

(Model.)

C. C. RICHMOND.

DOUBLE HINGE.

No. 294,809.

Patented Mar. 11, 1884.

Fig. 1.

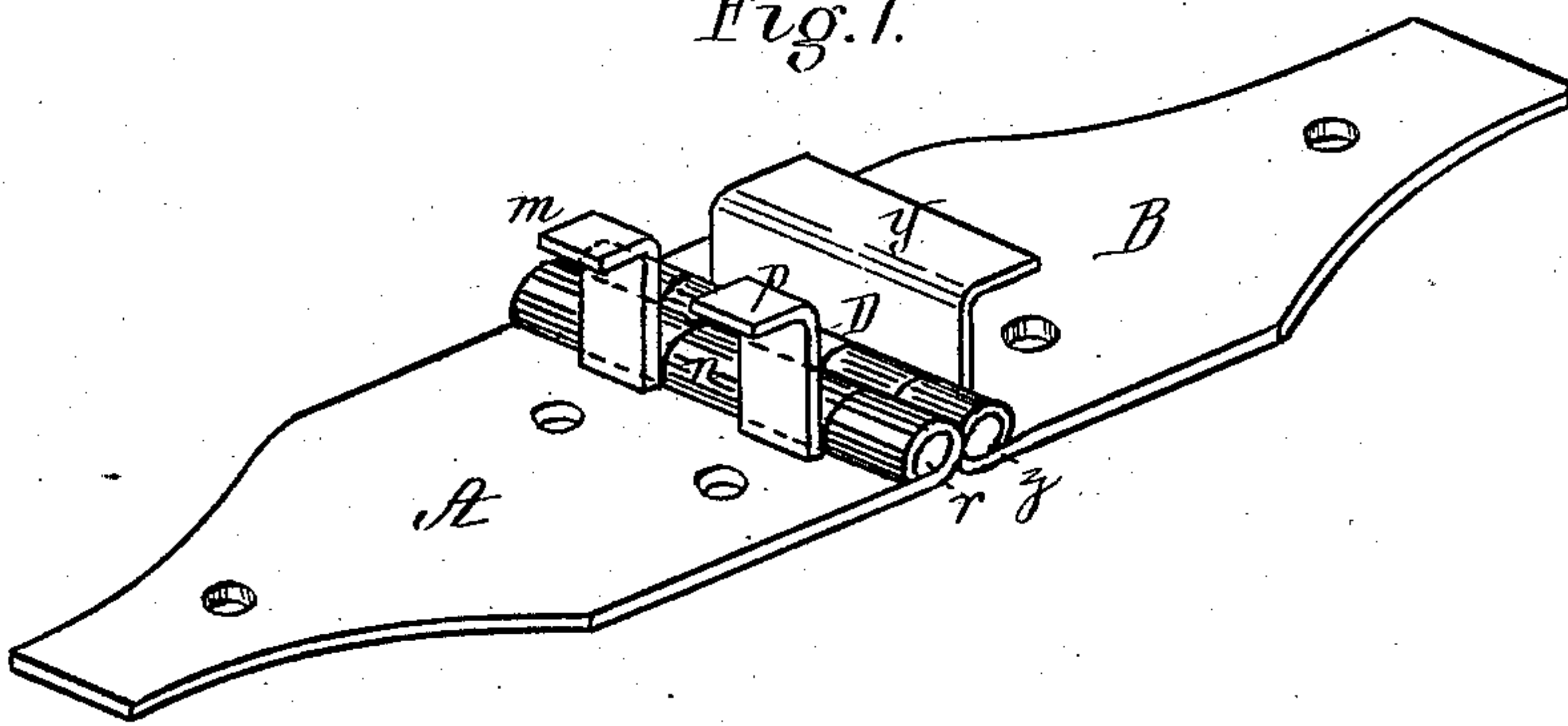


Fig. 2.

