E H. SCOTT.

ROLLS FOR SHEET METAL FORMING MACHINES.

APPLICATION FILED MAY 16, 1921.

1,415,408. Patented May 9, 1922.

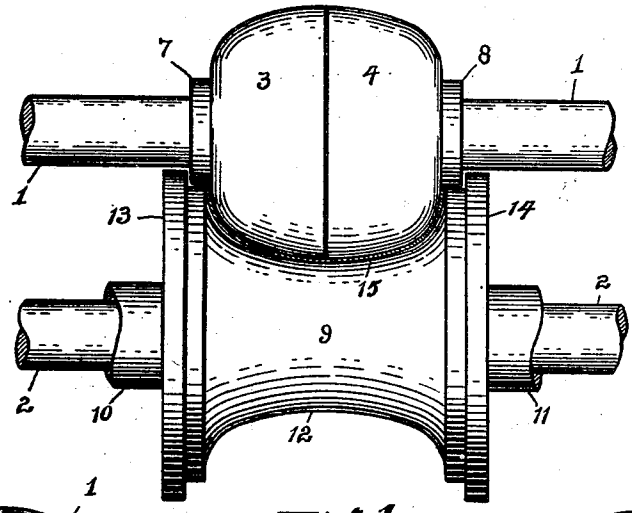


Fig. 1.

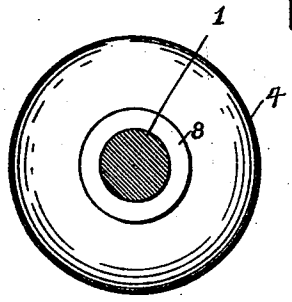


Fig. 3.

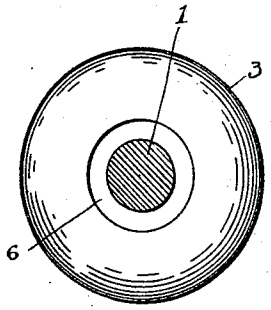


Fig. 4.

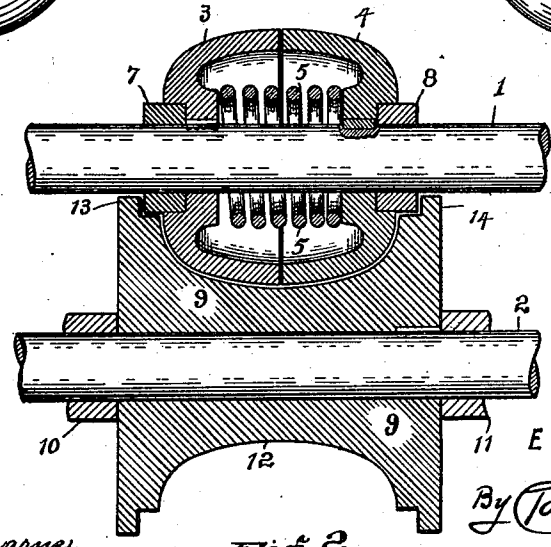


Fig. 2.

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UNITED STATES PATENT OFFICE.

E HARRISON SCOTT, OF RICHMOND, INDIANA, ASSIGNOR TO JOHNSON AUTOMOBILE SHEET METAL WORKS, OF RICHMOND, INDIANA, A CORPORATION OF INDIANA.

ROLLS FOR SHEET-METAL-FORMING MACHINES.

1,415,408. Specification of Letters Patent. Patented May 9, 1922.

Application filed May 16, 1921. Serial No. 469,964.

To all whom it may concern:

Be it known that I. E HARRISON SCOTT, a citizen of the United States, residing in the city of Richmond, in the county of Wayne, State of Indiana, have invented certain new and useful Improvements in Rolls for Sheet-Metal-Forming Machines, of which the following is a full, clear, and comprehensive specification and exposition, being such as will enable others to make and use the same as intended.

This invention is intended particularly to be included in a machine for forming sheet metal fenders for automobiles or the like, wherein sheets of metal are given longitudinal curves and cross sectional curves, and also forming marginal flanges.

The object therefore of this particular invention is to provide means whereby the sheet of metal being formed will be guided in a direct line and prevented from slipping or working laterally, thereby insuring a more perfect and uniform product and that with less labor and attention devoted thereto.

