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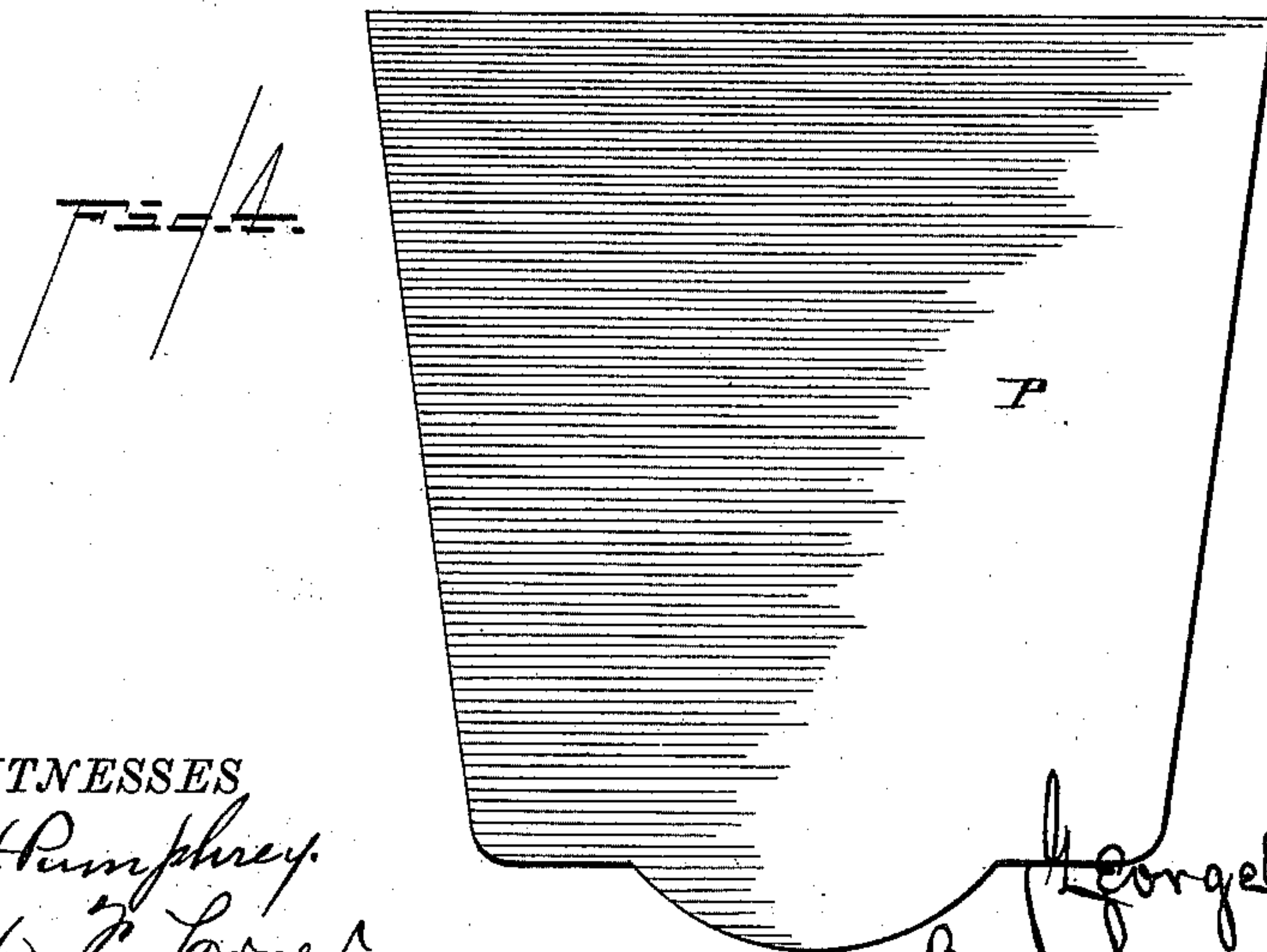
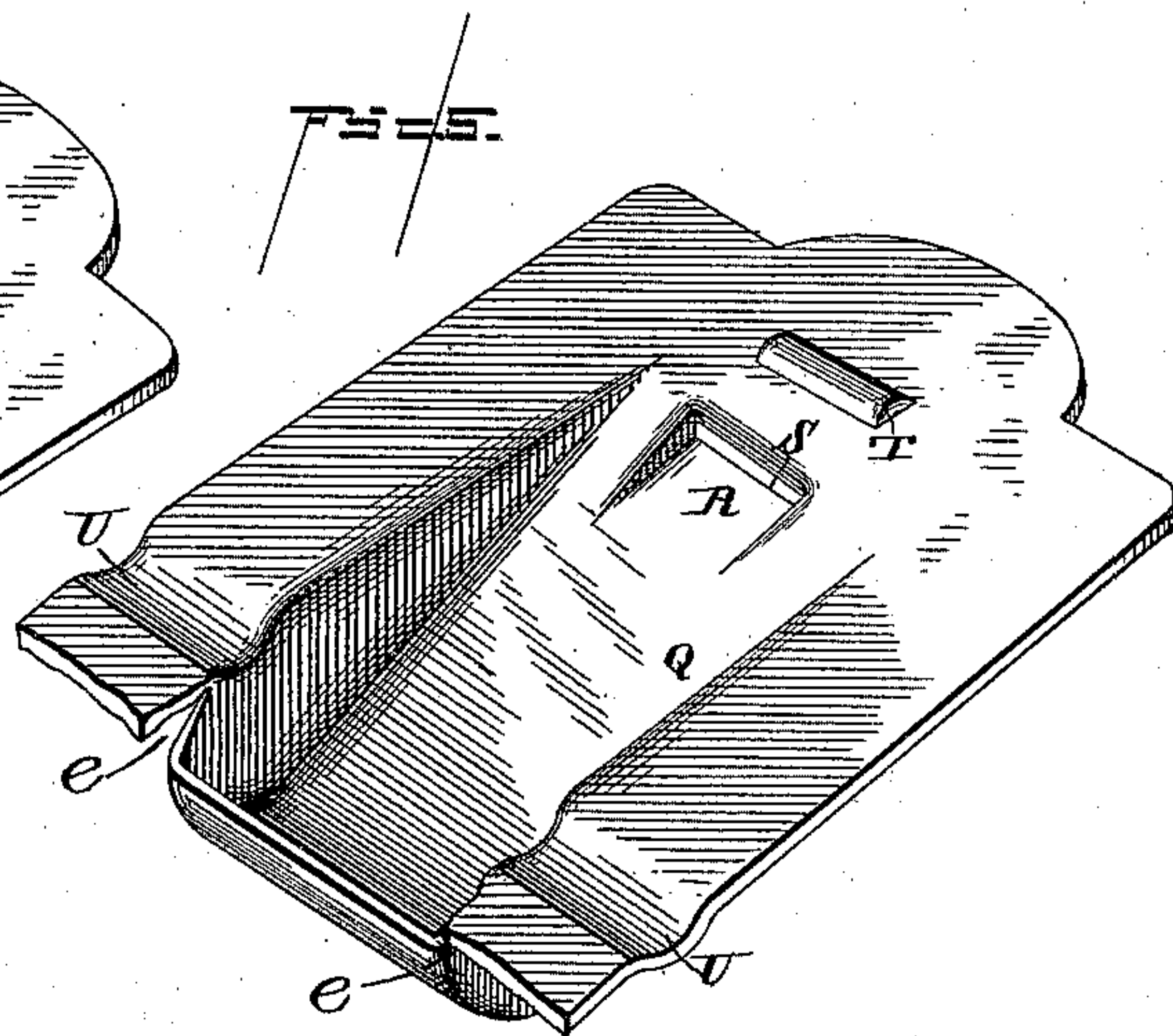
