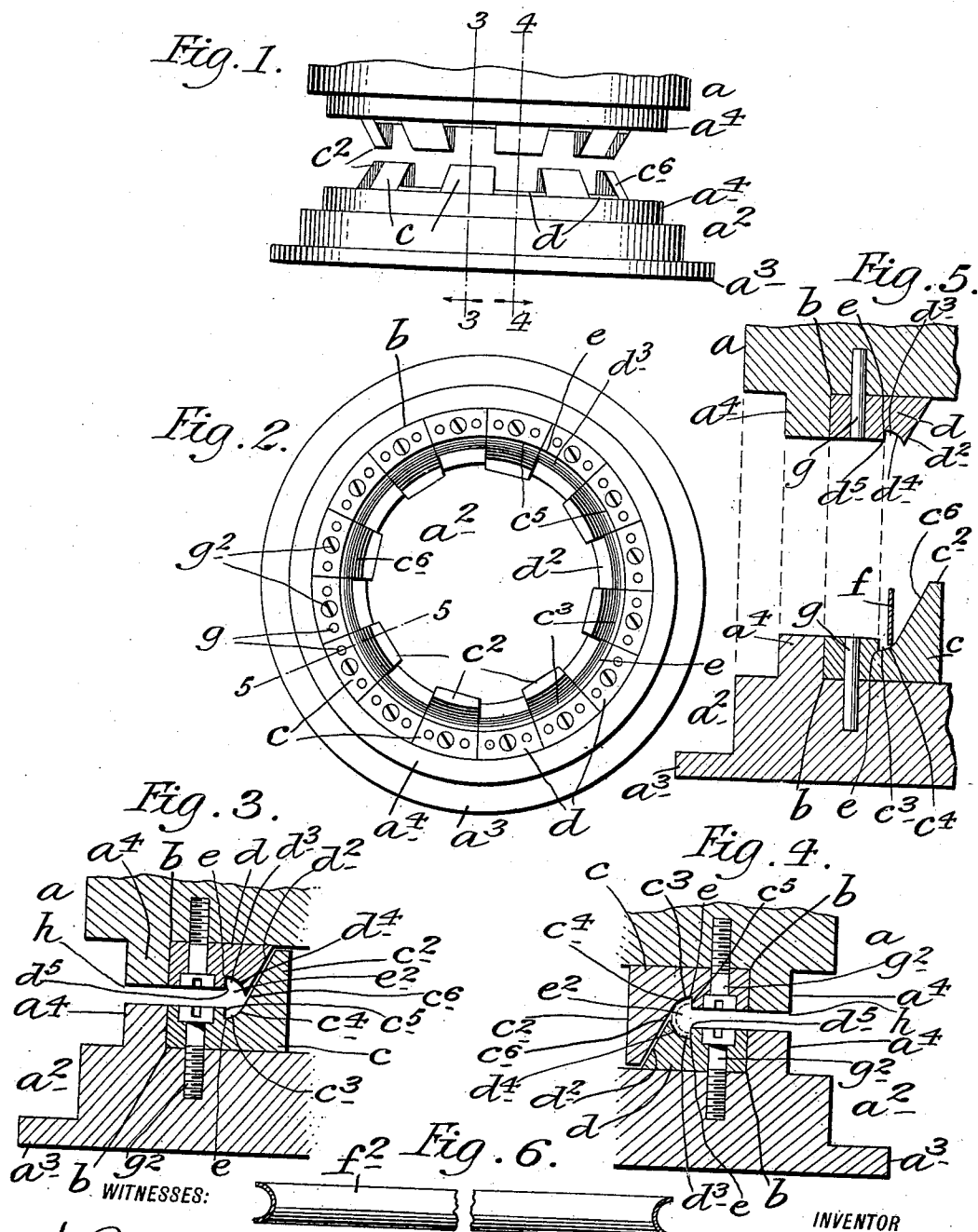


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DIE.
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To all whom it may concern:

