H. WATERMAN.

Making Cut Nails.

No. 1,465.

Patented Jan'y 10, 1840.

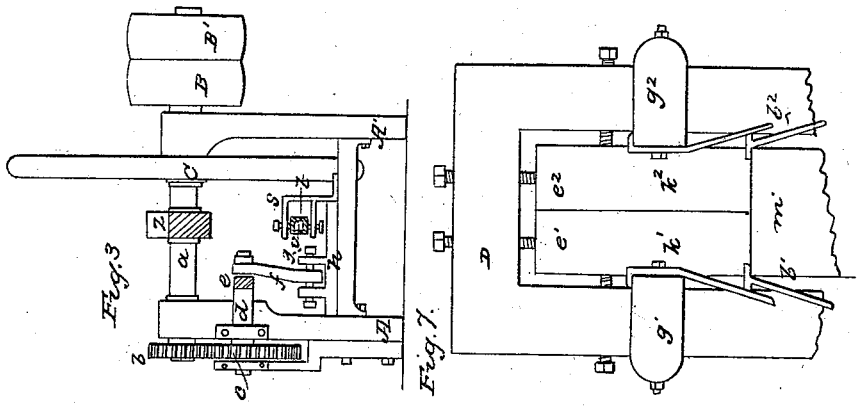

Fig. 3

Fig. 7

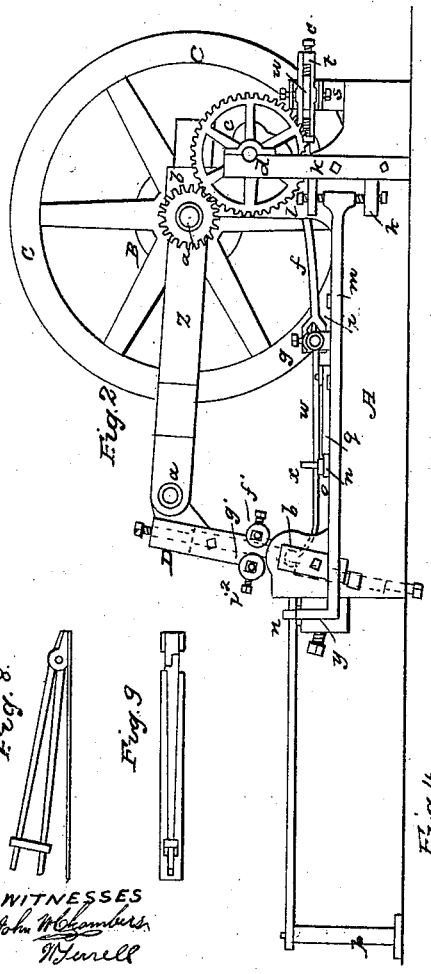

Fig. 2

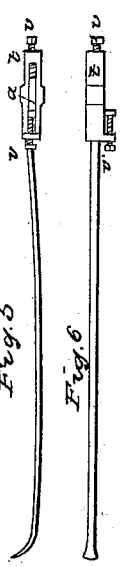

Fig. 5

Fig. 6

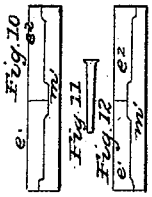

Fig. 10

Fig. 11

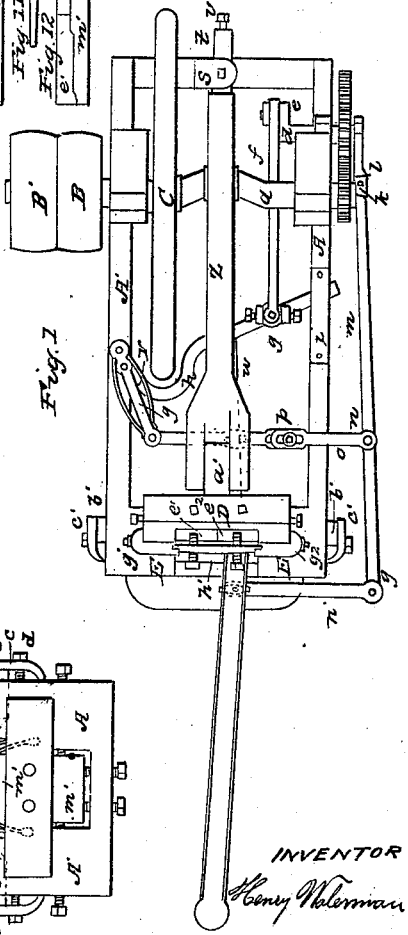

Fig. 1

Fig. 8

Fig. 9

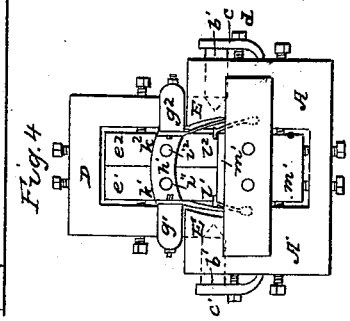

Fig. 4

WITNESSES

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Gurell

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UNITED STATES PATENT OFFICE.

HENRY WATERMAN, OF NEW YORK, N. Y.

MACHINE FOR CUTTING BRADS.

Specification of Letters Patent No. 1,465, dated January 10, 1840.

To all whom it may concern:

Be it known that I, HENRY WATERMAN, of the city, county, and State of New York, machinist, have invented, made, and applied to use certain new and useful improvements in the application, arrangement, and combination of well-known mechanical means in common use, with those not before so used for the purpose of cutting nails of any description from hoop or plate iron, the intent of such new arrangement being to cut nails with a point somewhat of a blunt-chisel form and to give a shoulder on each side of the head by the cutters, thereby producing a nail that will enter easily and drive and hold well, such mode of cutting being mostly applicable to that sort of nails called "brads," for which improvements I seek Letters Patent of the United States; and that the mode of constructing and using said improvements are fully set forth and shown in the following description and in the drawings, attached to and making part of this specification, wherein—

Figure 1 is a horizontal plan, Fig. 2 is an elevation of the machine as in use, Fig. 3 is a vertical sectional elevation of the back end, and Fig. 4 is a similar elevation of the fore end of the machine.

Such separate figures as are needed are separately explained and the letters and numbers used as marks of reference apply to the same parts in all the several figures.

A, A^1, are the side frames on which the working parts are mounted.

