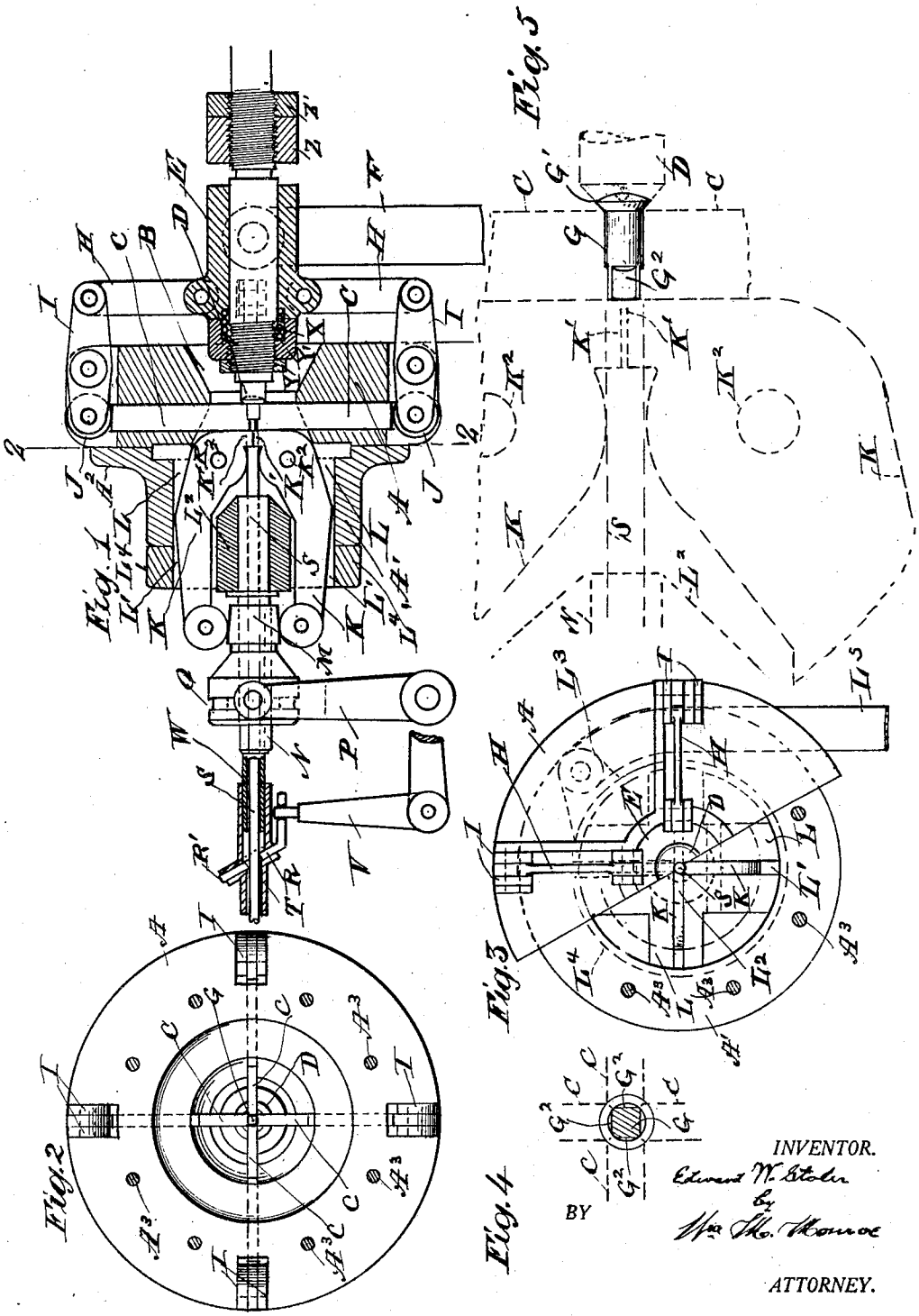
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NIPPLE SWAGING MACHINE

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NIPPLE SWAGING MACHINE

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The objects of the invention are to provide mechanism for producing by swaging nipples for use with the wire spokes of automobile wheels and the invention comprises a forming head in which the several steps of forming flat sides upon the blank severing the blank from the stock and forming a head thereon.