Be it known that I, MAURICE LACHMAN, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Dies, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to dies and particularly to devices of this class designed for forming rims for wheels, said rims consisting of strips of metal of predetermined length formed into rings by welding the ends of said strips together; and the object of the invention is to provide a die by means of which said rings may be grooved annularly or made concavo-convex or U-shaped in cross section; a further object being to provide a device of the class described particularly designed for use in making or forming rims for the wheels of go-carts, baby carriages and other small vehicles, and which may also be used, if desired, in making rims for wheels of larger vehicles such as automobiles, carriages and like vehicles.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a side view of a die involving my invention and consisting of top and bottom parts, said dies being circular in form; Fig. 2 a plan view of the bottom part of the die shown in Fig. 1; Fig. 3 a partial section on the line 3—3 of Fig. 1; Fig. 4 a partial section on the line 4—4 of Fig. 1; Fig. 5 a partial section on the line 5—5 of Fig. 2, and showing both parts of the die, and;—Fig. 6 a transverse sectional view of the rim of a wheel formed or shaped by means of the die shown in Fig. 1.

In the practice of my invention I provide a die of the class specified comprising top and bottom members a and a^2 , and in practice the top member a is made vertically movable, but the parts of the machine in which this die is used are old and well-

known and form no part of this invention, and the means for operating the die or the top part thereof and for securing the bottom part of said die in position are therefore not shown and described.

The bottom part a^2 of the die is provided with a flange or rim a^3 by which, in practice it may be secured to a bed or support which forms a part of the machine in which the die is used, and the said parts a and a^2 of the die are provided on their adjacent faces with an annular flange or rim a^4 , and in the practice of my invention I place within the annular flange or rim a^4 of each part of the die an annulus b consisting of radially arranged and inwardly tapered blocks c and d , and as the annulus b in each part of the die is of the same construction a description of one of said parts of the die or the annulus b therein will be sufficient for both of said parts.

The blocks c of the annulus b in the bottom part of the die are provided at their inner ends with an upwardly directed projection c^2 , at the base of which is a transverse arc-shaped recess c^3 , the inner wall of which is segmentally curved as shown at c^4 in Fig. 3, and the outer wall of which is vertical as shown at c^5 in said figure, and the outer wall of the upwardly directed projection c^2 is inclined downwardly and outwardly to the point where it meets the segmentally curved wall of the recess c^3 as clearly shown at c^6 .

The inner ends of the blocks d of the annulus b in the bottom part of the die are inclined inwardly and downwardly as shown at d^2 in Fig. 4 and in the top surfaces of said blocks d is a transverse segmental recess d^3 which is similar in form to the recess c^3 in the blocks c , and the inner wall of the recess d^3 is segmentally curved as shown at d^4 , and the segmentally curved outer wall is slightly higher than the outer vertical wall d^5 .

From the foregoing description it will be seen that the blocks c and d which form the annulus b in both parts of the die are exactly of the same form and construction, the only difference being that the projection c^2 of the blocks c of the annulus b of the top part of the die extend downwardly while the

projection c^2 of the annulus b in the bottom part of the die extend upwardly, and said projection c^2 , when the parts of the die are brought together as shown in Figs. 3 and 4
 5 overlap the inner ends of the blocks d as clearly shown in said figures. It will be seen that the blocks c and d are alternately arranged in both parts of the die and the blocks c in the top part of the die are directly over the blocks d in the bottom part
 10 of the die, while the blocks d in the top part of the die are directly over the blocks c in the bottom part of the die, and by reason of this construction the recesses c^3 and d^3 in the blocks c and d which form the annulus b
 15 in both parts of the die, form in the top and bottom surfaces of said parts of the die complete annular grooves e , and said grooves when the separate parts of the die are brought together form an annular recess or
 20 chamber e^2 , the inner wall of which is segmental in cross section and the outer wall of which is formed by the vertical walls c^5 and d^5 of the recesses c^3 and d^3 .