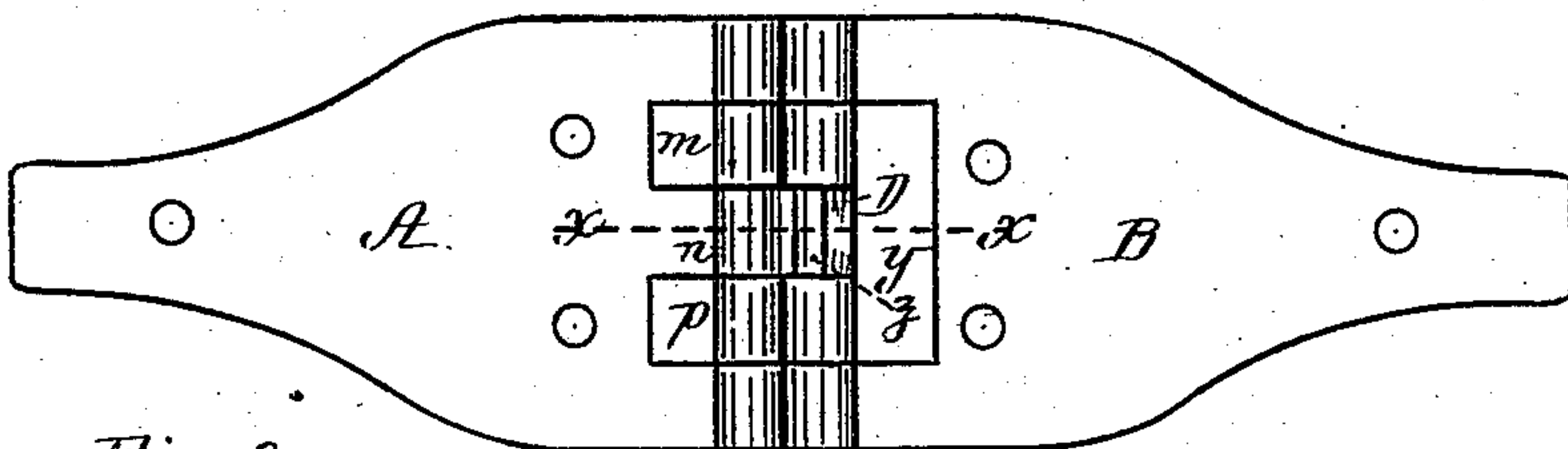


Fig. 3.

