(No Model.)

G. HAYES.

HAND TOOL.

No. 345,687. Patented July 20, 1886.

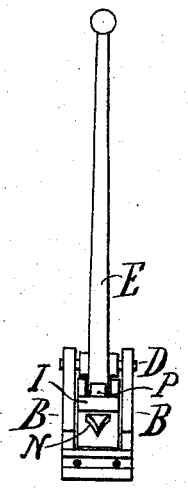

Fig. 1.

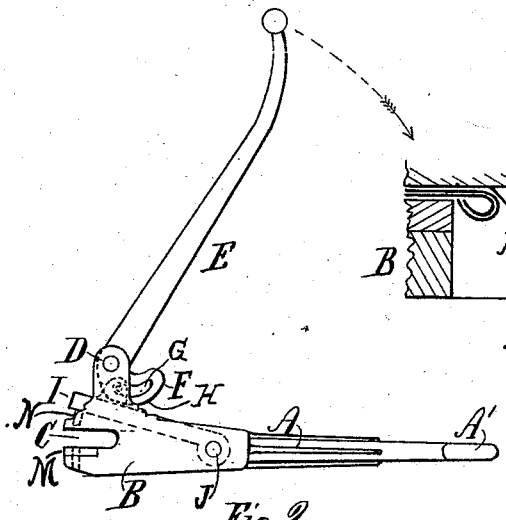

Fig. 2.

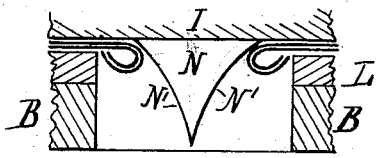

Fig. 3.

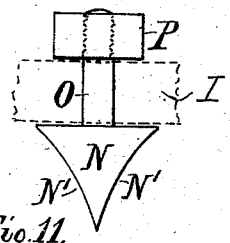

Fig. 11.

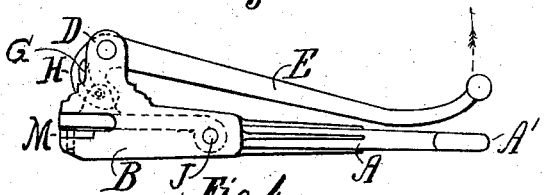

Fig. 4.

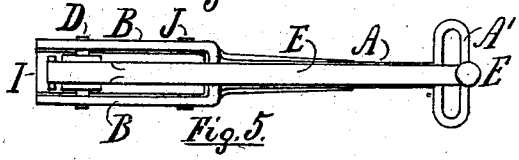

Fig. 5.

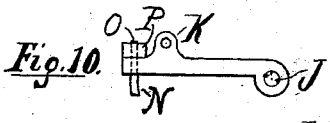

Fig. 10.

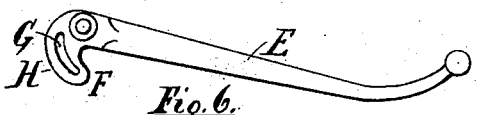

Fig. 6.

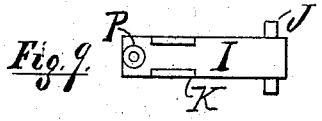

Fig. 9.

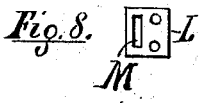

Fig. 8.

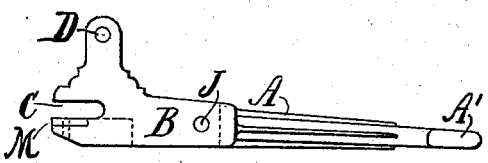

Fig. 7.

WITNESSES

Jacob J. Koch.

INVENTOR

Geo Hayes.

UNITED STATES PATENT OFFICE.

GEORGE HAYES, OF NEW YORK, N. Y.

HAND-TOOL.

SPECIFICATION forming part of Letters Patent No. 345,687, dated July 20, 1886.

Application filed May 4, 1885. Serial No. 164,327. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HAYES, a resident of the city, county, and State of New York, have invented a new and useful Hand-Tool, of which the following is a specification.

My invention relates to a hand-tool for cutting through two or more sheets of sheet metal, forming one or more tongues therein, and rolling back the tongue or tongues, so as to form a clinch-fastening, whereby the sheets are held firmly together and rivets superseded; and it consists in a hand-tool comprising three parts, one serving as a bed to place against the sheets to be punched, (or upon which they may be placed,) this part being provided with a handle; another part pivoted to the bed portion and provided with a handle at one end, and at the other provided with a slotted cam adapted to engage with the third part, also pivoted to the bed portion, and located between the two parts first mentioned, this latter part serving to carry the cutting and curling device, which by being pressed through the sheets of metal and into a slotted bed-plate forming part of the bed portion will cut out a tongue in the sheets of metal, force it into the slot of the bed-plate, and curl it backward to form the clinch which holds the sheets together. The pressing or forcing is done by means of the second part above mentioned, forming a lever pivoted centrally, its handle being raised or moved away from the handle of the bed part, bringing the cam at its outer end into play against the cutting part or lever, forcing it against and through the sheets of metal to be punched thereby, and as this part is connected to the second part mentioned by a pin through the slot in its outer end the reverse motion of the lever will draw it backward out of and away from the sheets of metal after cutting and punching the same.

It further consists in a cutting and curling device adapted to be connected to a power-tool, and having curved and cutting edge or edges, as hereinafter described.