25 In practice a ring or band f composed of a flat strip of steel is placed in the annular groove e in the bottom part of the die when the top part of said die is raised, as shown in Fig. 5 and when the top part of the die
 30 is depressed, or the separate parts of the die are brought together as shown in Figs. 3 and 4 the said ring or band is compressed annularly so as to give the same a concavo-convex or U-shaped form in cross section and produce the complete ring f^2 shown in
 35 Fig. 6.

In securing the blocks c and d in position in order to form the complete annulus b in both parts of the die, said parts of the die
 40 are preferably provided with pins g on which said blocks c and d are placed and said blocks are then secured in position by screws g^2 , but my invention is not limited to any particular means for securing said
 45 blocks to the separate parts of the die and this operation may be performed in any desired manner.

With the construction shown it will be seen that there is an annular space h between the outer portions of the separate parts of the die when said parts are brought together as shown in Figs. 3 and 4 but the straight outer walls of the grooves e in the blocks c and d catch and hold the edges of
 50 the ring f from which the rim is formed and permit of said ring being enforced or compressed into the shape in cross section shown in Fig. 6.

The usual method of making grooved wheel rims of the class herein described has been to first weld the ends of the strips from which the rims are formed and then run the same through rolls to produce a rim of the desired shape in cross section. This
 65 is a slow method and is not as accurate as

that in which dies are employed. The reason for forming these rims on rolls is that it is almost impossible mechanically to get all rims welded of the same diameter, and by reason of this fact the rings from which the rims are formed, when put in a die of the usual form, do not fit in said die and this results in many breakages and uncertainties in the manufacture of rims. It is also true that when the rings from which the rims are
 70 formed come from the welder they are seldom round and are frequently not true at the point of the weld and said rings also get out of shape in handling, but with my improved die these defects do not matter, or are of no particular objection as the said rings may be easily dropped into place on the bottom die without the exercise of any particular care or skill in such operation and the descending top die forces the ring
 75 into proper position and shape and also compresses the same so as to give the rim formed from said ring the proper shape in cross section.

Having fully described my invention, 90 what I claim as new, and desire to secure by Letters Patent, is:—

1. A die composed of top and bottom parts, said parts being provided in the adjacent faces thereof with an annulus composed
 95 of separate radially arranged and removable blocks, the annulus of each part of the die being provided with an annular groove formed by transverse recesses in said blocks, the said grooves when the separate parts of the die are brought together forming an annular chamber one wall of which is arc-shaped in vertical section. 100

2. A die comprising top and bottom parts, said parts being provided in the adjacent
 105 faces thereof with an annulus composed of radially arranged blocks, the inner ends of the alternate blocks of the annulus in one part of the die overlapping the ends of the corresponding blocks in the annulus of the other part of the die when said parts of the die are brought together and the annulus of each part of the die being provided with an annular groove formed by transverse recesses in said blocks and said annular
 110 grooves when the separate parts of the die are brought together forming an annular chamber, one wall of which is arc-shaped in vertical section. 115

3. A die comprising top and bottom members, provided in their adjacent faces with an annulus composed of radially arranged blocks, the inner ends of the alternate blocks in the annulus of one part of the die being inclined and the inner ends of the corresponding part of the blocks in the annulus of the other part of the die being provided with projections which overlap said inclined ends when the separate parts of the die are brought together, the annulus in each part 120 125 130

being provided with an annular groove
formed by transverse recesses in the separate
blocks of which said annulus is composed
and said annular grooves forming when the
5 separate parts of the die are brought to-
gether an annular chamber, the inner wall
of which is segmental in cross section.

In testimony that I claim the foregoing as

my invention I have signed my name in
presence of the subscribing witnesses this 10
28th day of January 1910.

MAURICE LACHMAN.

Witnesses:

M. KELLEY,

J. W. CORRIGAN.