

(No Model.)

D. S. LUCE.

HINGE.

No. 396,660.

Patented Jan. 22, 1889.

Fig. 1.

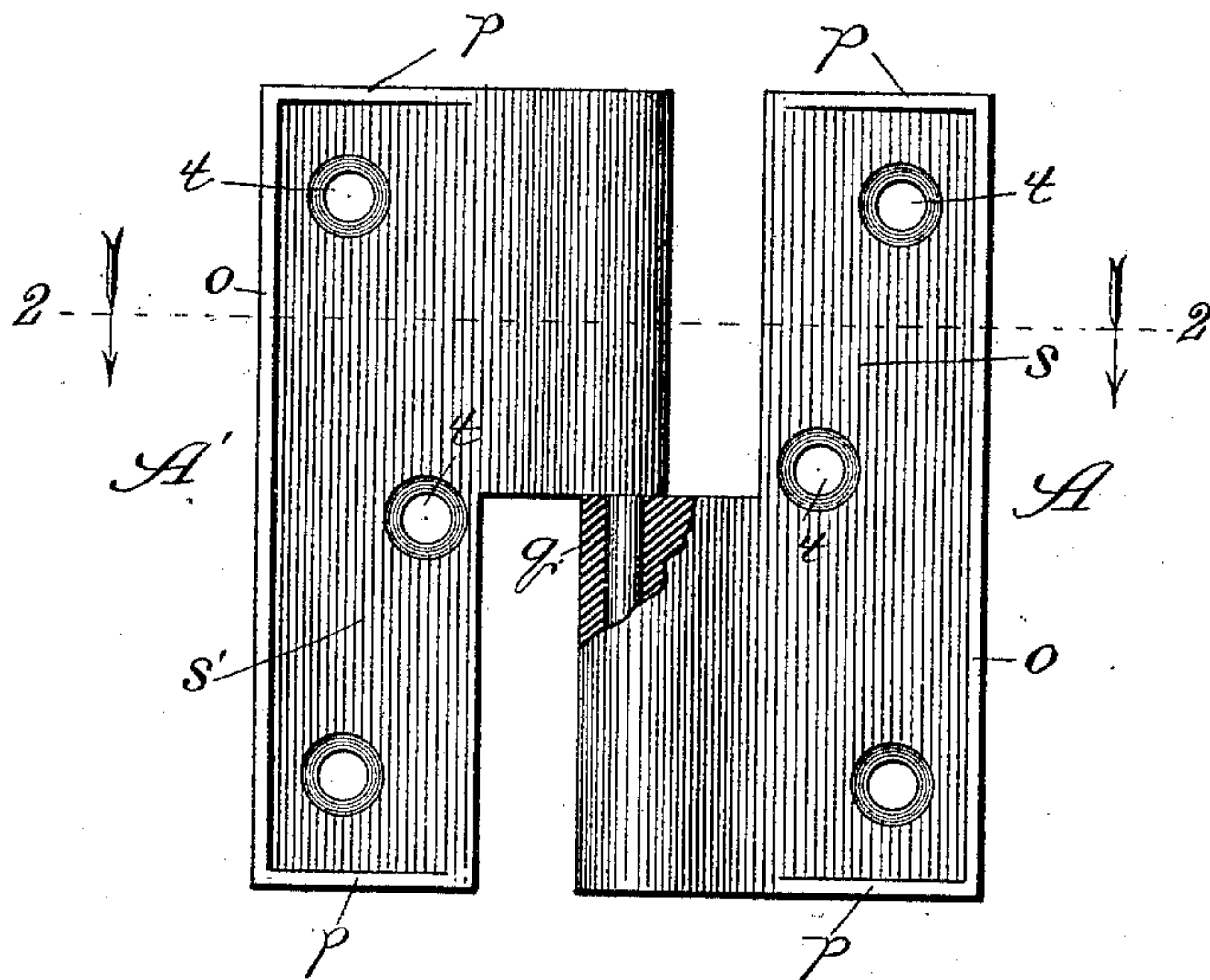
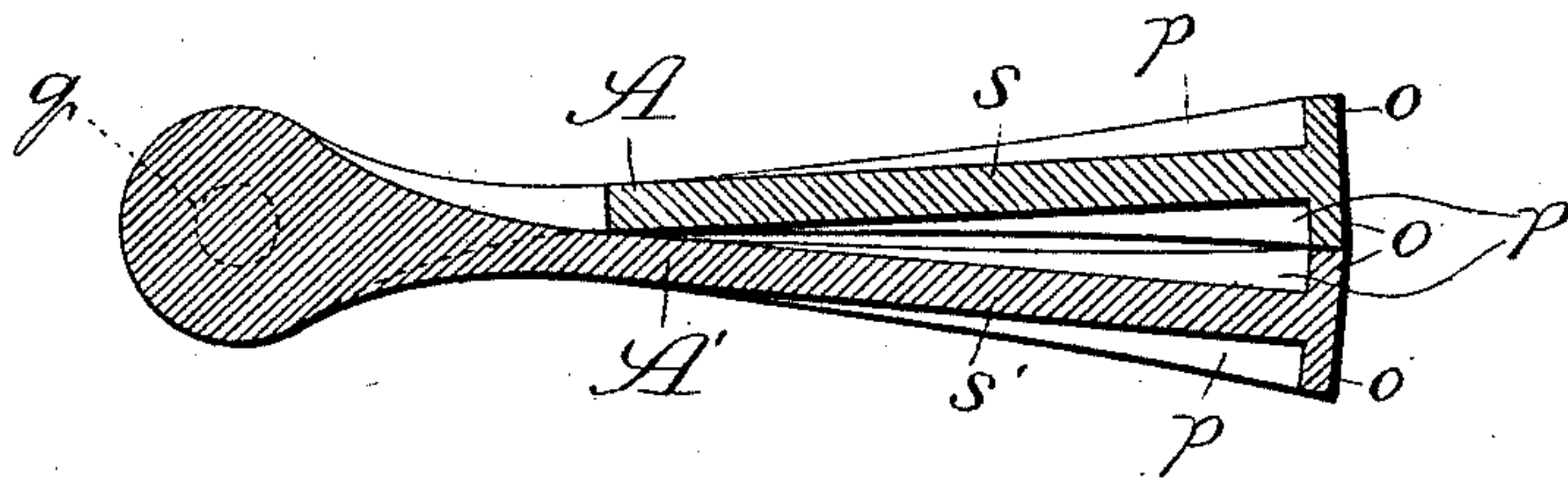


