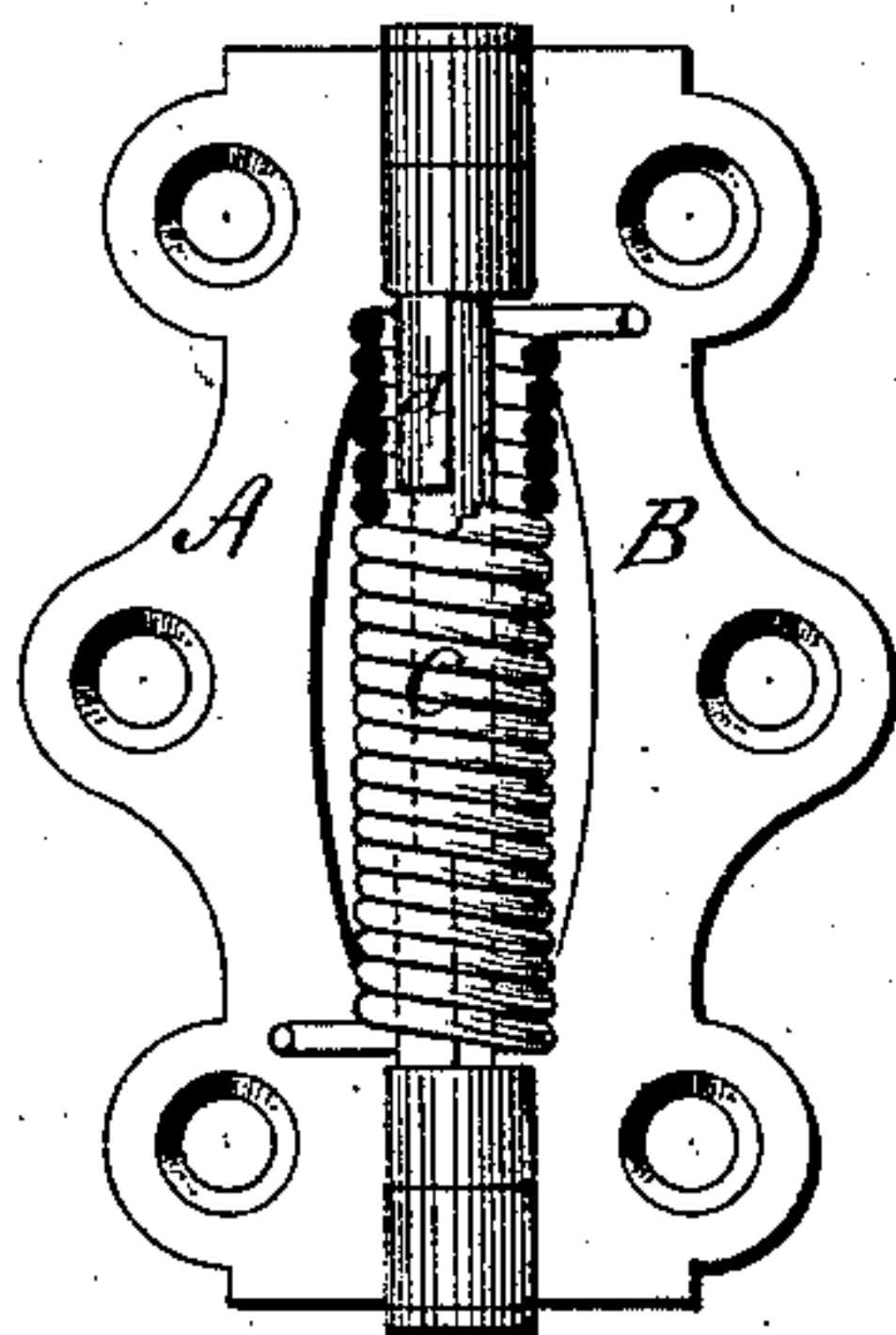


J. SPRUCE.  
Spring-Hinge.

