

(No Model.)

2 Sheets—Sheet 1.

H. S. REYNOLDS.

MACHINE FOR FORMING WIRE HINGES OR LINKS.

No. 519,160.

Patented May 1, 1894.

Fig. 1.

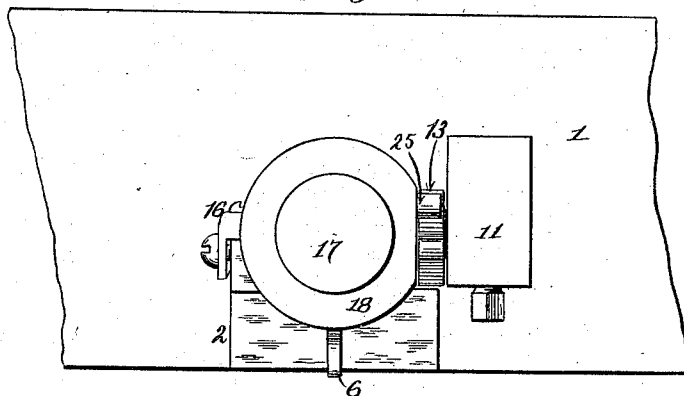


Fig. 6.

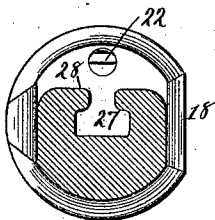


Fig. 7.

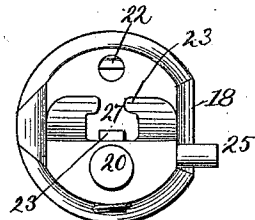
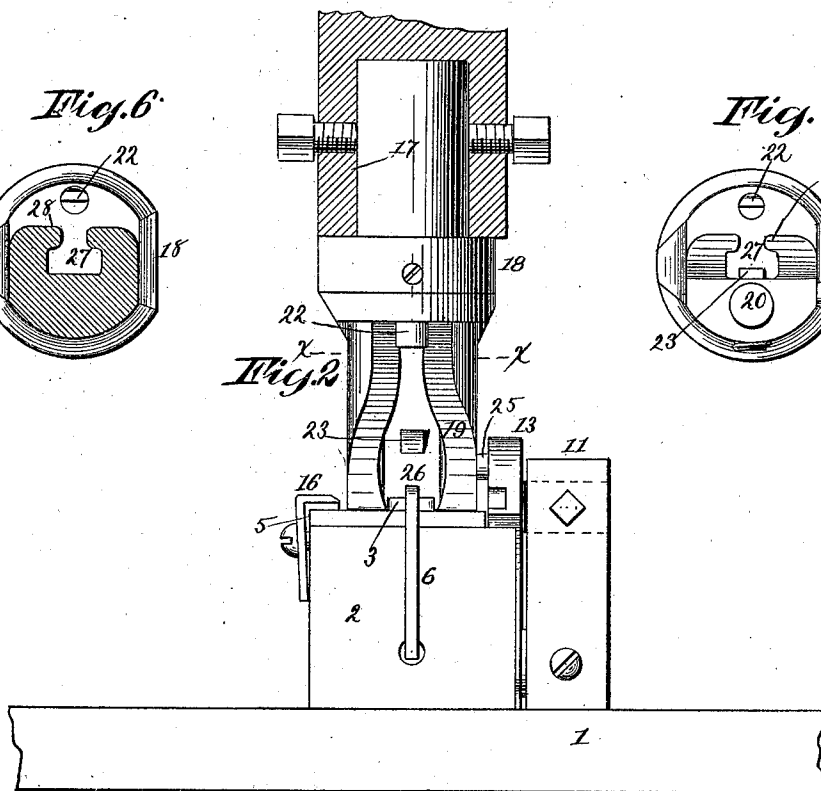


Fig. 2.



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Att'y

(No Model.)