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

DAVID S. LUCE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO WALTER P. CONYERS, OF SAME PLACE.

HINGE.

SPECIFICATION forming part of Letters Patent No. 396,660, dated January 22, 1889.

Application filed October 11, 1888. Serial No. 287,827. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. LUCE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Hinges, of which the following is a specification.

My invention relates to improvements in what are known as "loose-butt hinges," and more especially to the variety in which one of the two leaves which compose the hinge forms a support for the other, being provided at its knuckle with a rigid pin, which fits closely a socket in the knuckle of the other leaf and affords an axis for the latter to swing upon. In the hinges of the latter variety in common use the leaf of each butt is at a tangent to the knuckle which it carries, such a construction being necessary with the form of the leaves employed to enable the latter to fold against each other. The main objection to such a construction lies in the fact that as in the hanging of a door it is always desirable that the butt carrying the pin or the supporting-butt be secured to the jamb and the other butt to the door it becomes necessary to provide two kinds of hinges for use, respectively, upon right-hand and left-hand doors. In the variety known as "loose-pin butt-hinges" the objection to two kinds for right and left hand purposes are, as is well known, overcome; but loose-pin hinges, besides being necessarily more expensive to manufacture than the tight-pin variety, are objectionable in some cases—as, for instance, for outdoor use, where the rusting of the pins frequently prevents their withdrawal when it becomes desirable to separate the leaves.

The object of my invention is to provide a loose-butt hinge the leaves of which will fold flat against each other in either direction, whereby it is equally adapted for use in connection with either right or left hand doors; and it is further my object to provide such a hinge possessing all the advantages of ordinary loose-butt hinges in the way of simplicity of construction and strength.