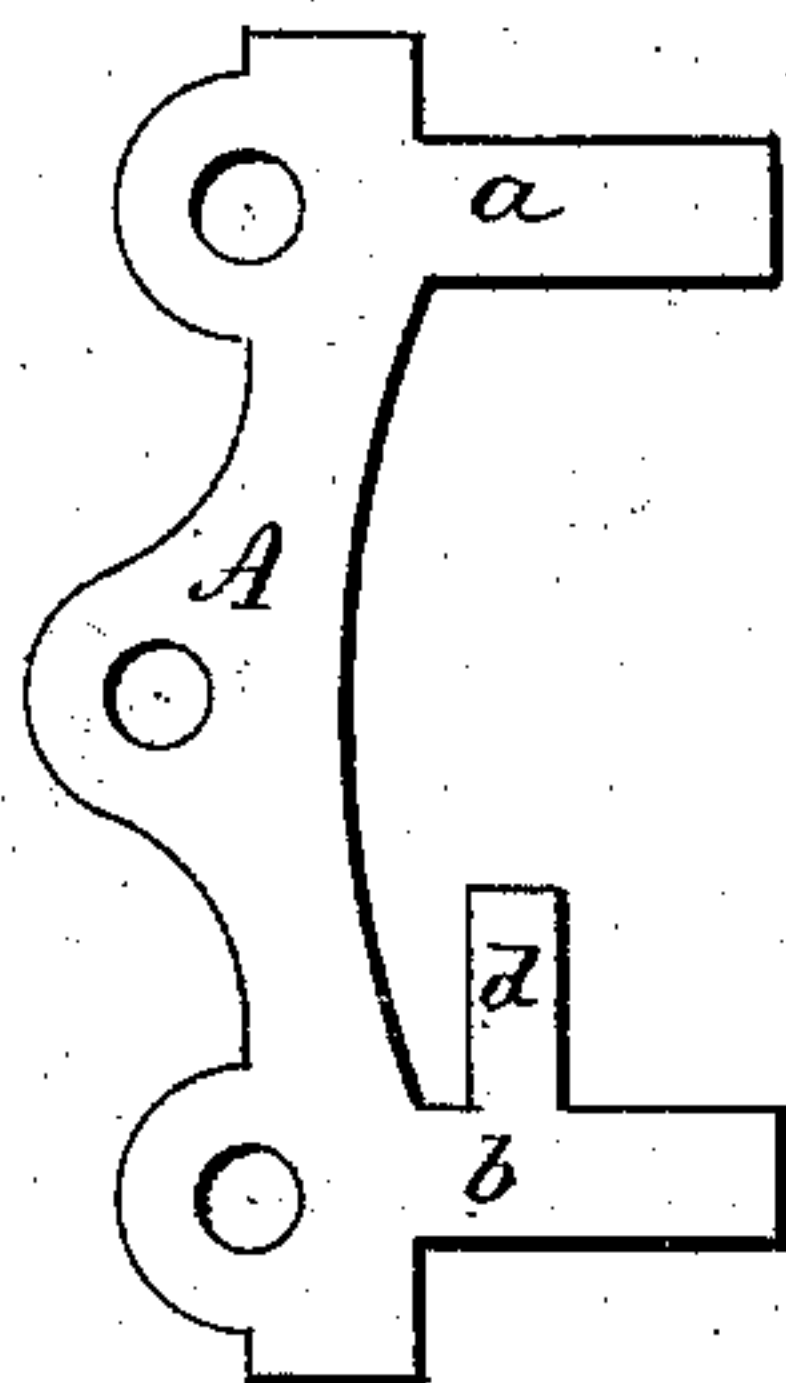
No. 215,253.

Patented May 13, 1879.