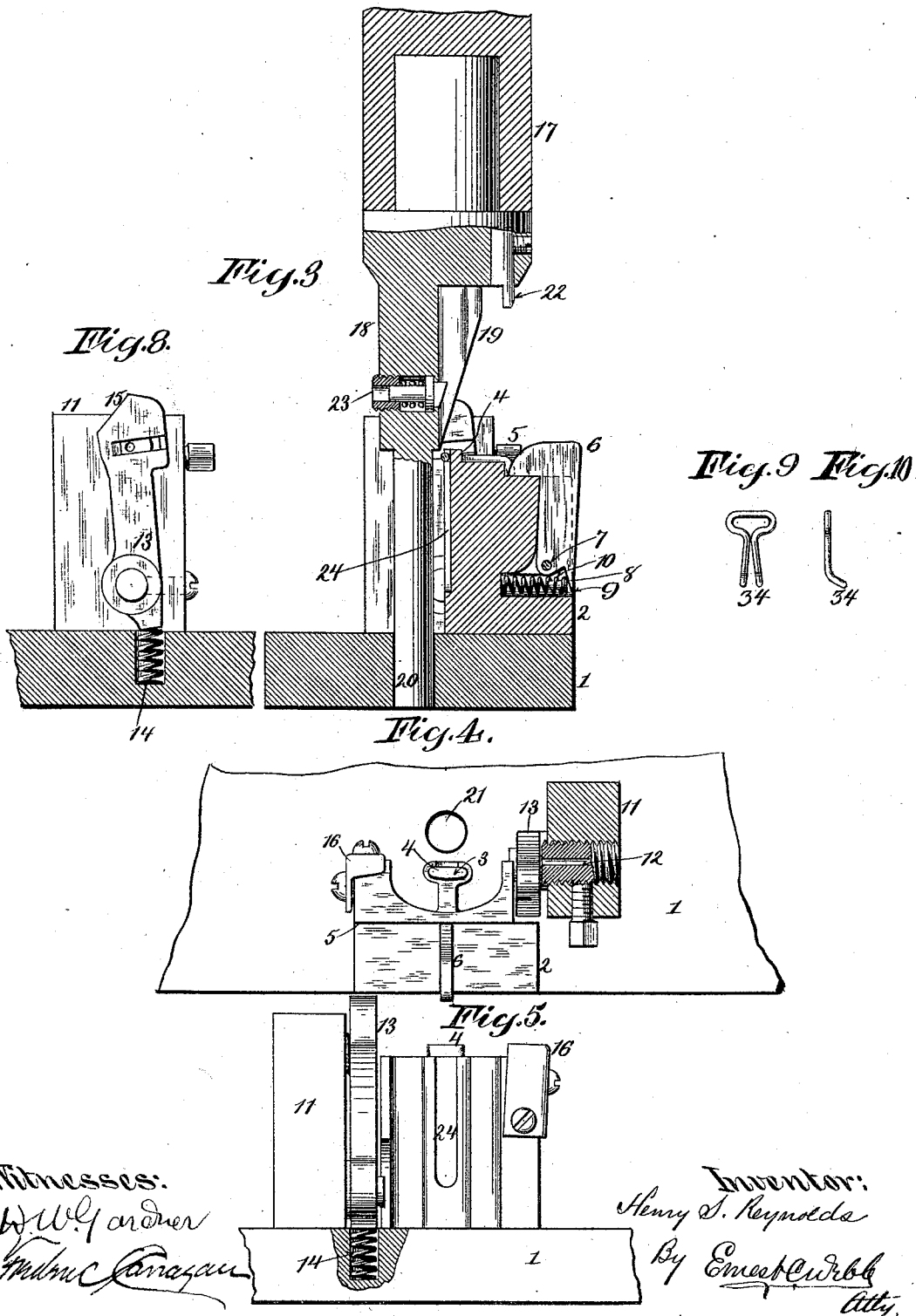
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UNITED STATES PATENT OFFICE.

HENRY S. REYNOLDS, OF BROOKLYN, NEW YORK.

MACHINE FOR FORMING WIRE HINGES OR LINKS.

SPECIFICATION forming part of Letters Patent No. 519,160, dated May 1, 1894.

Application filed November 27, 1891. Serial No. 413,216. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. REYNOLDS, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Machines for Forming Wire Hinges or Links, of which the following is a specification.

My invention relates to certain improved machinery for forming the wire hinges for coffee and tea pots, suspending links for wash basins and for other uses in connection with sheet metal ware, having for its object the production of such hinges and links rapidly, accurately, and economically.

To this end my invention consists in the special mechanism hereinafter more fully and particularly described and pointed out in the claims.

Referring to the drawings, in the several figures of which like parts are similarly designated, Figure 1 is a top plan view of the machine. Fig. 2 is a front elevation partly in section. Fig. 3 is a vertical longitudinal section. Fig. 4 is a top plan view of the die with the former or plunger removed. Fig. 5 is a rear view of the same. Fig. 6 is a section taken on the line *x-x*, Fig. 2. Fig. 7 is a bottom plan view of the former. Fig. 8 is a side elevation of the cutter; and Figs. 9 and 10 are front and edge views respectively of the finished hinge or link.

