, made in the manner specified, to receive the shafts *a* and *h*, and inclose the gearing and holes for oiling the journals, combined with a removable door or cover, as set forth.

2. The box *n* for the shaft *h*, fitted to move upon the center or pin 2, located about midway between the shafts *a* and *h*, for the purposes and as set forth.

3. The box *o* of the shaft *h*, fitted to slide in the case *d*, and made with an inclined upper edge, so as

to be operated upon in substantially the manner specified, in relieving or pressing down the shaft *h* and roller *k*, as set forth.

4. The lever *t* and cam movement, combined with the box *o*, shaft *h*, and roller *k*, substantially as and for the purposes specified.

5. The plate *p*, connected with the box *o*, in combination with the spring *r*, shaft *h*, and case *d*, as and for the purposes set forth.

6. The standard *u*, cast upon the bottom part of

the case *d*, with a bolt projecting down to receive a nut, for securing the tinman's machine to the bench, as and for the purposes set forth.

Signed by me this 4th day of February, A. D. 1870.

CHAS. BROMBACHER.

Witnesses:

CHAS. H. SMITH,
GEO. T. PINCKNEY.