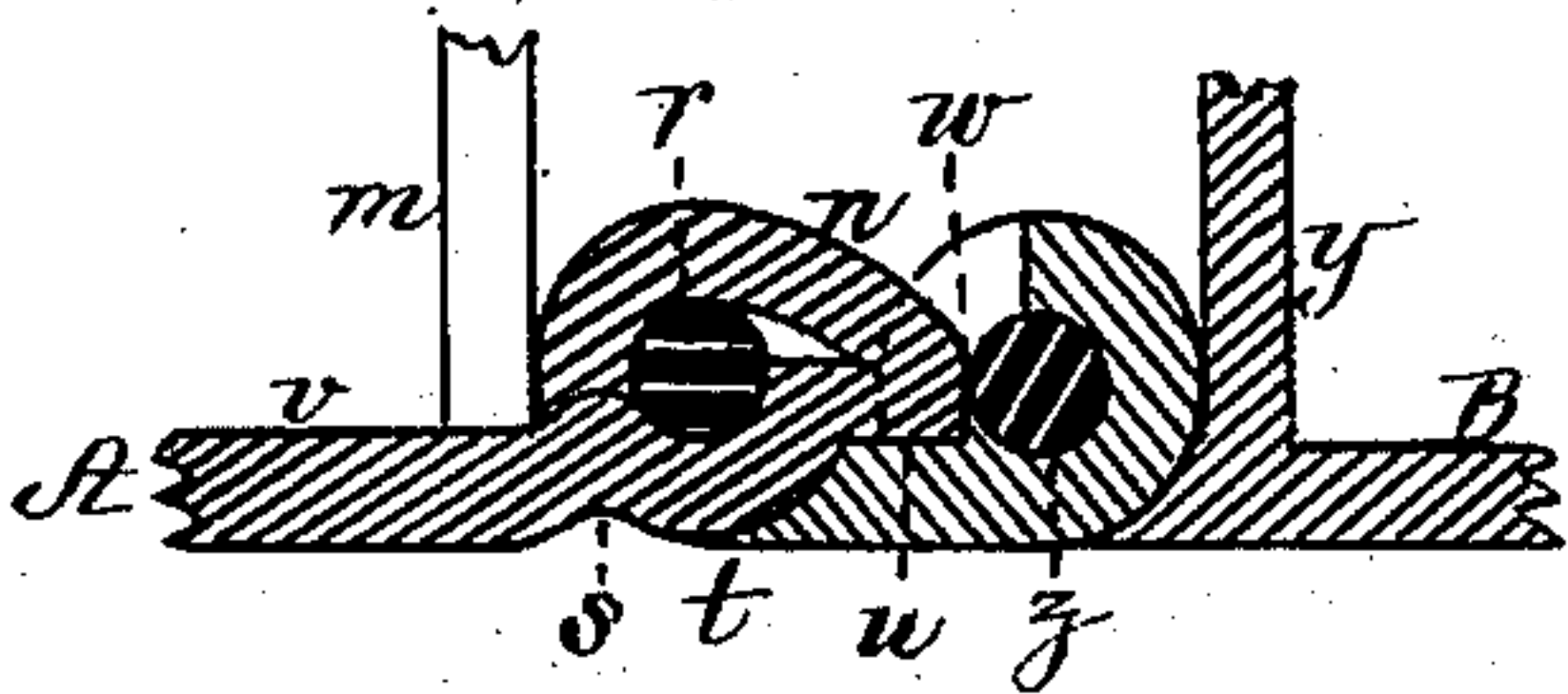


Fig. 4.

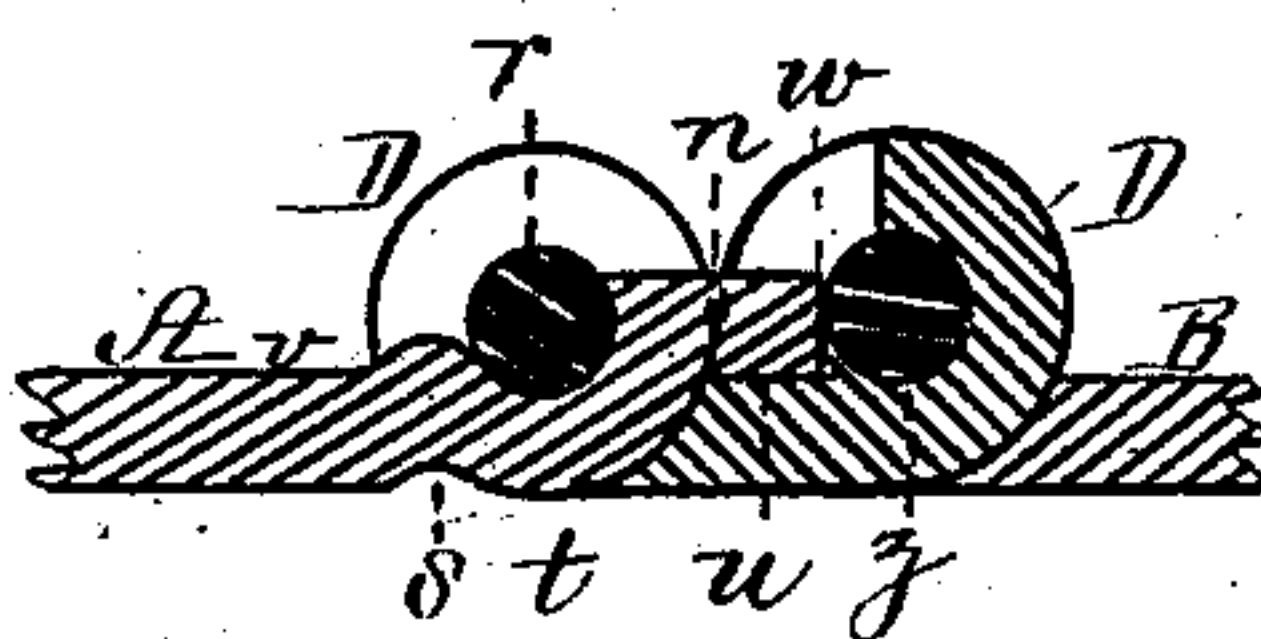


Fig. 5.

