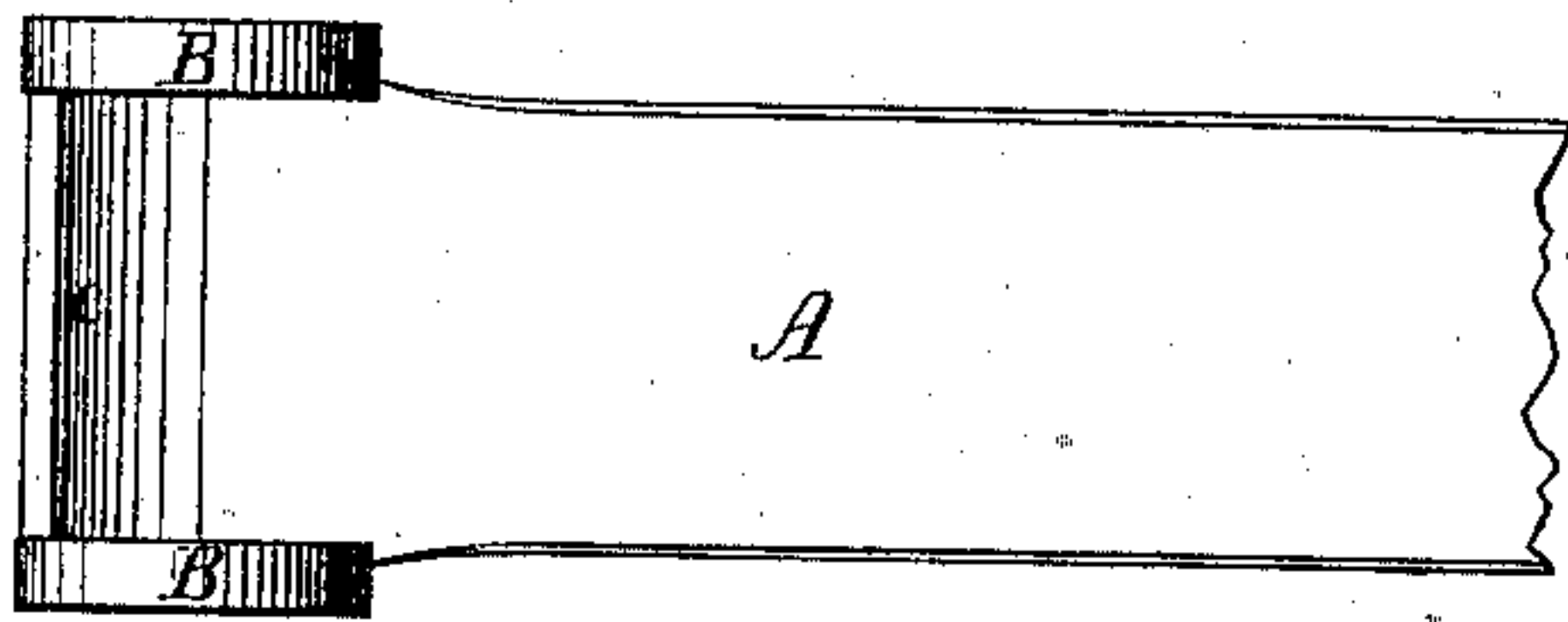
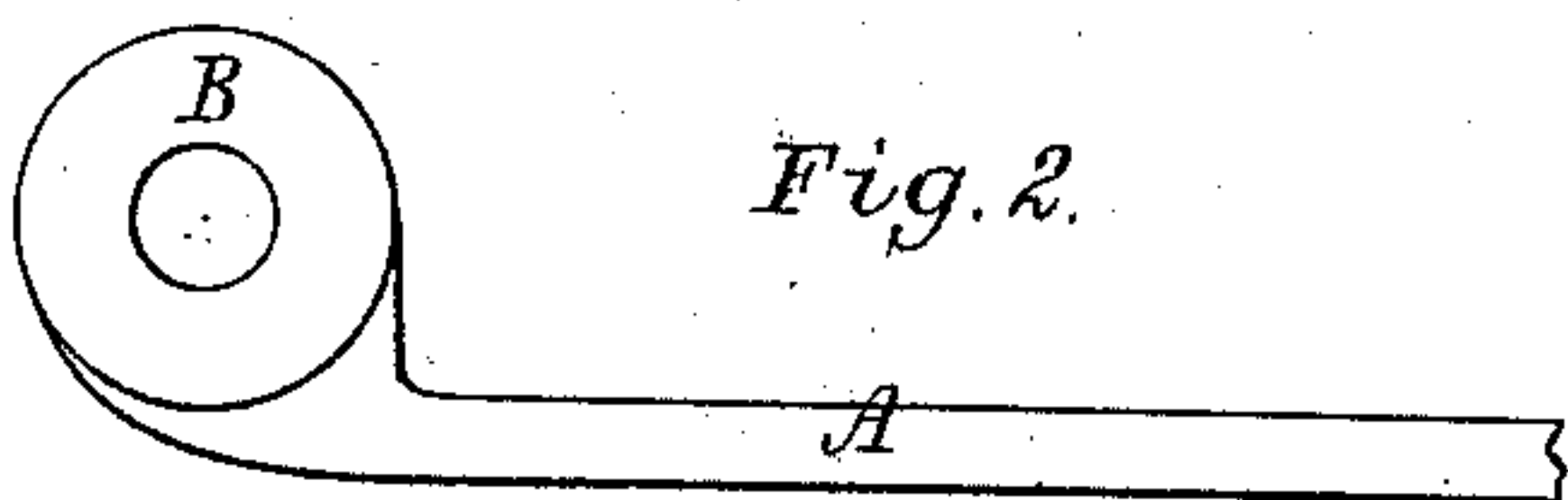