B, B^1, are a fast and loose drum to attach or detach the moving power fitted on a shaft *a* at the side A^1, of the machine, inside on the same shaft is a fly wheel C, and in the middle the shaft *a*, has a crook to form an eccentric or crank cam, and outside on the side is a pinion *b* which gears into a tooth wheel *c* on the shaft *d*, on the inside end of which is a small crank *e*, from this a connecting rod *f* leads forward and is attached by center screws to form a universal joint *g*, on the cross bell cranked bar *h* whose joint is on the side A^1 the moving end sliding under a keeper *i* on the side A. At the side A on the small standard of the wheel *c*, a pair of lugs *k*, receive the centerscrews *l*, *l*, which carry a long arm *m*, this arm at *n* is jointed to a cross lever *o*, which is made in two parts with a slot and screws *p* to adjust the length on this end, the end on the side A^1 being jointed in a slot to the fore end of the arm *g* above and fixed on that part of the bell crank bar *h*; on each side of this arm *g* is a curved spring *r r*, whose back ends are fixed on the bell crank bar *h*. At the back end of the machine a small bracket standard *s* with center screws supports a square slotted carrier frame *t* at the back end of which a set screw *v* serves to regulate a small slide piece *u* within the slot in the frame *t*, made with a small elbow which elbow is in contact with a set screw v^1, in a small lug on the fore end of the frame *t* and the fore end of the piece *u* receives the tang of a long gage spring *w*, made to slip into the fore ends of the frame *t* and slide piece *u* and to be regulated lengthwise by the set screws *v* and v^1, and the spring *w* overlies the bell crank bar *h* and cross lever *o*, on this last a pair of studs *x*, *x*, come up on each side of the gage spring *w*, and regulate the lateral motion given to it, the spring *w* finishes in a curved up and somewhat round edged chisel end under the moving cutters or chops, the spring being given to keep it always up to the under edge of the top cutters and to rise and fall with them at each vibration and thus regulates the width of the nail when cutting as hereafter described, this gage spring *w* and its carrier frame *t* are shown separate in the detached Figs. 5 and 6, the long arm *m* finishes with an elbow *y* upward at the front of the machine for use as hereafter described.