In the accompanying drawings, Figure 1 is an end elevation of the tool complete, with the lever through which the pressure is applied extended, and the jaw of the tool opened, as when ready to be closed upon the sheets of metal to be operated upon. Fig. 2 is a side elevation of the tool, with the same lever extended as in Fig. 1. Fig. 3 is a section of two sheets of sheet metal through the tongues as formed by the tool after the jaws have been shut thereon, to illustrate the purpose for which the tool is primarily to be used. Fig. 4 is a side elevation of the tool with the jaws thereof closed, giving the position of the several parts at the end of the operation of cutting, punching, and curling back the tongues in the sheets of metal. Fig. 5 is a top view of the tool when the jaws are shut as in Fig. 4. Fig. 6 is a side elevation of the pressure-lever alone. Fig. 7 is a side view of the bed-lever, holding-lever, or main frame of the tool, to which the moving parts of the tool are pivoted. Fig. 8 is a plan view of a slotted plate secured within the jaws of the tool to the main frame, and forming a bed upon or against which the sheets of metal to be operated upon are placed. The slot therein gives room for the cutting and curling device of the tool to pass downward or into it while cutting and curling the tongue or tongues in the sheets of metal. It also answers as a receptacle for other devices, as hereinafter described. The bed-plate is removable and others may be substituted therefor. Fig. 9 is a top plan of the tongue-lever or guide, its inner end pivoted to the main frame, and at its other or outer end carrying the punching, cutting, and curling device. Fig. 10 is a side elevation of the tongue-lever or guide, carrying the punching, cutting, and curling device. Fig. 11 is an elevation of the cutting, punching, and curling device, made full size to better illustrate the curves at each side. This view shows also the manner of securing it to the guide-tongue or tongue-lever, which is shown also by the dotted lines, which give its position with regard to the cutter. The cutter and curler is removable, so as to permit the introduction of some other device—such as a common punch—for making holes through sheet metal, or a knife-edge for cutting off pieces of sheet metal, wire, &c.

A represents the main frame, which may also serve as a lever, as it forms one side of the jaws and constitutes the bed device of the tool. It consists of a handle portion, A′, and two cheeks, B, to which are pivoted the moving parts of the tool. It serves therefore to carry those other parts. The cheeks B are formed with a clearance at C for the reception of the

sheets of metal to be operated upon. It serves as a guide for the metal and protects the edge of the cutter.

At D is pivoted to the cheeks the pressure-lever E, having a slotted curve portion, F, operating between the cheeks B, and formed with the eccentric slot G and curved cam-edge H.

At I is a tongue-lever or guide, pivoted to the cheeks B at J, and is wholly within the cheeks. It is connected to the pressure-lever E by a pin through the slot G and lugs formed at K, and by that means, as the pressure-lever E is thrown back to the position shown in Figs. 1 and 2, the guide or tongue-lever is raised from the bed into the position shown by dotted lines in Fig. 2, the eccentric slot drawing it up, and when the pressure-lever is closed toward the bed-lever the cam H of the pressure-lever forces the tongue back upon the bed, as shown in Fig. 4. This guide I carries at its outer end the device used for cutting, punching, &c., and by the pressure exerted through the pressure-lever E upon the guide or tongue I such device is brought into operation upon and through the sheets of metal within the clearance C after the tool is placed thereon.

L represents a bed-plate secured to the bed-lever by screws, &c., and provided with a slot, M, made to receive the cutting device. The bed is removable to permit of the substitution of other devices when desired.

At N is shown the cutter and curler device, being the principal device intended to be used in this tool to make the tongue or tongues or clinch-fastener (shown in Fig. 3) formed in sheets of metal. The device N is shown full size in Fig. 11. It has two cutting and forming edges, each having curved form, as shown at N'. It, however, may be made with one only, if only one tongue is desired to be cut thereby, or it may have more than two—for instance, a four-faced cutter and curler may be used, according to the requirements. The angles only of the device cut the sheet metal, and the curved face does the curling or rolling of the tongue. This device N is secured to the tongue-lever or guide by a screw and nut, O and P, as shown in Fig. 11, so as to be removable, when desired, for sharpening or substitution of other devices therefor.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A hand-tool consisting of three parts, A, I, and E, in combination, the part A provided with handle A' and cheeks B, having clearance C, the part I set within cheeks B and pivoted to the part A at J, the part E pivoted to cheeks B of part A at D, and provided with eccentric slot G and cam H, also connected to the part I by pivot therefrom through its slot G, for the purpose herein set forth.

2. A hand-tool consisting of levers or parts A, I, and E, constructed as set forth, and provided with the cutting and curling device N, substantially as shown and described.

3. In a hand-tool adapted to operate essentially as set forth, the combination of cutter and curler N and slotted bed L, substantially as shown and described.

4. A cutting and curling device, N, formed, essentially as herein set forth, with curved and cutting edge N', and adapted to be connected to a power-tool, substantially as shown and described.

5. The lever E, provided with the curved end F, having the eccentric slot G and cam H, in combination with the lever I, pivoted to bed A, and provided with the cutting and curling device N, formed essentially as herein set forth, and adapted to operate substantially as shown and described.

6. In combination with the holding or bed lever A, having the slotted bed-plate L, the tongue-lever I, pivoted thereto and provided with the cutting and curling device N, substantially as shown and described.

GEO. HAYES.

Witnesses:
RICHARD H. REILLÉ,
JACOB J. KOCH.