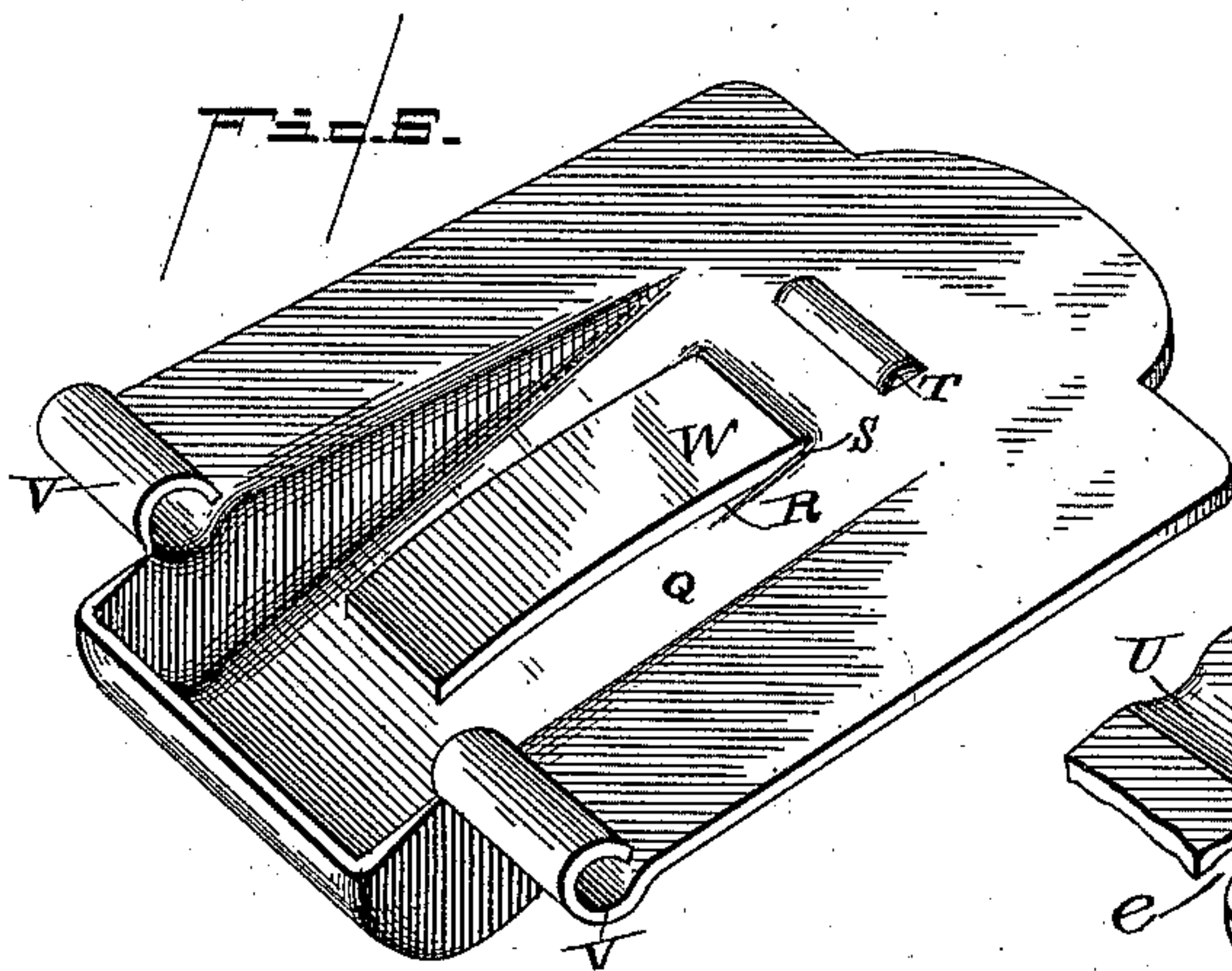
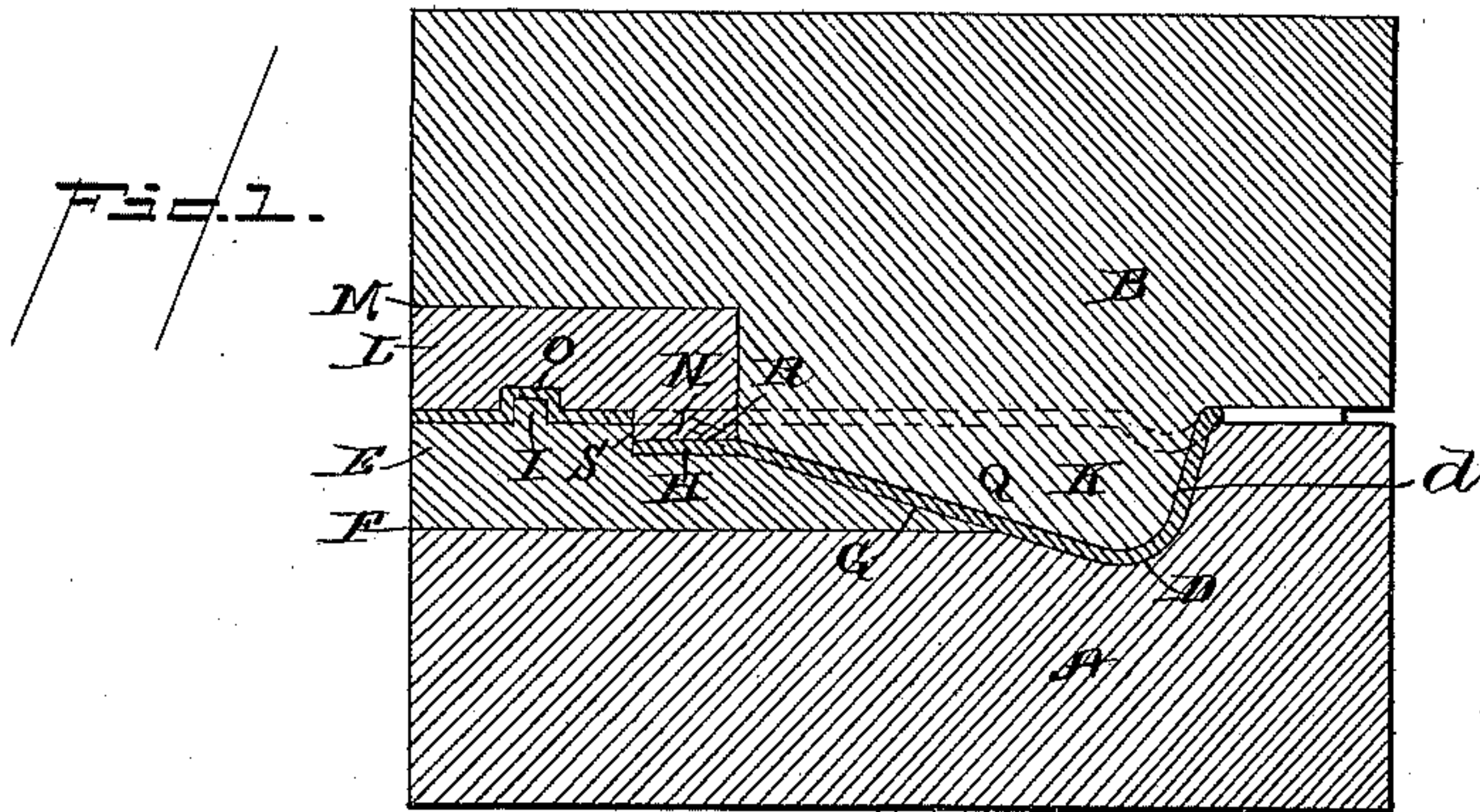
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G. W. MORRIS.