The invention includes a head having a central opening therein through which the blank is passed, radially moving forming dies therein, a heading die moving conjointly with said forming dies, and a member rotatable within said head, in which gripping arms are pivotally secured by means of which said blank is severed from the wire stock, at the time of the greatest amount of compression of the forming dies by rotating the stock against the blank while the stock and blank are securely held by said gripping arms and dies respectively.

Means are also provided for intermittently feeding the wire stock, for operating the gripping arms and forming dies and for operating the heading die, the last movement being operatively connected with the movements of the forming dies.

The invention is exemplified in the accompanying drawing hereinafter more fully described and particularly pointed out in the claims.

In the accompanying drawing Fig. 1 is a longitudinal vertical section of the device.

Fig. 2 is a transverse section of the head on line 2—2 of Fig. 1 looking towards the forming dies.

Fig. 3 is a similar section looking toward the revolvable member and gripping arms.

Fig. 4 is a transverse section of the blank nipple showing the forming dies in dotted lines.

Fig. 5 is a full sized side elevation of the finished blank nipple, showing the relative positions of the gripping arms and forming and heading dies.

In these views A is a stationary head having a central longitudinal opening, B therethrough. C, C, are forming dies radially movable. D is a heading die therein, mounted within a sleeve bearing E, which is reciprocated by means of a lever F, to impress a head G′ upon the blank G at approximately the same time that the forming dies are operating upon the sides G^2 of the blank, shown in Figures 1, 4 and 5.

This sleeve E is operatively connected with the forming dies by means of the links H, H, and rock arms I, I, respectively, and rollers J, J, which directly engage with the outer ends of the forming dies C. These are four in number and compress the sides of the blank simultaneously to flatten the same.

While the blank is being formed in this manner the wire stock S, is securely gripped between the jaws K′ of the rock arms K, K, which are pivoted in a revolving inner head L, at K2, and are closed upon the stock, by means of the conical sleeve M, slidably mounted upon the tube N through which the wire stock is fed, and a clutch member O, and lever P.

This inner head L is radially slotted at L′ for the insertion therein of the gripping arms, K, K, and a central integral portion L^2 receives and supports the inner end of the tube N.

The inner head L is revolvable in a detachable portion A′ of the outer head which is flanged at A^2 and is attached to the main portion of the head by means of studs or screws A^3.

After the sides and head of the blank nipple have been completely formed by means of the forming and heading dies and while it is rigidly secured by means of the gripping dies, which are applied to the wire stock closely adjacent to the inner end of the squared portion of the blank and in contact with the edges of the forming dies, the inner head L is revolved through an arc sufficient to shear apart the blank from the wire stock, by means of the rock arm L^3 having a hub L^4 secured to the inner head L and a link L^5.

This action is the more easily and accurately accomplished since the metal in the squared portion of the nipple is more condensed and more resisting to torsion than the metal of the original wire stock, and the parts will be cleanly separated. The wire

is intermittently fed to the forming head by means of the feeding dogs R, R′ loosely mounted in the sleeve T, at an angle to the longitudinal axis of the wire stock, and reciprocated by means of the lever or rock arm V. W is a projecting tubular guide for the wire.

In Fig. 1 a spring bugger X is inserted in the bearing sleeve for the heading die, and the movement thereof adjusted by means of nuts Y, Y′. The amount of movement of the heading die is also limited by means of adjusting nuts Z, Z.

Having described the invention what I claim as new and desire to secure by Letters Patent is—

1. In a head for automatically forming blank nipples from wire stock, in combination, a stationary outer head, having a central opening therethrough, forming dies radially movable in said head, an axially movable heading die, and means operatively connected with the movements of said heading die for simultaneously moving said forming dies to and from said wire stock, means for gripping said wire stock adjacent to said forming dies while said heading and forming dies are operated upon said stock, a support in which said gripping means are mounted said support being rotatable in said head to shear the wire stock from the formed and headed nipple blank while said forming and heading dies are exerting their greatest amount of pressure and have completed their greatest amount of pressure and have completed their work thereon.