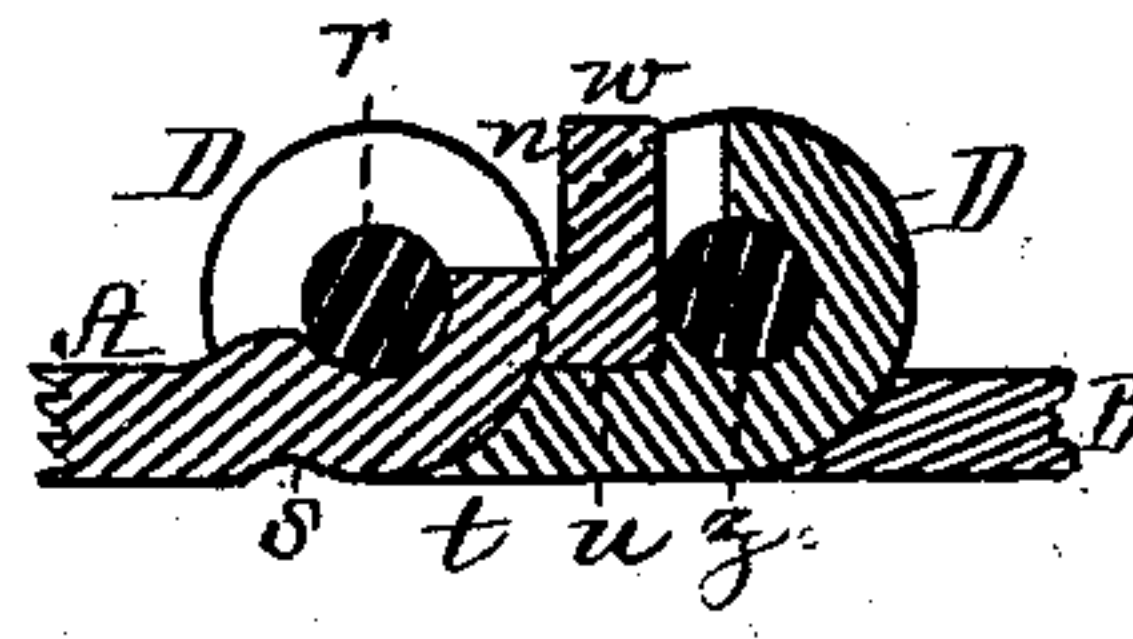


Fig. 6.