DIE FOR MAKING CAR AXLE BOX LIDS.

No. 385,194.

Patented June 26, 1888.



WITNESSES
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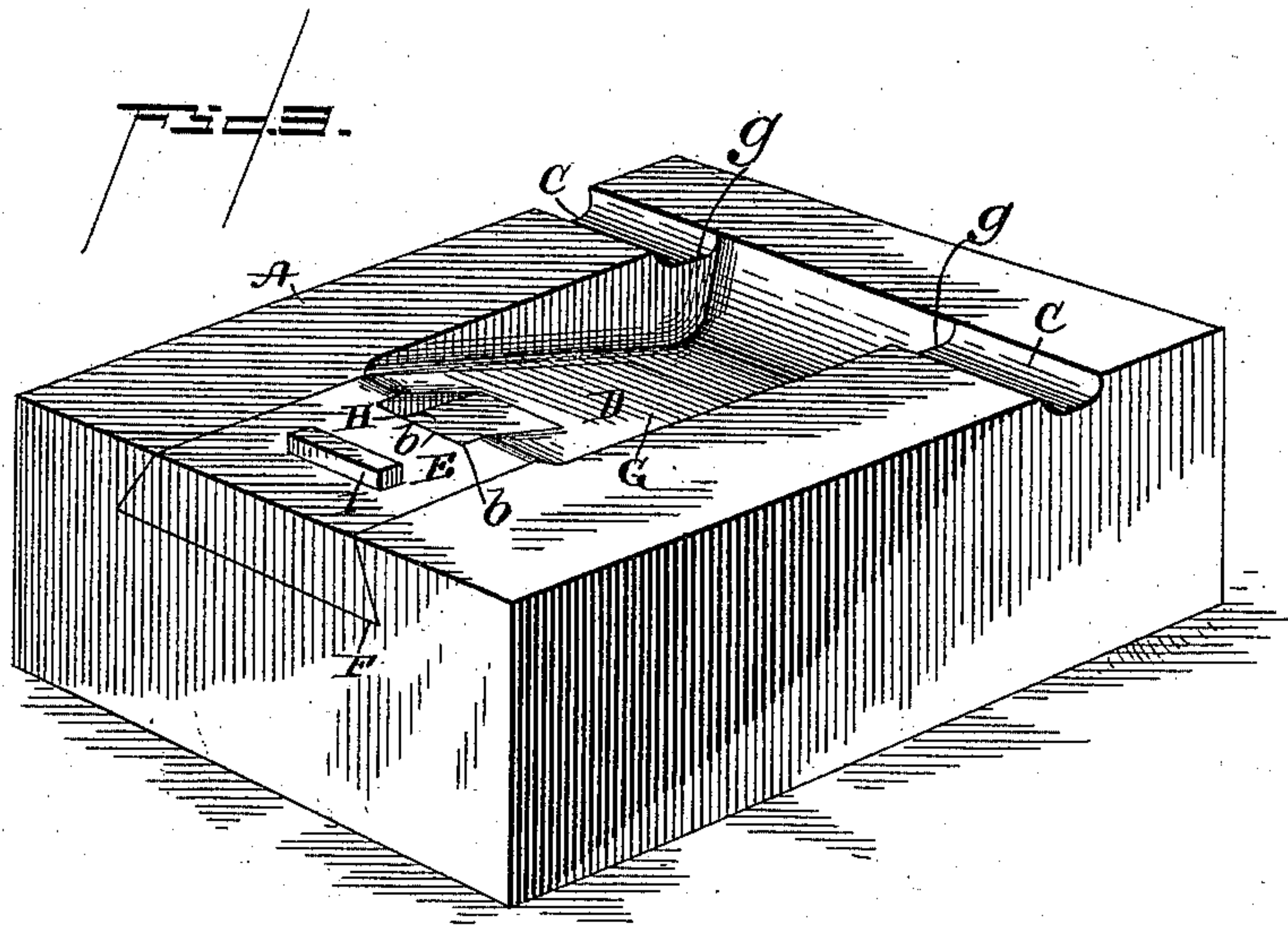
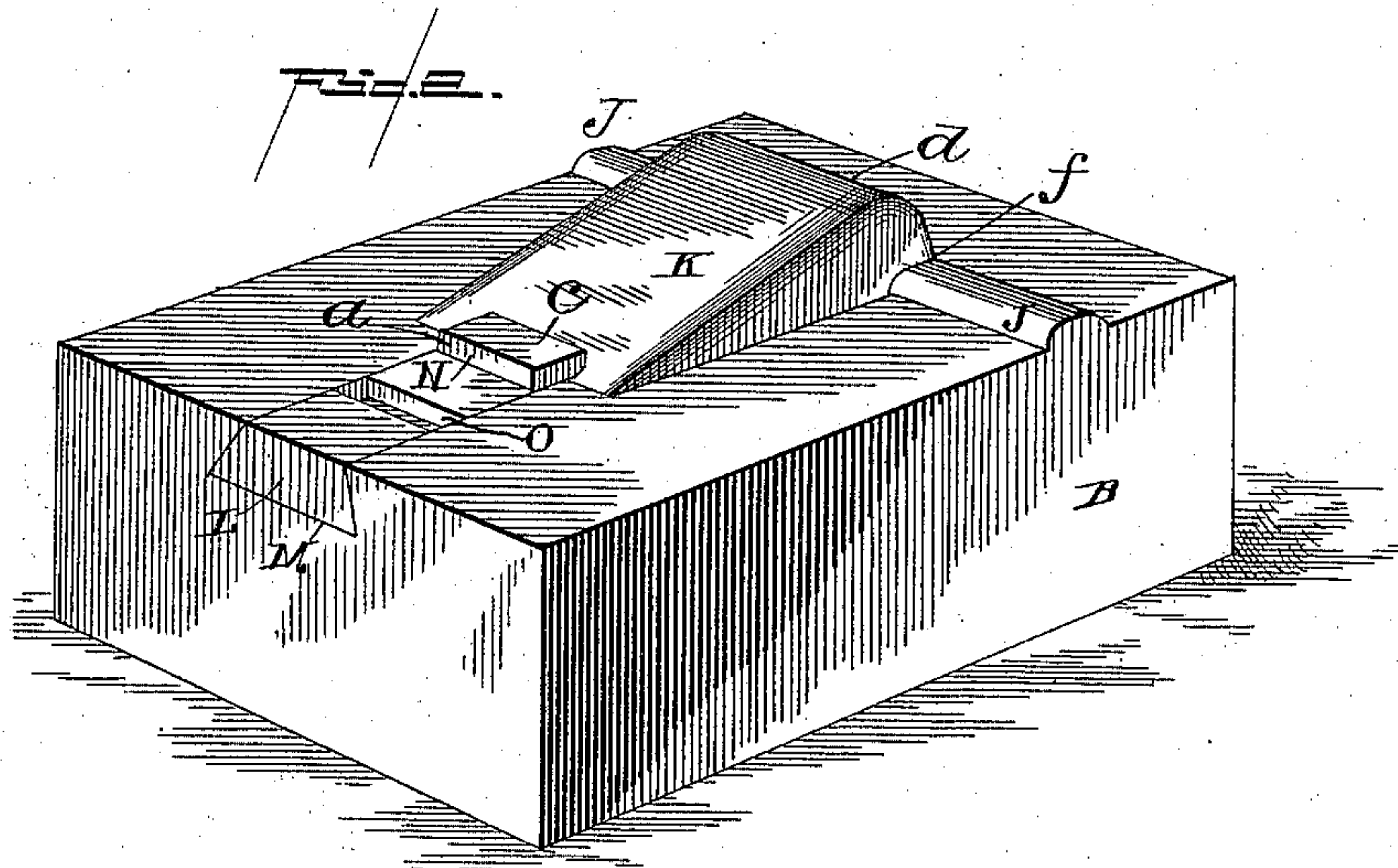
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UNITED STATES PATENT OFFICE.