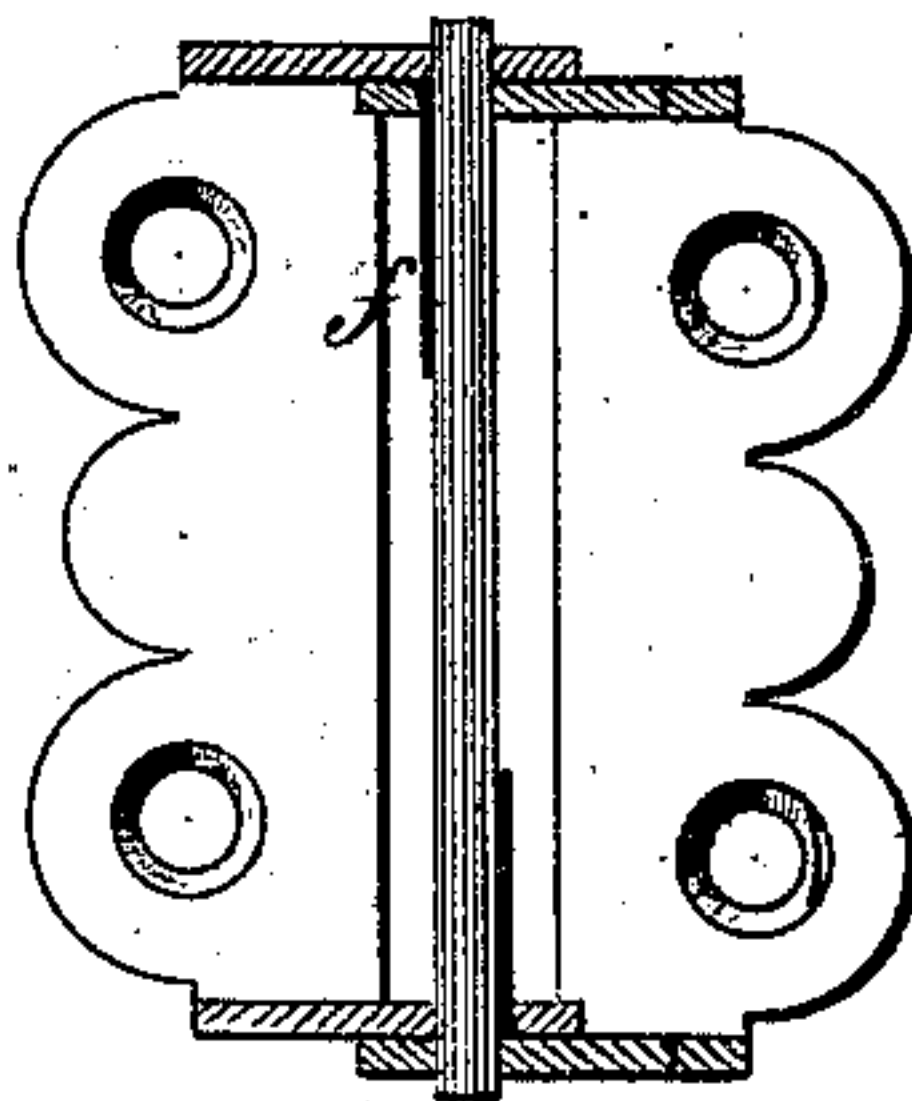
*fig. 1*



*fig. 2*



*fig. 3*



*fig. 5*



*fig. 4*



*Witnesses:*

*J. H. Murray*  
*Geo. C. Earle*

*James Spruce*  
*Inventor.*

*By Atty.*

*Geo. C. Earle.*

# UNITED STATES PATENT OFFICE.

JAMES SPRUCE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE  
SCOVILLE MANUFACTURING COMPANY, OF SAME PLACE.

## IMPROVEMENT IN SPRING-HINGES.

Specification forming part of Letters Patent No. **215,253**, dated May 13, 1879; application filed  
January 21, 1879.