Other minor objects and particular advantages of the invention will suggest themselves to a mechanic in the course of the following description, and that which is new and useful will be set out in the appended claims terminating this specification.

One method for carrying out the principles of my invention in a practical and efficient manner is shown in the accompanying drawings, in which—Figure 1 is a front elevation of a pair of rolls, with which my present invention is incorporated. Figure 2 is a vertical central section of the parts shown in Fig. 1. Figure 3 is an end elevation of the upper roll, also showing one of the collar bearings. And Figure 4 is an end elevation of the upper roll, the collar bearing omitted, and showing the cavity for the collar bearing.

Similar indices denote like parts throughout the several views.

I will now take up a detailed description of the construction and the operation of my invention, wherein I will set forth the several features as fully and as comprehensively as I may.

Referring now to the drawings in detail: Numerals 1 and 2 denote the two shafts which in practice are included in a sheet metal forming machine whereby said shafts may be revolved by power, and they are adapted to move toward and from each other in order to separate the rolls or to bring them into resilient contact with each other.

Secured on the shaft 1 is the male roll which is composed of the two identical members 3 and 4 which are adapted to be spaced resiliently apart by means of the spring 5, thereby forming an expansion roll, as shown in Fig. 1 of Letters Patent No. 1,360,450, dated Nov. 30, 1920, however the present invention may be employed equally well when said roll is formed solid or in one piece, or as shown in Fig. 4 of said patent.

Formed in the ends or outer faces of the male roll, that is in the ends of the members 3 and 4, are the cavities 6, which cavities surround the shaft 1 and are concentric therewith.

Numerals 7 and 8 denote the collar bearings, the same being revolvably mounted in their respective cavities 6, and they are also free to revolve on the shaft 1.

Numeral 9 denotes the main or body portion of the female roll, the same being secured on the shaft 2, said roll 9 being retained in proper position by the bearings 10 and 11.

The face of the male roll is formed convex, while the face of the female roll is formed concave, as indicated by numeral 12, the said faces being formed of the same curvature whereby they may contact longitudinally at every point from the collar 7 to the collar 8, at which points the periphery of the roll 9 extends out in an axial direction parallel with and adapted to contact with the collars 7 and 8, substantially as shown.

Superimposed on each end of the roll 9 are the flanges 13 and 14 which almost contact with the respective collars 7 and 8 and with the shaft 1, and by which the collars 7 and 8 are retained in operative position in their respective cavities 6.

In practice the sheet metal 15 to be operated upon is first cut of such width as to extend from near the collar 7 to near the collar 8 in its completed form, being located between the male and the female rolls, as shown in Fig. 1. The edges of the sheet metal 15 will thus at all times be adapted to

contact with the collars 7 or 8, thereby preventing the metal 15 from twisting or moving sidewise, but causing it to travel in a straight course through and between the rolls, thereby accomplishing the object of this invention.

It is intended that the collars 7 and 8 be of hardened steel, in order that they will not be affected by the edges of the metal 15 contacting therewith. It should also be observed that the collars 7 and 8 are seated in the ends of the roll in order that no joint will be formed into which the edges of the metal 15 might enter.

It is to be understood that various changes may be made in the construction and in the arrangement of parts without departing from the spirit of the invention and without sacrificing any of the advantages thereof which are new and useful.

Having now fully shown and described my invention, what I claim and desire to secure by Letters Patent of the United States, is—

1. In combination with a shaft, a roll adapted to revolve with the shaft, a collar rotatably mounted in each end of the roll and each collar being also rotatably mounted on said shaft.

2. In combination with a sheet metal roll, a shaft extending centrally through said roll, a collar mounted in each end of said roll and around said shaft and extending outward beyond the ends of the roll and being free to revolve on the shaft and also being free to revolve independently of the roll.

3. A convex roll, a concave roll nesting therewith, a shaft for each of said rolls, there being a socket formed in each end of the convex roll and concentric of the shaft thereof, a collar-bearing rotatably mounted in each of said sockets and adapted to have the edges of the sheet material which passes between said rolls to engage therewith to guide said material between the rolls, all substantially as shown and described.

In testimony whereof I have hereunto subscribed my name to this specification in the presence of two subscribing witnesses.

E HARRISON SCOTT.

Witnesses:
E. F. KLEHFOTH,
ROBT. W. RANDLE.