1 is the bed-plate having securely mounted thereon the die-block 2, which, as shown particularly in Fig. 4, is substantially semi-circular at its rearward portion, and has the centrally extending T-shaped die proper 3, having upwardly projecting from its face an extension in the form of an ellipse 4, the rear side of which is straight, or substantially so. The die-block 2, has its upper and front face cut away to form a ledge or shoulder 5, and over this cut-away portion projects the spreader or separator 6, secured in the front of the die-block as by the pin 7, (Fig. 3.) This spreader or separator is provided with a downwardly projecting finger 8, and is held in its normal position by the spring 9, confined within a recess 10, in the die-block 2. The head of the separator is hook-shaped, and, as

stated, projects over the cut-away portion of the die-block, impinging against the ledge or shoulder 5, the head of said hook being preferably rounded off or beveled, as shown. To one side of the die-block is mounted the standard or guide 11, provided with a horizontal aperture 12, through which the wire is fed and to which is secured the cutter 13. This cutter is held in its normal position by the spring 14, sunk in the bed-plate 1, as shown at Figs. 5 and 8. The head of the cutter is obliquely cut, as at 15, and its forward motion is stopped by coming in contact with the die-block 2. To the opposite side of said die-block is secured the adjustable gage 16, to limit the length of wire supplied to the machine.

The machine or former comprises the rod 17, having secured therein the plunger 18, which, as shown, comprises the obliquely cut face 19, the guide pin 20, working through the hole 21 in the base-plate 1, the bender 22, the spring catch 23 for throwing out the completed links or hinges and working in the groove 24 in the back of the die-block 2, and a pin or projection 25 at the side of the plunger for operating the cutter 13. Within the oblique face of the plunger or former is the vertical groove or channel 26 (Fig. 2), the sides thereof being cut substantially in a bottle shape, as shown, widening a little above the bottom of the machine and approaching each other by gradual curves toward the top of the machine to form the T-shaped slot or recess 27, (Figs. 6, and 7.) The inner edges of these side walls are beveled or chamfered, the bevel or chamfer increasing toward the top of the tool or plunger, until the sides thereof are completely rounded, as shown at 28, Figs. 6 and 7.

The operation of my device is as follows: The machine being mounted under a drop press or similar device, wire is fed through the hole 12, in standard 11, back of the die 4, and against the adjustable gage 16; the drop being released, the guide pin 20, of the plunger or former, enters the hole 21 in the base-plate 1, and the projection 25 comes in contact with the oblique face 15 of the cutter 13, and forces it forward, thereby cutting the

wire to the required length, and, as the plunger descends further, the wire is gradually shaped about the ellipse 4 on die 3, by means of the channel 26, in the plunger or former, and the beveled oblique side walls 19, thereof. At the three-quarters stroke, the wire assumes substantially the form of the straight-sided ellipse 4, the ends of the wire projecting over the ledge or shoulder 5, on the die-block 2, and prevented from coming in too close contact by the spreader or separator 6; upon the farther descent of the plunger, the bender 22 strikes the curved head of the separator, forcing it away from the wire, and bending said wire over the ledge or shoulder 5, to the form shown in Figs. 3, 9, and 10.

Upon the up-stroke, as soon as the bender 22 leaves the spreader or separator 6, the tension of the spring 8, forces the latter back to its normal position and the spring catch 23, which during the operation has been confined in groove 24 of the die-block 2, comes in contact with the finished link or hinge 34, throwing it out automatically and leaving the apparatus in readiness for a repetition of the operation. Upon the farther up-stroke, the projection 25 slides over the oblique face 15 of the cutter 13, permitting it by the action of spring 14, to assume its normal position.

It may be desirable in some cases where the wire is stiff to curve outwardly the middle portion of the oblique face 19 of the former or plunger, leaving the lower portion directly oblique and the upper portion straight or perpendicular.

What I claim is—

1. A machine for forming wire hinges and links, comprising a die-block, the rear face of which is substantially semi-circular and having extending therefrom a T-shaped extension, the top of which is extended in the shape of an ellipse, and a plunger conforming to the shape of said die, substantially as described.

2. A machine for forming wire hinges and links, comprising a die-block the rear face of which is substantially semi-circular and having extending therefrom a T-shaped extension, the top and front portions of the die-block being cut away to form a shoulder or ledge, and a plunger adapted to surround the T-shaped extension and conform to the semi-circular rearward face of the die-block, substantially as described.

3. The herein described machine comprising a die-block the rear face of which is substantially semi-circular and having extending therefrom a T-shaped extension, the top of which is extended in the shape of an ellipse, and the front and top portions of the die-block being cut away to form a shoulder or ledge, a hook-shaped spreader or separator secured in the face of said die-block and extending over the cut-away portion thereof and normally retained in this position by a spring, and a plunger adapted to surround the T-shaped extension and conform to the

semi-circular rearward face of the die, substantially as described.

4. A plunger for machines for forming wire hinges and links, comprising a T-slot near the top thereof, the faces of the walls of said slot being obliquely cut away, in combination with a T-shaped die or mandrel substantially as described.