H. M. WENTWORTH.  
 Manufacture of Carriage-Springs.  
 No. 216,989.                      Patented July 1, 1879.

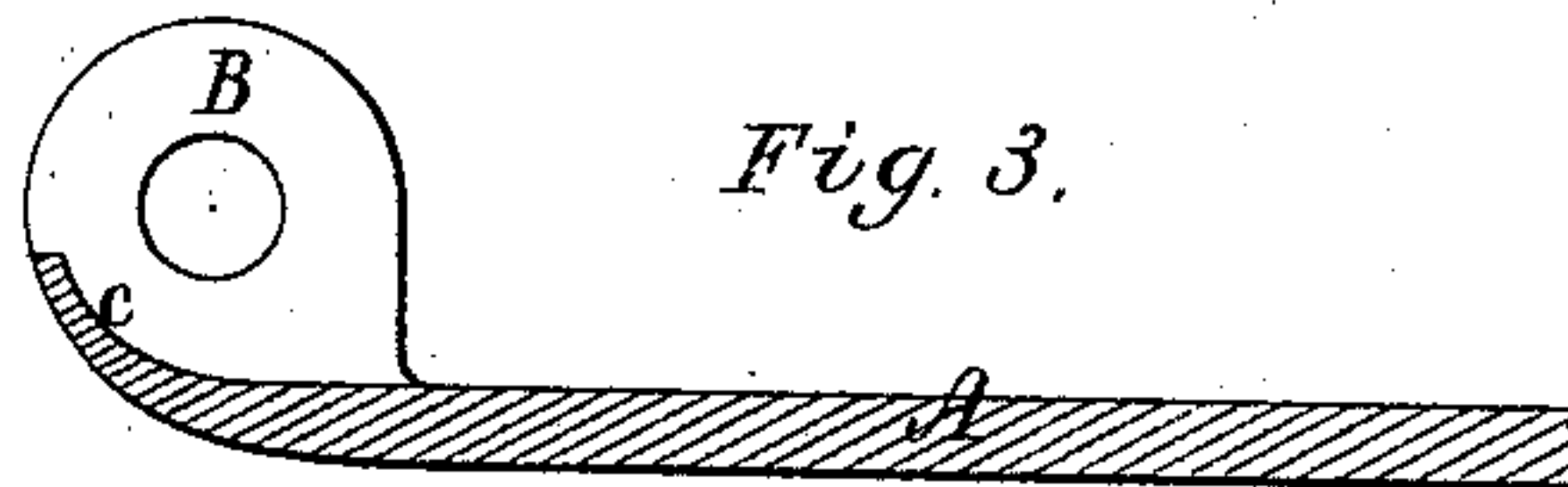
*Fig. 1.*



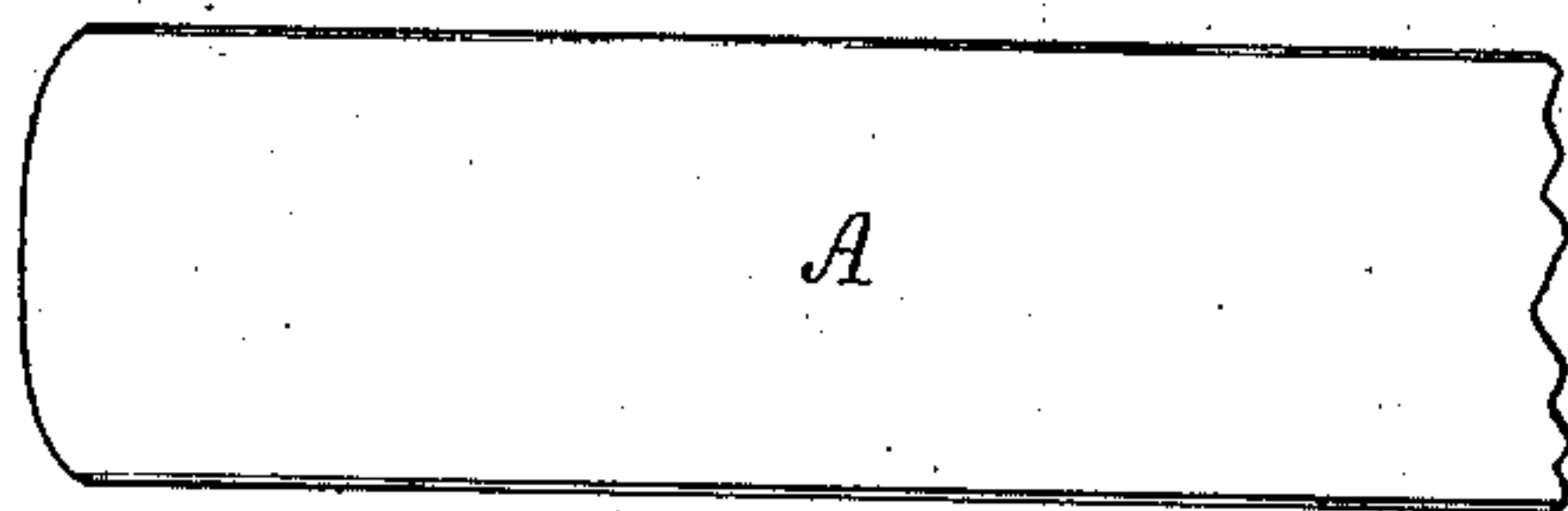
*Fig. 2.*



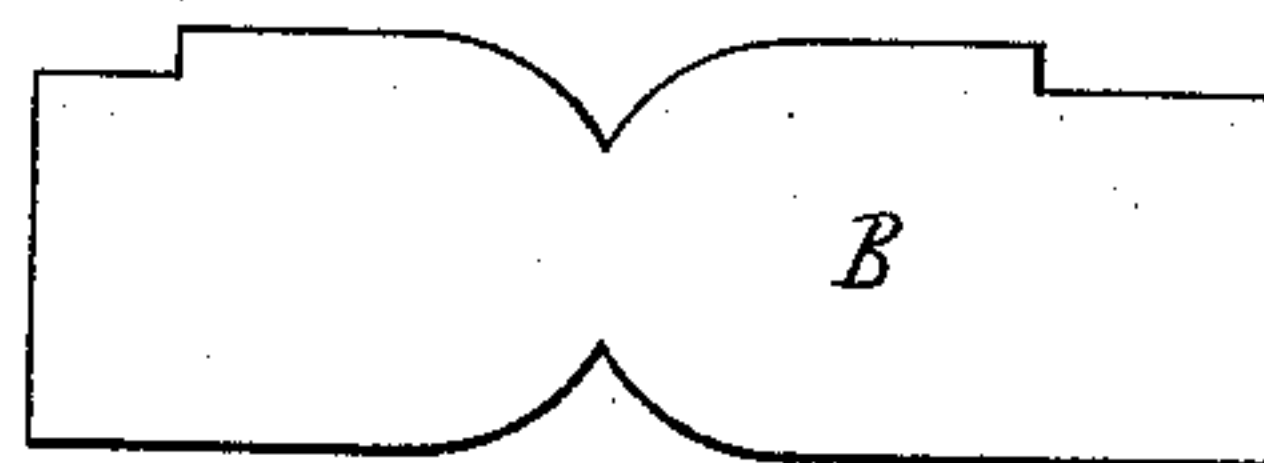
*Fig. 3.*



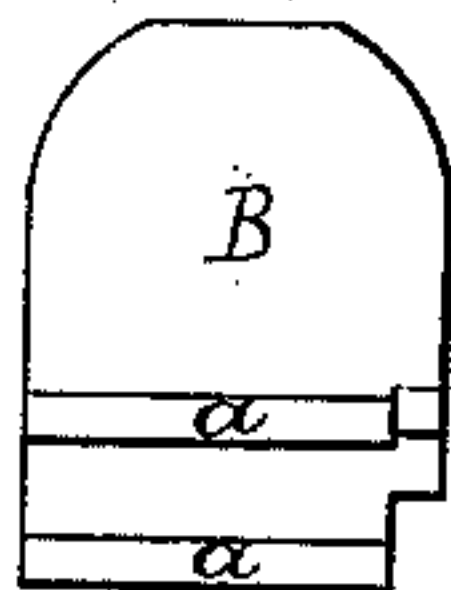
*Fig. 4.*



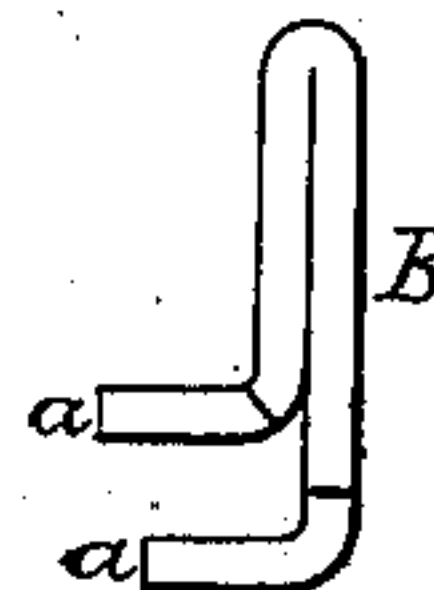
*Fig. 5.*



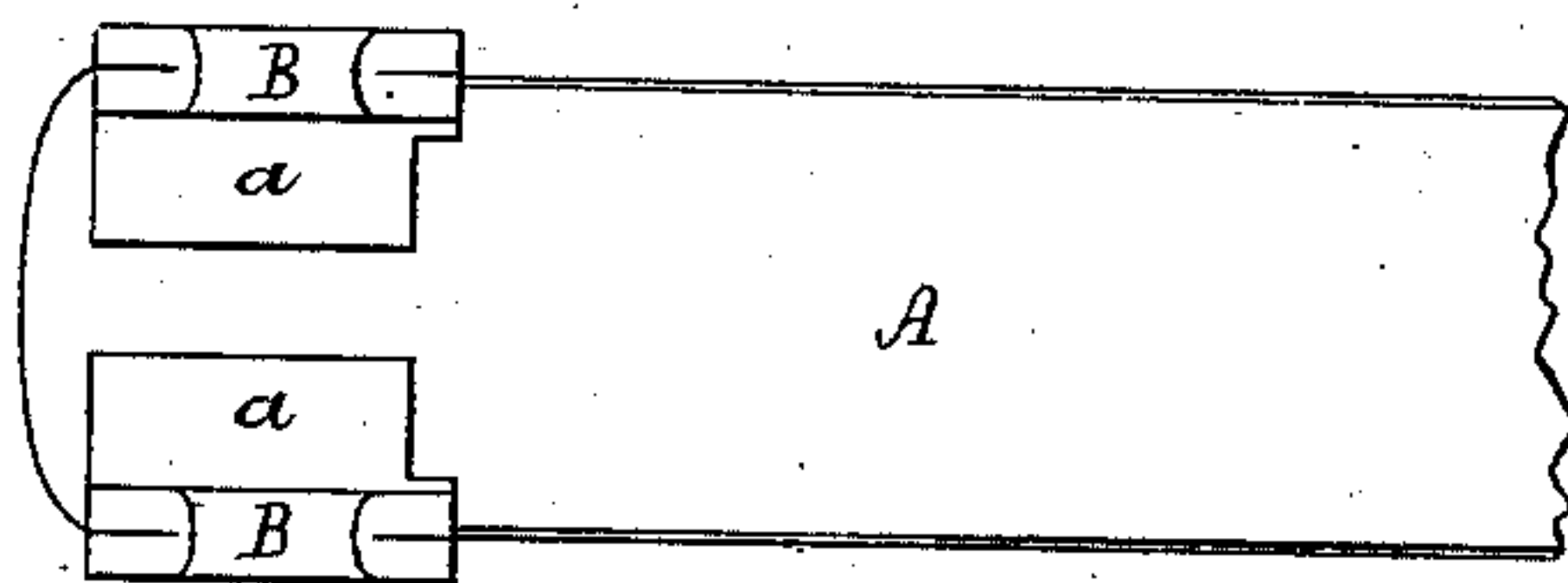
*Fig. 6.*



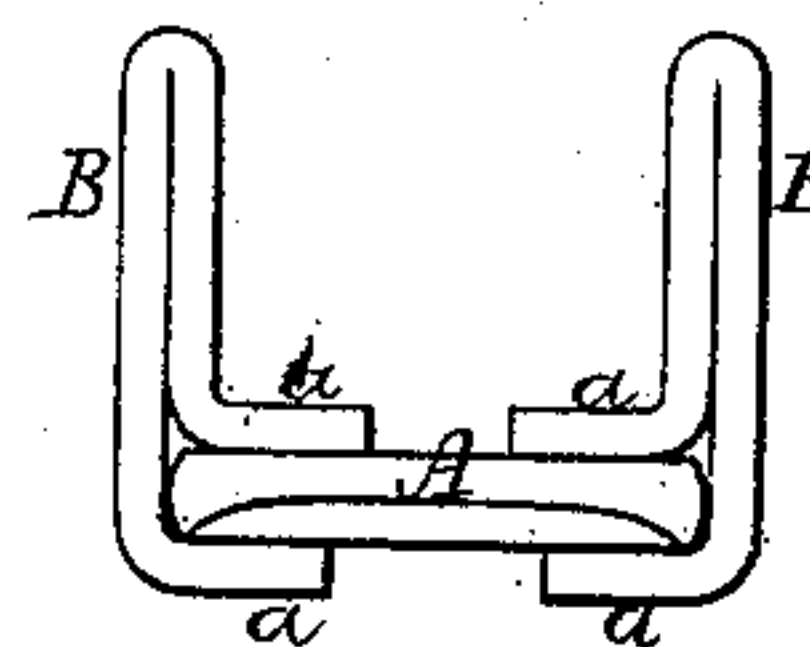
*Fig. 7.*



*Fig. 8.*



*Fig. 9.*



Witnesses  
*S. N. Piper*  
*W. W. Lund*

Inventor  
*Hebron Mayhew Wentworth*  
by attorney  
*R. M. Edgely*

# UNITED STATES PATENT OFFICE.

HEBRON M. WENTWORTH, OF GARDINER, MAINE.

## IMPROVEMENT IN THE MANUFACTURE OF CARRIAGE-SPRINGS.

Specification forming part of Letters Patent No. **216,989**, dated July 1, 1879; application filed March 24, 1879.