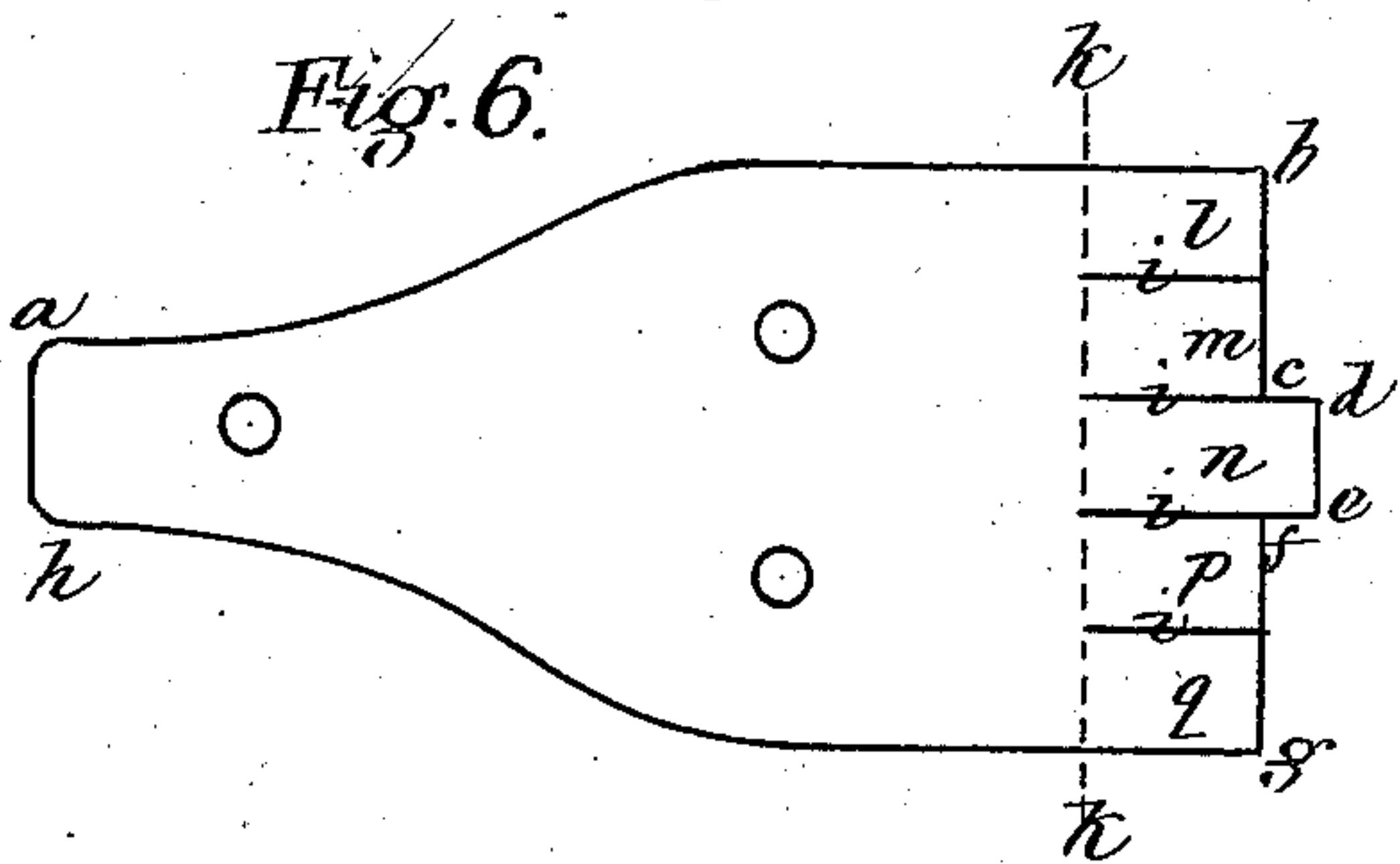


Fig. 7.