*To all whom it may concern:*

Be it known that I, JAMES SPRUCE, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Spring-Hinges; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, an open or face view of the hinge; Fig. 2, detached view of one of the leaves; Figs. 3, 4, and 5, modification.

This invention relates to an improvement in that class of spring-hinges in which a spiral spring is arranged around the pintle, one end of the spring bearing upon one leaf and the other end upon the other leaf, and is an improvement on the construction for which Letters Patent were granted to me December 26, 1876, and June 19, 1877; and relates especially to the tube or sleeve within the spring around the pintle.

In the previous construction referred to, the tube is made to entirely surround the pintle; but as there is little or no use for the tube on the side of the pintle next the leaf, where the end bears, a considerable surplus of metal must be used to make the tube extend around the pintle. Again, it is necessary that this tubular portion or sleeve should be of less diameter or thickness than the knuckle; hence, if made in the same piece with the knuckle, the sleeve part must be reduced by milling, which is an expensive operation. If made in a separate piece and secured by soldering or brazing, the point of attachment is so small that it will easily break away.

The object of this invention is to overcome these difficulties; and it consists in the construction, as hereinafter described, and more particularly recited in the claim.

First, to make the sleeve a part of or in the same piece with the leaf, the blank for one leaf, A, is cut, as seen in Fig. 2, with a projection, *a*, for one knuckle, and *b* for the other knuckle. From the knuckle *b* a projection, *d*, is made on the side toward the

knuckle, at the other end, which is to form the tubular portion. This part *d*, which is of the full thickness of the blank, is then struck or drawn out thinner from the knuckle, giving it the required reduction for the tubular portion. The knuckles are then bent in the usual manner, which operation will give the requisite curvature to the part *d*; or that curvature may be given in the process of striking or reducing.

This method of reducing can be applied because the tubular part is so narrow, whereas, were it of the full width of the knuckle, and so as to form a complete tube, the striking could not be done; hence the milling process before referred to.

The two leaves A and B of the hinge are put together, the pintle and spring C being arranged in the usual manner. The tubular or spring-bearing part *d* only partially surrounds the pintle, but is sufficient to prevent the wear of the spring on the pintle in turning.

In that class of hinges in which the knuckles are formed by turning over the ends of the leaves, as seen in Figs. 3 and 4, the tubular part or bearing for the spring is made of substantially the same form as the part *d* in Fig. 2, but is made of thin metal, and is substantially half a tube, the division being made longitudinally.

Through the ear D, to which the tubular or bearing part is to be attached, a recess, *e*, is made from the pintle-perforation outward, or on the side opposite the leaf, corresponding to a section of the piece *f* to be attached. This piece *f* (seen detached in Fig. 5) is then introduced into the said recess *e*, as seen in Fig. 3, and there secured, its end being slightly upset, so as not to pass entirely through the recess. The edges of the bearing-piece *f* rest against the shoulders in the recess *e*, and it is thereby prevented from turning; hence in this case, by the use of the half-tubular bearing, the usual brazing or soldering is avoided.

When the two parts are set together, as in Fig. 3, the outer ear of each leaf rests upon the inner ear of the other, and therefore, if the bearing-piece be simply set in place and prevented from slipping through the recess, the outer ears will hold them in place.



I am aware that the tubular part or piece around the spindle and within the spring has heretofore been made so as to partially surround the pintle; but I am not aware that such partially-surrounding part has been formed or made as a part or extension of the knuckles of the hinge. I do not broadly claim the introduction of such part partially surrounding the spindle.

I claim—

In a spring-hinge having a spiral spring ar-

ranged around the pintle and bearing upon each leaf, a tubular bearing extending from the inner knuckle onto the spindle, and between the spindle and the spring, on that side opposite the bearing, but partially encircling the spindle, and made integral with the knuckle, substantially as described.

JAMES SPRUCE.

Witnesses:

T. R. HYDE, Jr.,

M. L. SPERRY.