To this end my invention consists in a hinge comprising two butts with the usual knuckle-and-pin connection, the opposite surfaces of

each butt forming divergent and substantially radial planes, of which the axial line is the center—that is to say, the opposite faces, if produced, would meet in the axis of the hinge.

In the drawings, Figure 1 is a view in elevation of my improved hinge, showing it open and partly broken away; and Fig. 2, a sectional end view of the same enlarged and folded.

A and A' are the butts, having the usual screw-holes, *t*, A being the supporting-butt carrying the rigid pin *q* to enter a socket in the other butt, as in ordinary tight-pin hinges, the leaves of the butts A A', instead, however, of projecting tangentially to the knuckles, extending in a direct line from the centers of the latter, which form the axial line of the hinge. To cause the butts to fold against each other, the opposite surfaces of the leaves are provided at their outer edges with flanges *o* and at their ends with flanges *p*, which latter diverge, preferably, equally as they extend to form substantially-radial planes, of which the axial line is the center.

Of course if the entire opposite surfaces of each butt were made divergent they would in a measure answer the desired purpose; but I prefer to have the required divergence produced only by projections formed on the butts, the faces of the latter, to save metal, being recessed, thus leaving the projections. As shown in the drawings, substantially-radial flanges *p* are formed at the ends of the butts, and flanges *o* are formed at the outer edges of the butts of equal height with the outer ends of the flanges *p*.

The object sought being to have the opposite faces of both the butts occupy similar divergent or substantially-radial planes when folded, any form of projection from the opposite surfaces of flat plates which will cause this effect is within the spirit of my invention. The form of projections illustrated in the drawings and above described—that is to say, the marginal flanges *o* and *p*, either or both—is, however, the form preferred.

I may use either or both of the marginal flanges *o p*, or their equivalents, for my purpose, and I do not wish to be understood as limiting myself to a construction of my claims

which would confine my invention to the use of both marginal flanges or equivalent projections therefor.

In applying the hinge to a door the butts are set into the door and jamb to cause the edges of the flanges *o p* of each butt to lie substantially flush with the surface into which it is sunk. Thus as the two butts fold against each other the said surfaces come into contact, permitting the door to close tightly.

It is only necessary that the outer edges of the butts or edges parallel to the axis should come into contact at their flanges *o* when the hinge is folded. I prefer, therefore, to concave the diverging flanges *p*, to cause them to curve slightly away from the direct radial lines, as shown in Fig. 2, to create an intervening space when the leaves are folded between the contiguous flanges *p*, and thereby prevent any tendency to bind.

The screw-holes *t* are countersunk on opposite sides to receive the heads of screws on either side of the butts.

My improved hinge may be applied without any change in the relation of the parts to either a right or left hand door, and requires no more surface of the casing or door to be cut away than is necessary in applying ordinary loose-butt hinges of equal strength. Moreover, the butts being necessarily set into the door and casing, respectively, at slight inward inclinations, additional security is afforded, as the outward strain exerted by the weight

of the door, instead of being altogether against the sustaining-screws, is borne partly by the inclined surfaces of the wood.

What I claim as new, and desire to secure by Letters Patent, is—

1. A hinge comprising two butts with the usual knuckle-and-pin connection, the opposite surfaces of each butt forming divergent and substantially-radial planes, of which the axial line is the center, substantially as described.

2. A hinge comprising two butts with the usual knuckle-and-pin connection, the opposite surfaces of the butts being provided with projections, as the flanges *o p*, whereby when the hinge is folded in either direction projections of the adjacent sides will meet, substantially as described.

3. A hinge comprising two butts with the usual knuckle-and-pin connection, the leaf of each butt extending in direct radial line from the axis of the hinge, and being provided along its opposite ends with curvilinearly divergent flanges *p* and on opposite sides of its outer edge with flanges *o*, whereby when the hinge is folded in either direction flanges of the adjacent sides will meet, substantially as described.

DAVID S. LUCE.

In presence of—

W. P. CONYERS,

J. W. DYRENFORTH.