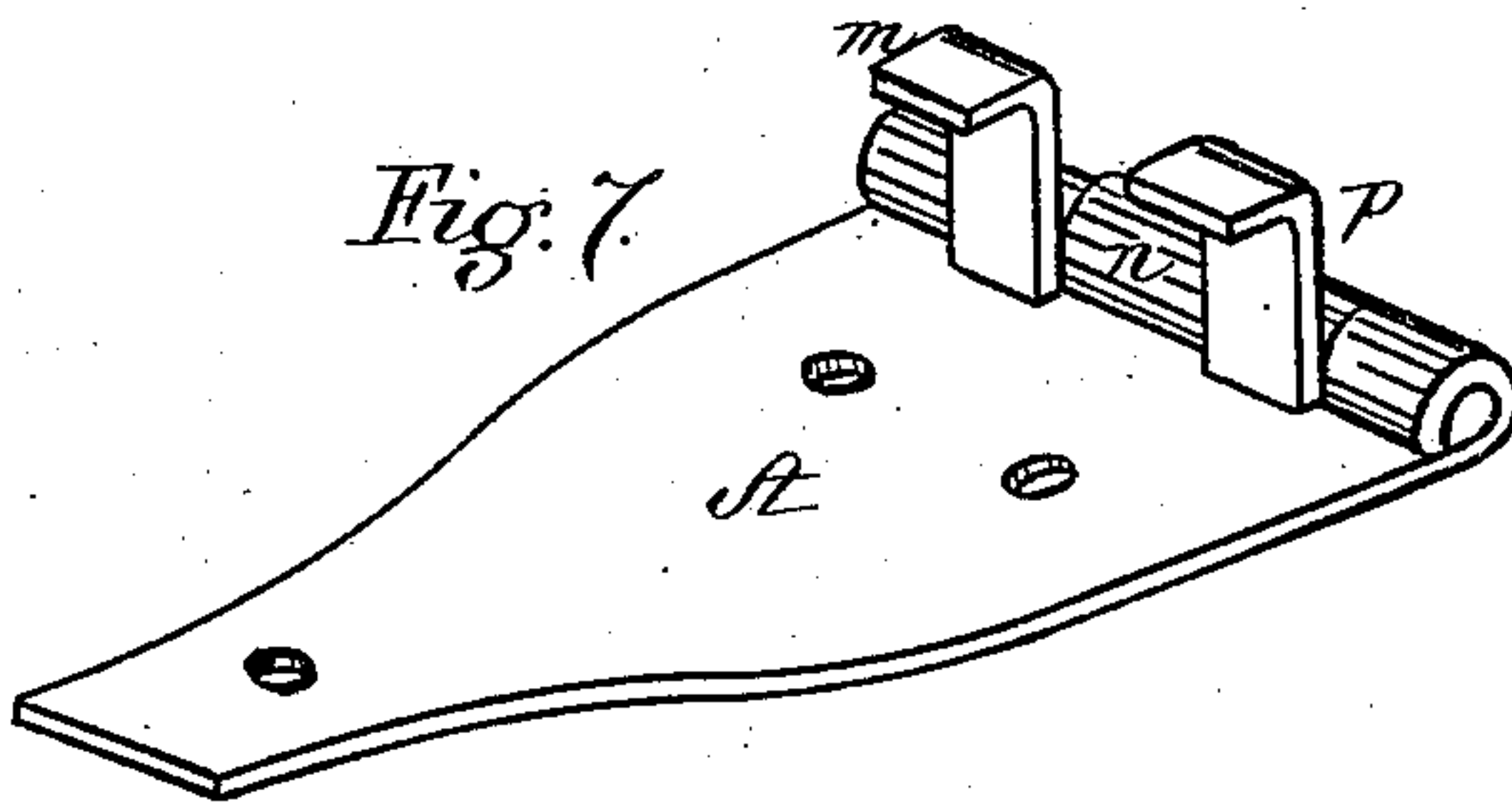


Fig. 8.

