

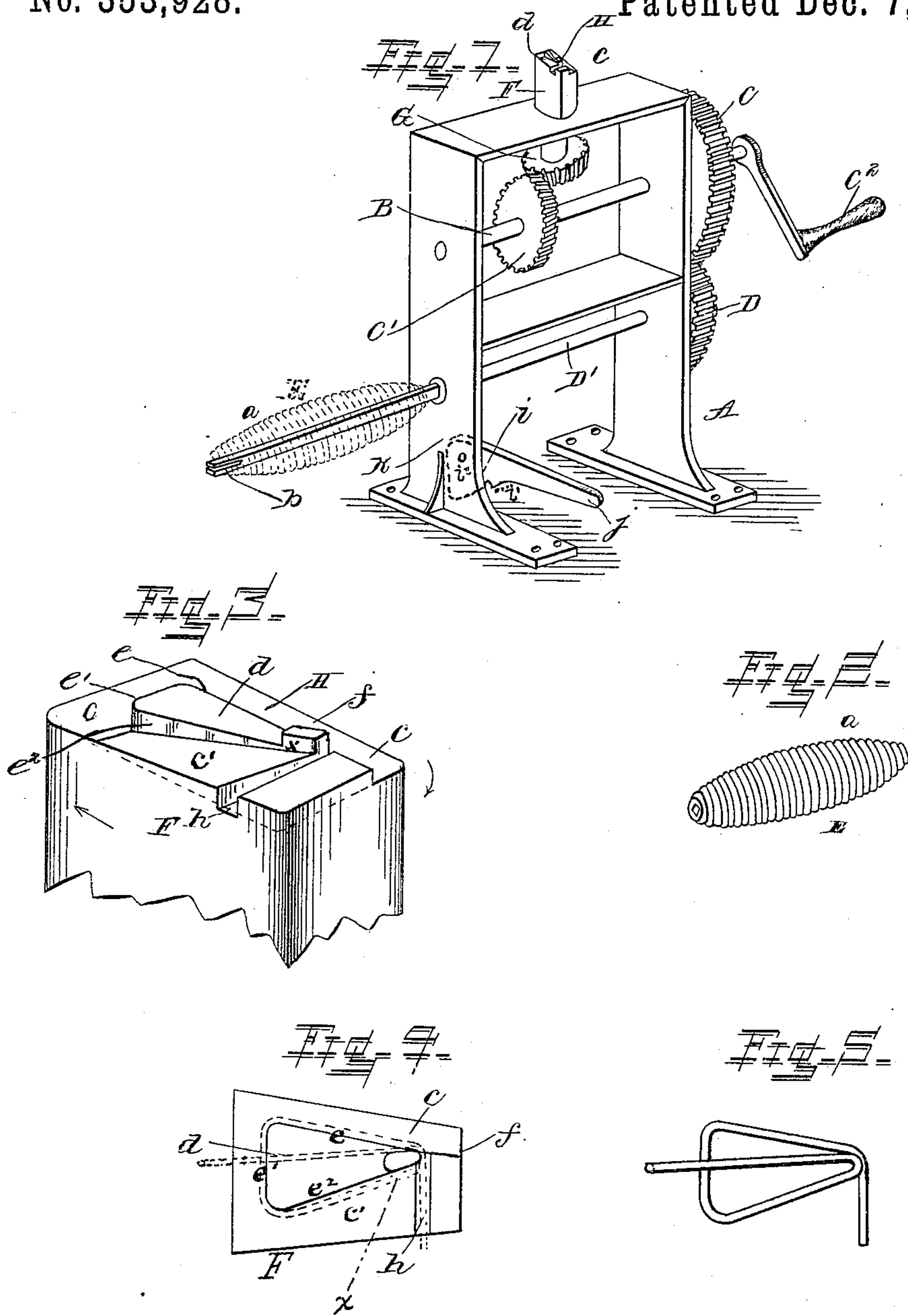
(No Model.)

H. F. EATON.

MACHINERY FOR FORMING WIRE BUSTLES.

No. 353,928.

Patented Dec. 7, 1886.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HUGH F. EATON, OF CHICAGO, ILLINOIS.

## MACHINERY FOR FORMING WIRE BUSTLES.

SPECIFICATION forming part of Letters Patent No. 353,928, dated December 7, 1886.

Application filed April 24, 1886. Serial No. 200,014. (No model.)

*To all whom it may concern:*

Be it known that I, HUGH F. EATON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machinery for Forming Wire Bustles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of my improved machine for making double conical spiral wire bustles. Fig. 2 is a perspective view of the double conical spirally-grooved former detached from the machine. Fig. 3 is an enlarged perspective view of the device for forming the adjusting-clasps on the ends of the bustle. Fig. 4 is a top view of this device, and Fig. 5 is a view of one end of a bustle and its clasp.