2. In an automatically acting swaging head for forming blank nipples from wire stock, the combination with a stationary outer head, of forming dies radially movable therein, an axially movable heading die, links and rock arm mechanism operatively connecting said heading die with all said forming dies, an inner head revolvable in said outer head, said inner head being longitudinally slotted, gripping arms pivoted in the slots in said head and engageable with said stock adjacent to said forming dies, means for operating said gripping dies and said inner head being rotatable in said outer head to sever said stock from the completed blank while said forming and heading dies are exerting full pressure thereon.

3. In an automatically acting swaging head for forming blank nipples from wire stock, the combination with a stationary outer head, of forming dies radially movable therein, an axially movable heading die, links and rock arm mechanism operatively connecting said heading die with all said forming dies, an inner head revolvable in said outer head, said inner head being longitudinally slotted, gripping arms pivoted in the slots in said head and engageable with said stock adjacent to said forming dies, means for operating said gripping dies said inner head being rotatable in said outer head to sever said stock from the completed blank while said forming and heading dies are exerting full pressure thereon said stock being intermittenly fed to said head substantially as described.

4. In an automatically acting swaging head for forming blank nipples from wire stock, the combination with a stationary outer head, of forming dies radially movable therein, an axially movable heading die, links and rock arm mechanism operatively connecting said heading die with all said forming dies, an inner head revolvable in said outer head, said inner head being longitudinally slotted, gripping arms pivoted in the slots in said head and engageable with said stock adjacent to said forming dies, means for operating said gripping dies said inner head being rotatable in said outer head to sever said stock from the completed blank while said forming and heading dies are exerting full pressure thereon, a sleeve in which said heading die is mounted and means for resiliently and adjustably securing said heading die in said sleeve.

5. In a machine for fashioning nipples from wire stock, the combination of a plurality of die members movable into engagement with one end portion of the stock to fashion the same, and means for effecting relative rotation of the end portion aforesaid of the stock and the remaining portions of the same to sever the former from the latter.

6. In a machine for fashioning nipples from wire stock, the combination of an axially movable heading die engageable with one end of the stock, a plurality of radially movable forming dies engageable with the wire stock adjacent the end of the latter aforesaid, means for moving said heading and forming dies into engagement with the portions aforesaid of the stock, and means for effecting relative rotation between the fashioned or unfashioned portions of the stock to shear the former from the latter.

7. In a machine for fashioning nipples from wire stock, the combination of an axially movable heading die engageable with one end of the stock, a plurality of radially movable forming dies engageable with the wire stock adjacent the end of the latter aforesaid, means controlled by the movement of said heading die toward the stock for moving said forming dies into engagement with the stock, and means for effecting relative rotation between the fashioned and unfashioned portions of the stock to shear the former from the latter.

8. In a machine for fashioning nipples from wire stock, the combination of an axially movable heading die engageable with one end of the stock, a plurality of radially movable forming dies engageable with the

wire stock adjacent the end of the latter aforesaid, toggle linkage controlled by the movement of said heading die toward the stock for moving said forming dies into engagement with the stock, and rotatable means for gripping portions of the stock adjacent the forming dies operable upon rotation to shear the fashioned end portion of the stock from the remaining portions of the latter.

9. In a machine for fashioning nipples from wire stock, the combination of an axially movable heading die engageable with one end of the stock to head the same, a plurality of radially movable dies engaging the sides of the stock adjacent the end of the latter aforesaid, means controlled by the movement of the said heading die toward the stock for moving the radially movable dies into engagement with the stock, and rotatable means for gripping portions of the stock adjacent the forming dies and operable upon rotation to shear the fashioned end portion of the stock from the remaining portions of the latter.

10. In a machine for fashioning nipples from wire stock, the combination of a plurality of radially movable die members engageable with a portion of the stock to fashion the same, and means operable subsequent to the forming operation and while said dies are in engagement with the portion aforesaid of the stock to effect relative rotation of the latter portion and unfashioned portion for severing the former from the latter.

11. In a machine for fashioning nipples from wire stock, the combination of an axially movable heading die engageable with one end of the stock, a plurality of radially movable forming dies engageable with the stock adjacent the end aforesaid of the latter, means for moving said heading and forming dies into engagement with the aforesaid portions of the stock, and means operable subsequent to the forming operation and while said dies are in engagement with the end portion of the stock to effect relative rotation between the latter and unfashioned portions of the stock to shear the former from the latter.

In testimony whereof I affix my signature.

EDWARD W. STOLER.