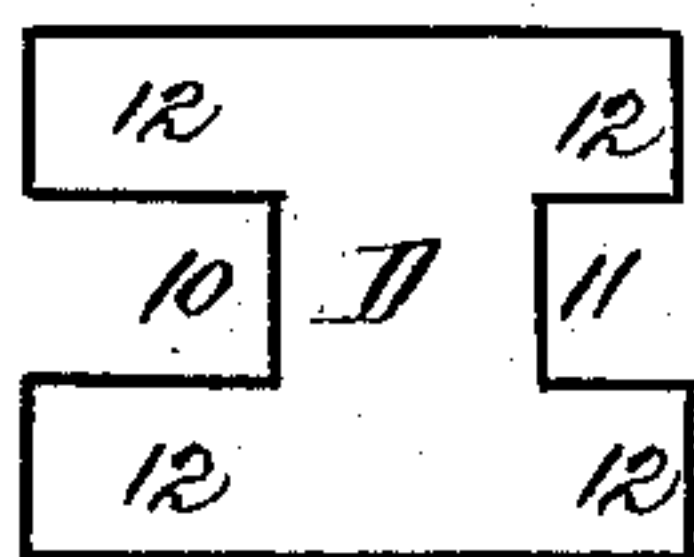
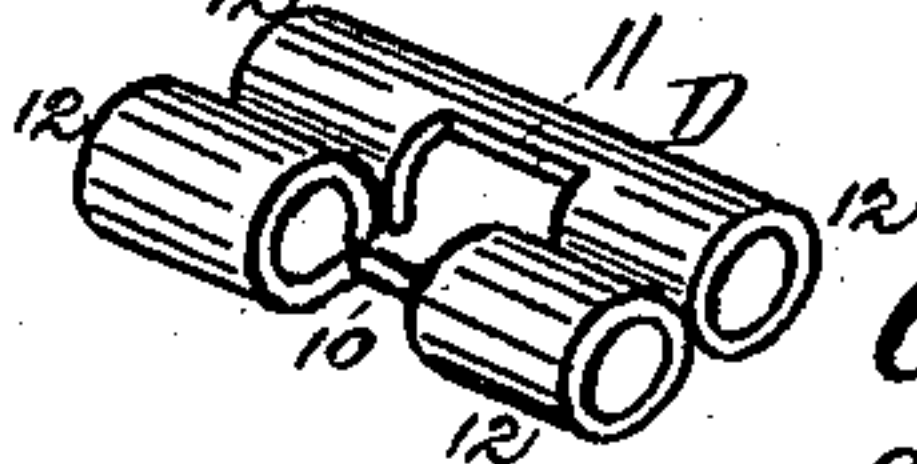


Fig. 9.



Witnesses,
Philip S. Stokes
Francis T. Irish

Inventor,
Charles C. Richmond,
per Storman W. Stearns,
Atty.

UNITED STATES PATENT OFFICE.

CHARLES C. RICHMOND, OF BOSTON, MASSACHUSETTS.

DOUBLE HINGE.

SPECIFICATION forming part of Letters Patent No. 294,809, dated March 11, 1884.

Application filed November 8, 1883. (Model.)

To all whom it may concern:

Be it known that I, CHARLES C. RICHMOND, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved
5 Check for Double Hinges, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

10 Figure 1 is a perspective view of a double hinge having my improved check applied thereto. Fig. 2 is a plan of the same. Fig. 3 is an enlarged section on the line $x x$ of Fig. 2; Figs. 4 and 5, enlarged sections, representing
15 slight modifications of my check. Fig. 6 is a plan of a metal plate of the shape required to form a hinge-leaf having my check or stop made integral therewith. Fig. 7 is a view of
20 said plate with its portions bent to form the finished hinge-leaf. Fig. 8 is a plan of the plate from which the connecting-link is made; Fig. 9, a view of the finished connecting-link.

My present invention relates to that class of
25 double hinges in which the two pivots are united by a connecting-link, and in which a check or stop is employed for directing and arresting the movements of the hinge, in order thereby to prevent the buckling or twisting of
30 the parts and the consequent liability of breaking and loosening of the fastenings; and this invention consists in a hinge-leaf having a check formed integral therewith of such shape that its exterior surface arrests the movement
35 of the connecting-link at two points—viz., when said link arrives at a vertical position and also when it reaches a horizontal position—whereby the prompt and unrestrained action of the several portions of the hinge is reliably insured and the cramping and liability
40 of twisting, breaking, or loosening of the parts are avoided.

In carrying out my invention, I punch out a plate of metal of the form shown in Fig. 6, its
45 exterior being represented by the lines $a b c d e f g h$, and simultaneously with the punching out of the plate are formed four cuts, i , parallel to and about equidistant from each other, said cuts extending in to the line $k k$ and forming
50 five rectangular portions, $l m n p q$. The central portion, n , is then rolled over a mandrel or former of a size in cross-section larger than