On the crank cam of the shaft *a* is a strong connecting bar *z*, the fore end of which is knuckle jointed at a^1, to the cutter block D, which is mounted on short centers b^1, in the head block E, these have at each end a bracket c^1, on the head block and a set screw d^1, to regulate the place of the cutter block. Within the cutter block D, are the two cutters e^1, e^2, bedded on a cross piece f^1 at the back having a set screw to each cutter, and in front are a pair of bosses g^1 g^2, which are grooved down the front to receive the tenons of the front keeper h^1, having two set screws i^1, i^2, in front of the cutters and a set screw on each side regulates the cutters laterally. On the inner end of each boss g^1, g^2, is a crooked guide bar k^1, k^2, the inside of the lower curve on each of these operates on the outside shoulders of two crooked vertical springs l^1, l^2, whose lower ends are secured inside the head block in front of the lower and fixed

cutter m^1, the tops are made each with a small shoulder overlapping the edge of the cutter; these guide bars and springs are so regulated that they direct the material laterally as it enters to be cut as hereafter described, and the positions and forms of these guide bars and springs are shown in detached skeleton section in the large sized Fig. 7. The lower cutter m^1, is set into a mortise or hollow in the head block and is regulated by set screws behind and in front, on each side and below and the two upper cutters are counteredged to fit the form of the edge on the lower cutter as shown in the detached Fig. 10, this forms the heads and points of the nails as described hereafter.

The elbow y on the side arm m already noticed enters a hole in a sliding cross plate n^1, which moves with the arm across the front of the cutters and is jointed to and carries with it that end of the metal trough o^1; which is to be made of a width to receive the metal from which the nails are to be cut according to the size of the intended nail the opposite end of this trough is fixed on a vertical center p^1, which being movable nearer to or farther from the head of the machine, will present the material with the end next the cutters at a more or less variation from a right angle and thus enable the machine to cut the nails with a greater or less taper as may be required without turning the metal or vibrating the cutters laterally and as the metal is to be cut hot the Figs. 8 and 9 represent a pair of wide chopped pincers with one arm fitted on a plate to slide on the bottom of the trough o^1; by this tool the workman can handle and push on any piece however hot or short in length, so as to cut up the material without waste.

The edges of the cutters are to be counter formed as shown in the detached Fig. 10, to form the nails as described in the mode for working this machine which is as follows: The gage spring bar w, is to be regulated by the set screws v, and v^1; at a distance back from the edge of the lower cutter m^1 that will give a nail of the desired width the guide bars k^1, k^2 and shouldered spring l^1, l^2 properly adjusted and the center p^1, of the feeding trough o^1, adjusted nearer to, or farther from the cutters so as to give the required taper to the nail. The workman is then to take metal of the proper width and thickness heated to a low red heat, and holding it at one end by the pincers, Figs. 8 and 9, place it in the trough o^1, and push the other end against the cutters and motion being given to the machine by a band from the drum B, to any competent power each lateral vibration of the trough o^1, will present the metal in successive alternations under each top cutter as it rises and the progress of the metal being regulated laterally by the guide bars k^1 k^2, and the shouldered springs l^1, l^2, and stopped by the chisel end of the spring gage w, the top cutter as it descends will cut off a nail in the form of the Fig. 11, which will drive easily and hold well. If the lateral motion given to the feeding trough o^1, should be a little more than needed the springs r, r, on the side of the arm q will yield as the crooked guide bars k^1, k^2 come down to adjust the position of the shouldered springs l^1, l^2, and allow the metal to be entered as they guide it, so as to form the nails alike.

It will be evident to those acquainted with such machinery that the same means are equally applicable to cut brad nails of other metals than iron, and that changing the cutters to have the cutting part in the form shown in Fig. 12, will produce brad nails with one shoulder to the head instead of two.

I do not claim as my invention the form of any of the above parts, as they are mostly well known.

I therefore claim as new and not before used as I use the same:

1. The vibrating spring gage w, to regulate the width of the nails when cutting substantially as the same is described.

2. The crooked guide bars k^1, k^2, and shouldered springs l^1, l^2, to guide the metal laterally under the cutters, substantially as the same are described.

3. The vibrating feeding trough o^1, in combination with the double cutters to give the taper of the nail when cutting by vibrating from a movable center through which nails of more or less taper may be cut without altering or vibrating the cutters, or turning the metal over substantially as the same are herein set forth.

In witness whereof I have hereunto set my hand in the city of New York this seventeenth day of July in the year one thousand eight hundred and thirty nine and in the presence of the witnesses.

HENRY WATERMAN.

Witnesses:

JOHN W. CHAMBERS,

W. TERRELE.