*To all whom it may concern:*

Be it known that I, HEBRON MAYHEW WENTWORTH, of Gardiner, of the county of Kennebec, of the State of Maine, have invented a new and useful Improvement in the Manufacture of Carriage-Springs; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view; Fig. 2, a side elevation, and Fig. 3 a longitudinal section of the eared-end portion of a carriage-spring made in accordance with my invention. Fig. 4 is a top view of the end portion of a spring-leaf as it appears preparatory to the application of the ear-pieces to it. Fig. 5 is a top view of an ear-piece of plate metal before it is bent into the condition as shown in Figs. 6 and 7, the first of which is a front view, and the second an edge view. Fig. 8 is a top view, and Fig. 9 a front-end view, of the said parts as applied to each other preparatory to being heated and welded or swaged together, they being subsequently, by means of suitable dies and tools, brought into shape, as shown in the three figures first named.

My invention relates particularly to the construction and application of ear-pieces to the spring leaf or bar, whereby I am enabled to form the spring to great advantage and economically, with a pair of ears at its end, they after being so formed being suitably bored to receive a joint-pin.

For applying my improved ear-pieces, I form the end portion, A, of the spring-leaf from sheet-steel, and in the shape as shown in Fig. 4; and I also form each of the ear blanks or pieces B of plate metal, in manner as shown in Fig. 5. This having been done, I next double or fold each ear-blank upon itself at its narrowest part, and afterward bend it, near each end of it, at a right angle, so as to bring it into shape, as represented in Figs. 6 and 7, wherein it will be seen that it has two lips, *a a*, between and beyond which the portion A is to be extended, in manner as represented in Figs. 8 and 9.

Two of the ear-pieces so made, being arranged with the blank part A, in manner as shown in said Figs. 8 and 9, the whole is to be suitably heated, and afterward welded together by dies or proper tools, and finally reduced to the shape as represented in Figs. 1, 2, and 3, by which it will be seen that not only is the bar A provided with ears B B, but is curved or turned upward between them, in manner as shown at *c*.

What I claim as my invention is—

The ear-blanks for manufacturing springs, made in the manner and of the form substantially as shown and described.

HEBRON MAYHEW WENTWORTH.

Witnesses:

CHARLES H. MAXCY,  
J. M. HOWLAND.