This invention relates to improvements on machinery for producing double conical spiral wire bustles, especially such as form the subject of my Letters Patent numbered 340,706, and dated on the 27th day of April, 1886, which improvements will be fully understood from the following description when taken in connection with the annexed drawings.

Referring to the drawings by letters, A designates a substantial rectangular upright frame, adapted to be secured upon a bench or other established object.

B designates a horizontal driving-shaft, which has its bearings in the two standards of the frame A, on which shaft are keyed a large spur-wheel, C, a bevel-wheel, C', and a hand-crank, C<sup>2</sup>. The wheel C engages with a pinion spur-wheel, D, keyed on one end of a horizontal rotative squared shaft, D', which is also journaled in the uprights of frame A, extends out from one side of this frame, and is made square, as indicated in Fig. 1, to receive a double conical former, E, indicated in dotted lines in this figure and in full lines, Fig. 2. This former corresponds in shape to that of the bustle when complete, and it is provided with a spiral groove, a, which extends from

one end of it to the other, in which groove the bustle-wire is wound. On the outer end of the square part of the spindle D' is a bifurcation, b, adapted to receive an adjusting clasp or clamp formed on the bustle, by means which I will now describe.

F designates a vertical short shaft which is journaled in the cross-head of the frame A. On the lower end of this shaft is keyed a bevel spur-wheel, G, which engages with and is rotated by the bevel spur-wheel C' on the shaft B. On the upper end of shaft F, above the cross-head of frame A, is suitably secured a clamp or clasp forming device, H. This device consists of a block having a flat horizontal surface, c, from which rises an angular former, d, presenting three perpendicular sides, e e' e<sup>2</sup>, and a vertical lug, f, at the apex of the triangle. The rear side, x, of the lug f is flush with the oblique side e<sup>2</sup> of the triangle, and its opposite flat side is nearly parallel therewith, as shown in Fig. 4, while the edge of the lug at the apex of the former is somewhat rounded, as clearly shown in Fig. 4, and across the top of the former is a groove, h, as clearly shown in this figure.

I should here state that at the top surface of the shaft F the surface c' of the former d is inclined from the surface c, as clearly shown in Fig. 3.

In Fig. 1 I show a cutting hand-lever, j, pivoted to one of the uprights of the frame A and adapted to cut against the edge i. This device is convenient for cutting wire, the cutting of the wire being done between the curved edge i of the standard of the frame A and the curved hooking-edge i' of the lever j, which latter has its fulcrum at i<sup>2</sup>.

It is obvious that the intermediate shaft, B, can be omitted and the bevel-wheel C' applied directly on the spindle D', although in this case the motion of the latter will not be so rapid as when said intermediate shaft and its speed-gear are employed.

The operation of my invention is as follows: One end of a suitable wire is introduced in the groove h of the former H, and this former is rotated in the direction of the arrows on Figs. 3 and 4. The wire is thus wound on the sides e e' e<sup>2</sup>, thence around the lug f and over the top d of the former to the angle at the junction



of the sides  $e' e^2$ , thus forming what I denominate an adjustable "clamp" or "clasp," J, as shown in Fig. 5, which is not herein claimed. The dotted lines on Fig. 4 indicate the manner of coiling the wire on the former to produce the clamp in question. This clamp J is then removed from the former H and adjusted in the bifurcation  $b$  in the end of the spindle  $D'$ , the former E having been previously slipped on said spindle. The wire is then guided in the groove  $a$  in the spindle, which latter is rotated and the wire carried and guided by hand or otherwise from one end to the other of it, thus forming the double spiral body of the bustle. The wire is then loosened and released from the former E and another clamp J formed, as above described, on the opposite end of the bustle-body.

Having described my invention, I claim—  
20 1. In a wire-bustle-forming machine, a clamp-forming device consisting of a triangular body, a raised lug at the apex of the angle, a groove tangent to this apex, and an

inclined plane extending downward from said groove, substantially as described. 25

2. A wire-bustle-forming machine consisting of a supporting-frame, a bifurcated spindle, a double conical removable former for the body of the bustle, and a clamp-forming device having the raised angular portion  $d$ , the groove  $h$ , the inclined plane, and the lug  $f$ , all constructed and operated substantially in the manner and for the purposes described. 30

3. In a bustle-making machine, the combination of a wire-clamp-forming device, consisting of a rotative head having a flat surface,  $c$ , an inclined surface, an intermediate raised angular portion, terminated at its axis in a lug,  $f$ , and a groove, all adapted to operate substantially as described. 35 40

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

HUGH F. EATON.

Witnesses:

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