that of the pivot r , intended to pass through it, the edge $d e$ being preferably closed down against the inside of the plate on the line $k k$. The form and size of the space inclosed by
55 bending and closing down this portion n is such that its left-hand part corresponds in size and form to the diameter of the pivot r , while its portion to the right of the pivot is left vacant. This portion n , which is to constitute
60 my peculiar check or stop, (the distinguishing feature of my invention,) is swaged in a die in order to locate a depression, s , a rounded surface, t , and a flat surface, u , at its outside, (see Fig. 3,) the flat surface u being located in
65 line with the inner surface, v , of the hinge-leaf A, in order that when the corresponding flat surface, u , of the inside of the connecting-link D (to be described) abuts against it the
70 outer surface of said link and the outside of the chief portion of the hinge-leaf A will lie in one and the same plane. The two outer rectangular portions $l q$ of the plate are then
shaped around a former to make the pivot-eyes of the hinge-leaf A. Finally, I bend the
75 two portions $m p$ (the surplus metal) first at right angles to the plate, and then bend their ends at right angles, so that they will lie parallel with the inside of the plate, the object of
80 bending the portions $m p$ being to form hooks (well known) to catch over the top and inside of a box or its cover, in order to give additional strength to the hinge and to prevent
the buckling or twisting of the parts and loosening of the fastening-screws. The portion n ,
85 which forms the check, is preferably made longer than the portions $l q$, from which the pivot-eyes of this leaf are formed, so that when bent around, as described, the extreme end w of the check will project beyond the line of
90 the outer surfaces of the pivot-eyes of said leaf A. The other leaf, B, of the hinge is provided on its inside with a centrally-located bent-up portion or hook, y , for a purpose similar to
95 those $m p$ of the leaf A, and also assists, by coming into contact with the end w of the check, in changing the position of the pivot z relative to the pivot r at the required time, causing the axis of rotation to be from one
100 pivot to the other, necessary to the freedom of the parts.

The plate from which the connecting-link D

is made is of the form seen in Fig. 8, being cut away at the center 10 11 on two of its opposite sides. The two outer portions, 12, are rolled around, so as to form two eyes for the passage of the two pivots r z , the ends of the outer portions being closed down upon the inside of the plate and abutting against each other, Fig. 9, while the middle portion, which bears on the pivot z , is bent around the latter to within a short distance of the end w of the check, Figs. 2 and 3, leaving a portion of the pivot z uncovered for the passage of the end w of the check when the two leaves of the hinge are at right angles to each other, in which position the inside of the connecting-link abuts against and is arrested by the flat surface u on the outside of the check. The portion n , which forms the check, may be shorter than the contiguous portions m p , in which case the check is not closed down on the inside of the hinge-leaf A, such forms of my check being shown in Figs. 4 and 5; but sufficient metal must be had to form the depression s , and rounded and flat surfaces t u . I however prefer to cut the portion n of sufficient length to enable it to be closed down on the inside of the hinge-leaf, as thereby the check has a firm bearing, which endows it with additional strength and rigidity.

Operation: When the hinge-leaves are secured to a box and its cover, (not shown,) and the cover is in a position for closing the box, the connecting-link D is vertical, and its in-

side flat portion abuts against and is stopped by the flat surface u of the check, the pivot of one leaf being directly above the pivot of the other leaf. As the cover and the leaf B are raised, the connecting-link is carried around into a horizontal position. The edge 10 of its middle or cut-away portion strikes the depression s in the outside of the check n , and is a second time arrested and stopped, the pivot z being in this operation brought from a position above the pivot r to one outside of and in the same plane as the latter. When the cover and its hinge-leaf have been swung down so as to occupy a position at the back of the box, the leaf B, attached to the cover, has traversed three-quarters ($\frac{3}{4}$) of the circumference of a circle, or two hundred and seventy degrees, while the connecting-link has only traversed an arc equal to one-quarter ($\frac{1}{4}$) of a circle, or ninety degrees.

I claim—

A check for the connecting-link of a double hinge, consisting of a portion of the inner edge of one of its leaves so bent as to form a depression, s , a rounded surface, t , and a flat surface, u , constructed and arranged to operate substantially as described.

Witness my hand this 5th day of November, 1883.

CHARLES C. RICHMOND.

In presence of—

N. W. STEARNS,

JAS. W. CHAPMAN.