5. A plunger for machines for forming wire hinges and links, comprising a T-slot near the top thereof, the faces of the walls of said slot being obliquely cut away and tapering downwardly and outwardly, in combination with a T-shaped die or mandrel substantially as described.

6. A plunger for machines for forming wire hinges and links, comprising a T-slot near the top thereof, the faces of the walls of said slot being obliquely cut away and tapering downwardly and outwardly, the inner edges thereof being beveled or chamfered, said bevel or chamfer gradually reducing toward the bottom of the plunger, in combination with a T-shaped die or mandrel, substantially as described.

7. The herein described machine for forming wire hinges or links, comprising a die-block having extending from its rearward face a T-shaped extension provided with a vertical groove and having its top extended in the form of an ellipse, in combination with a plunger adapted to surround the T-shaped extension and conform to the rearward face of the die, and provided with a spring catch adapted to work in the vertical groove of said T-extension, substantially as described.

8. The herein described machine for forming wire hinges and links, comprising a die-block, the rear face of which is substantially semi-circular and having extending therefrom the T-shaped extension having its top extended in the form of an ellipse, the front and top portions of said die-block being cut away to form a ledge or shoulder, a plunger adapted to surround said T-extension and conform to the semi-circular rearward face of the die, and provided near the top and at the front thereof with the downwardly projecting pin or bender extending on the full stroke over the ledge or shoulder on the die-block, substantially as described.

9. The herein described machine for forming wire hinges or links, comprising a die-block the rear face of which is substantially semi-circular and having extending therefrom the T-shaped extension having its top extended in the form of an ellipse, the front and top portions of said die-block being cut away to form a ledge or shoulder, a hook shaped spreader or separator secured in the face of said die-block and extending over the cut away portion thereof and normally retained in this position by a spring, and a plunger adapted to surround the T-extension and conform to the semi-circular rearward face of the die, and provided near the top and at the front thereof with the downwardly projecting

pin or bender adapted, on the full stroke, to force the spreader or separator outwardly against the tension of its spring and to extend over the ledge or shoulder in the die-block, substantially as described.

10. The herein described machine for forming wire hinges or links, comprising a die-block, the rear face of which is substantially semi-circular and having extending therefrom the T-shaped extension provided with a vertical groove and having its top extended in the form of an ellipse, the front and top portions of the die-block being cut away to form a ledge or shoulder, a hook-shaped spreader or separator secured in the face of the die-block and extending over the cut-away portion thereof and normally retained in this position by a spring, and a plunger adapted to surround the T-extension and conform to the semi-circular rearward face of the die, and provided with a spring catch adapted to work in the vertical groove of said T-extension, and also provided near the top and at the front thereof with a downwardly projecting pin or bender adapted on the full stroke to force the spreader or separator outwardly against the tension of its spring and to extend over the ledge or shoulder on the die-block, substantially as described.

11. A machine comprising a base-plate, a die, a wire guide and an automatic cutter; and a hollow plunger conforming to the shape of the die and provided with a pin or projection to operate the cutter, and a spring catch for automatically throwing out the finished product, substantially as described.

12. A machine comprising a base-plate, a die, a standard mounted beside said die, and perforated to form a wire guide, and an automatic cutter mounted between said die and guide; and a hollow plunger conforming to the shape of the die and provided with a pin or projection adapted to operate the cutter

against the tension of a spring, substantially as described.

13. The herein described machine for forming wire hinges and links, comprising a base-plate, a die-block, the rear face of which is substantially semi-circular and having extending therefrom the T-shaped extension provided with a vertical groove and having its top extended in the form of an ellipse, the top and front portions of the die block being cut-away to form a ledge or shoulder, a hook-shaped spreader or separator secured in the face of the die-block and extending over the cut-away portion thereof and normally retained in this position by a spring, an adjustable wire gage at one side of the die-block, and a wire guide at the opposite side, an automatic cutter operating beside said guide, said cutter being normally held away from the wire by a spring, and having one of its upper faces cut away, and a plunger provided with a downwardly projecting guide pin working through an aperture in the base plate, said plunger being adapted to surround the T-extension of the die-block and conform to the semi-circular rearward face of the die, and provided with a spring catch adapted to work in a vertical groove in said T-extension and provided on one side with a pin or projection for operating the cutter, and also provided at the front and near the top with a downwardly projecting pin or bender, adapted on the full stroke to force the spreader or separator outwardly against the tension of its spring, and to extend over the ledge or shoulder on the die-block, substantially as described.

Signed at New York city, in the county of New York and State of New York, this 11th day of September, A. D. 1891.

HENRY S. REYNOLDS.

Witnesses:

J. B. SABINE,

ERNEST C. WEBB.