GEORGE W. MORRIS, OF PITTSBURG, PENNSYLVANIA.

DIE FOR MAKING CAR-AXLE-BOX LIDS.

SPECIFICATION forming part of Letters Patent No. 385,194, dated June 26, 1888.

Application filed April 19, 1888. Serial No. 271,157. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MORRIS, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Dies for Making Car-Axle-Box Lids; and I do hereby 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.

My invention relates to dies for stamping lids for car-axle boxes from blanks of malleable metal; and it consists in the improved construction and arrangement or combination of parts of a set or pair of dies, as will be hereinafter fully disclosed in the description, drawings, and claims.

The objects of my invention are, first, to provide dies for stamping a blank of malleable metal into a car-axle-box lid having an inclined bulge or swell at its upper portion, hinge-eyes at the sides of said swell, and a channel or passage and a slot or recess at the lower portion of said bulge or swell, and, second, to provide removable and interchangeable blocks for the portions of the dies which are most subjected to wear, and which it may be desirable to change for the purpose of changing the style of channel and recess or slot in the lid at the lower portion of the bulge in the same.

In the accompanying drawings, forming a part of this specification, and in which the same reference-letters indicate the same parts, Figure 1 represents a vertical section of the two dies in operative position, showing a stamped lid in position between them; Fig. 2, a perspective view of the upper relief-die; Fig. 3, a similar view of the lower intaglio-die; Fig. 4, a view of the blank for the lid; Fig. 5, a view of the lid as it leaves the dies; and Fig. 6, a view of the finished lid, showing the spring in position in the lid.

In the drawings, the letter A indicates the lower or intaglio die, and B the upper or relief die. Said lower die is formed with a transverse groove, C, near the edge, which I will call the "top" edge, on account of the top or upper edge of the lid being formed near said edge of the die. A recess, D, which increases in depth toward the top edge, is formed in the

middle of the die, and has the deepest side in a line with said groove C, which at that point merges into said recess. A dovetailed block, E, is inserted into a correspondingly-dovetailed recess, F, in the face of the die, said recess extending from the front side of the die, and the inclined inner side, G, of said block forms a portion of the inclined bottom of said recess D. A rectangular recess, H, is formed in the face of said block at the point where the inclined side merges into the level face of the block, and a transverse rectangular lug or rib, I, is formed upon the face of said block between said recess H and the front or bottom edge of the die.

The upper or relief die, B, is formed near the top edge with a transverse rib, J, which corresponds to the transverse groove of the intaglio die, and a swell or bulge, K, corresponding to and registering with the recess D in the intaglio die, is formed upon the face of said relief-die.

A dovetailed block, L, is inserted from the front side of the relief-die in a correspondingly-dovetailed recess, M, in said die, and the face of said block is formed with a rectangular projection, N, which registers with the recess H in the removable block of the intaglio-die and merges into the inclined face of the swell or bulge K, and with a transverse rectangular groove or recess, O, which registers with the rectangular lug or rib I upon the removable block of the intaglio-die.

In practice the blank P, which is shown in Fig. 4 of the drawings, and which is wider at the upper portion than at the lower portion, is placed upon the face of the lower or intaglio die with its top edge at a line a short distance above the transverse groove. The upper or relief die is thereupon pressed down upon said blank and die by any suitable press or other means, and the portions in relief on one die will force the blank into the registering intaglio, so that the blank will assume a shape corresponding to the shape of the faces of the dies. On account of the blank being wider at the top, allowance in metal will be made for the swell, and the side edges of the finished lid will be parallel, as shown in Figs. 5 and 6 of the drawings.

The lid as stamped by the dies will have

an inclined swell, Q, a channel or passage, R, having a slot, S, at the lower end, and a slot or recess, T, below said channel. Corrugations U will be formed at the upper edge of the lid at both sides of the swell by the transverse groove and rib in the dies, and when the lid is finished the edges of said corrugations are turned over, so as to form complete hinge-eyes V, as shown in Fig. 6. The flat spring W is inserted through slot S and channel R, and has a lip at its end, which fits into the slot or recess T. When it is desired to cut said recess T through the lid to form a slot, the rib I and groove O are of nearly the same size, so that their edges will shear the metal, while, when it is desired only to have a recess, the groove O is larger than the rib I, so that said rib will only press the metal into said groove without cutting it.

It will be obvious that on account of the projection or ribs and grooves or recesses in the faces of the dovetailed blocks E and L said blocks will be subjected to more wear than the other parts of the dies, and for this purpose said parts of the dies are formed upon and in the detachable blocks, so that they may be renewed, while the remainder of the dies may be retained. It may also be desirable to change the character of said projections or ribs and grooves or recesses without changing the remaining parts of the dies, and such changes may thus be made without the trouble and expense incident to the making of new dies or altering the entire dies.

Referring to the surface projection N, it will be understood that the edged side *a* and the edged side *b* of the registering recess H should have such relation as that their edges will make a shearing cut when the die parts are brought together, as seen in Fig. 1, to form the slot S in the lid, while the other edge, *c*, of said projection N has such relation to the inclined surface K as to make the passage R in the lid leading from said slot S coincident with the incline Q of the swell in the lid, so as to give a clear way for the insertion of the plate-spring W, as shown in Fig. 6. For this purpose the bulge K must be of a width greater than the length of the said shearing die-edge *a*. It will also be understood that the groove C in the die part A should have such relation to the end of the swell K of the die part B and to the deepest part of said recess D as that the said groove will intersect and open into the said recess D at each of its side walls, as seen in Fig. 3, so that the swell end *d* and the sides of the recess D will co-operate to shear the metal to form the cuts *e* in the lid, as seen in Fig. 5, to permit the forming of the eyes V, as seen in Fig. 6. For this purpose the surface ribs J of the die part B join the sides at *f* of the swell K at its end *d*, so as, in connection with the inner ends, *g*, of the grooves C C, to form the shears for the cuts *e* in the end of the lid.

Application for Letters Patent for the car-axle-box lid produced by means of the dies

herein described, shown, and claimed has been filed of even date herewith under Serial No. 271,158.

Having thus fully described the construction and arrangement or combination of my improved dies, what I claim as new is—

1. A pair of dies for stamping car-axle lids, comprising an intaglio-die, A, formed with a transverse groove, C, near its top edge, a recess, D, at its middle, having a bottom inclined downward toward said top edge, a rectangular recess, H, at the point at which said inclined bottom merges into the face of said die, and a projection or rib, I, upon the face of the die between said recess H and the front edge of said die, and a relief-die, B, formed with a transverse rib, J, corresponding to and registering with said groove C in the intaglio-die, an inclined bulge, K, corresponding to and registering with said inclined recess D in the said die, a rectangular block or projection, N, corresponding to and registering with said rectangular recess H in said die, and a groove or recess, O, corresponding to and registering with said projection or rib I of said die, substantially as described, for the purpose specified.

2. The die herein described, consisting of the two flat-faced parts A and B, the part A having a central longitudinal recess, D F, intersected at one end by transverse surface grooves C C and closed at its other end by a removable part, E, having a surface, C, inclining downward to a feather-edge coincident with the bottom of said recess D F, a surface recess, H, having a shearing-edge, *a*, its bottom terminating in the inclined surface G and a surface projection, I, the other die part, B, having the inclined surface bulge K, a transverse rib, J, intersecting the inclined bulge at its end of greatest surface projection, a recess, M, intersecting the bulge at its feather-edge, closed by a removable part, L, having a surface projection, N, intersecting the feather-edge of said bulge and having a shearing-edge, *b*, and the groove or depression O, substantially as described, for the purpose specified.

3. The combination of the intaglio-die A, which is formed with the transverse groove C, inclined recess D, and dovetailed recess F, and the relief-die B, which is formed with the transverse rib J, the inclined swell or bulge K, and the dovetailed recess M, with the dovetailed block E, which is formed with the inclined side G, rectangular recess H, and transverse rectangular rib I, and the dovetailed block L, which is formed with the rectangular projection N and the transverse rectangular groove or recess O, substantially as and for the purpose described.

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

GEO. W. MORRIS.

Witnesses:

PATRICK COSTILLO,
JAS. F. SWEENEY.