

(No Model.)

A. KRONENBITTER.

EAR PIECE FOR FORMING THE HEADS OF SPRINGS.

No. 322,545.

Patented July 21, 1885.

Fig. 1.

Fig. 3.

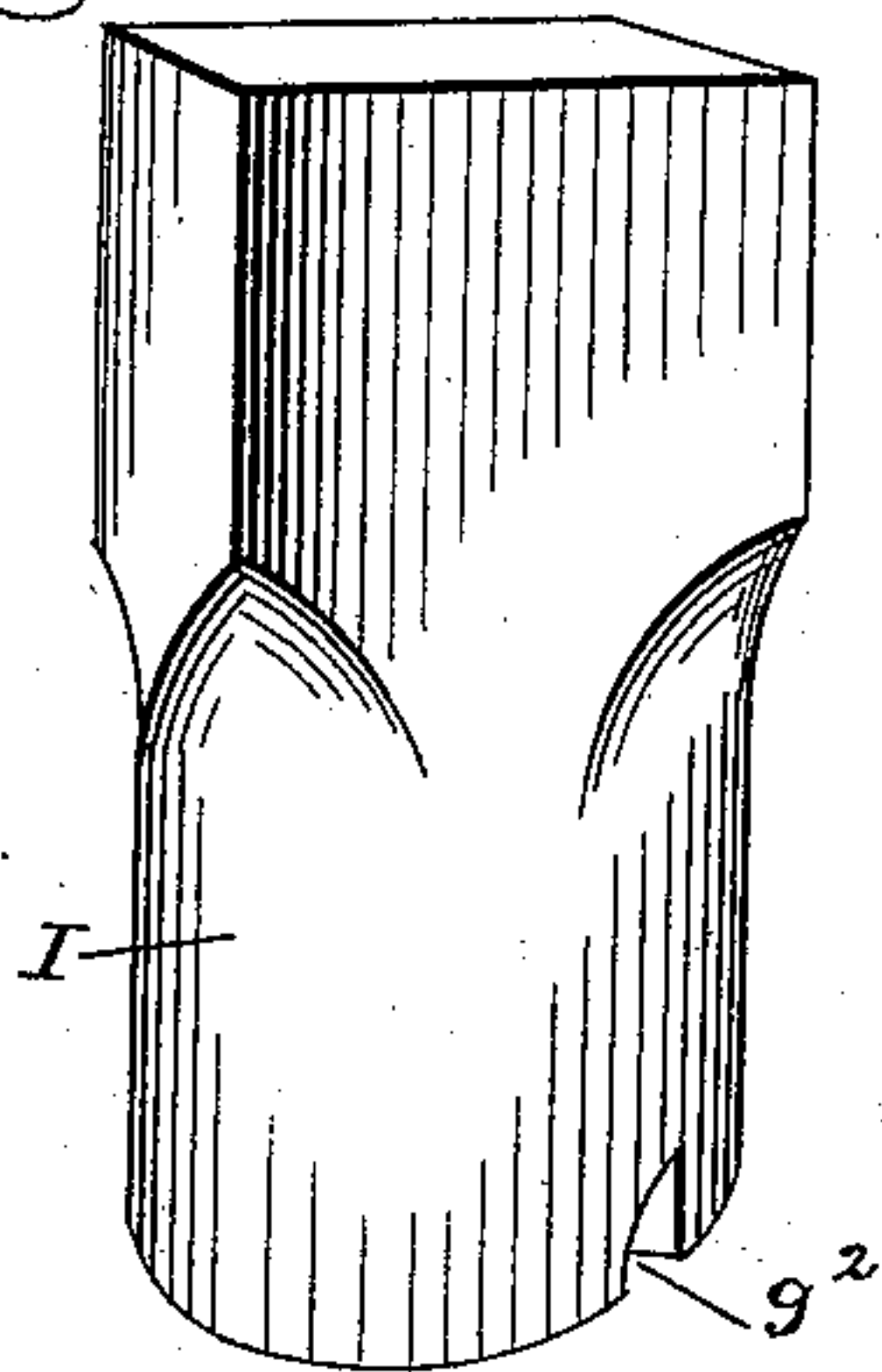
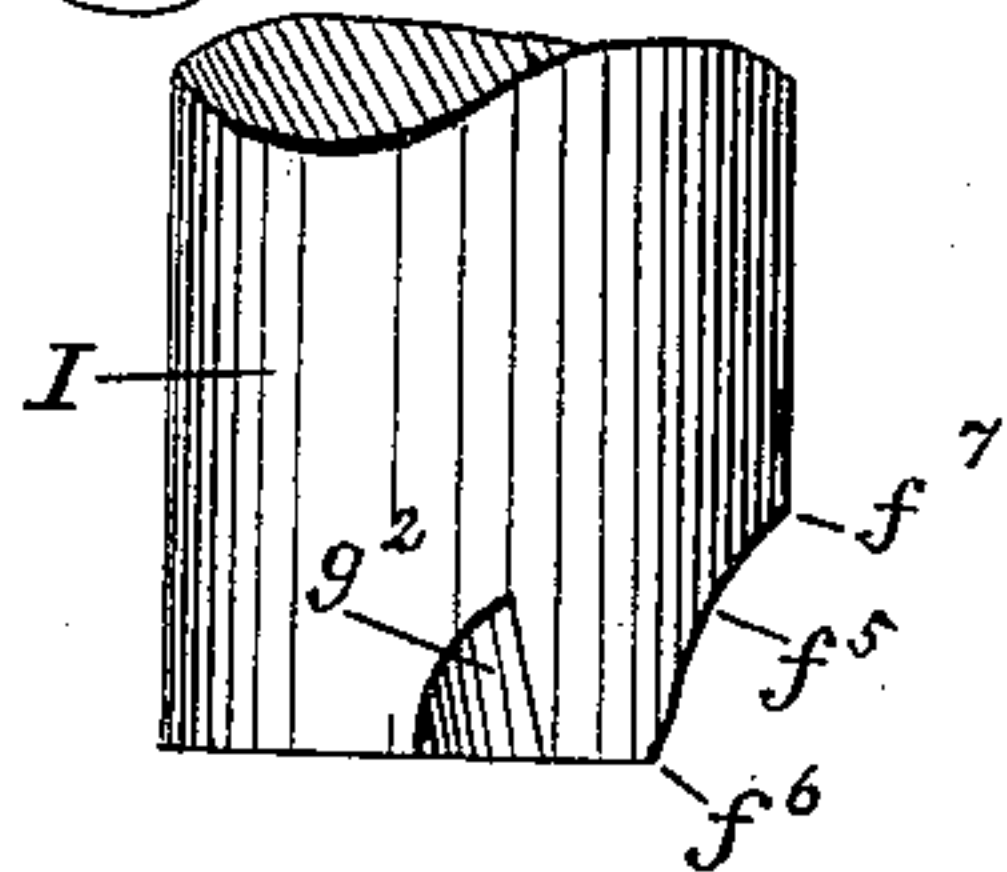


Fig. 4.

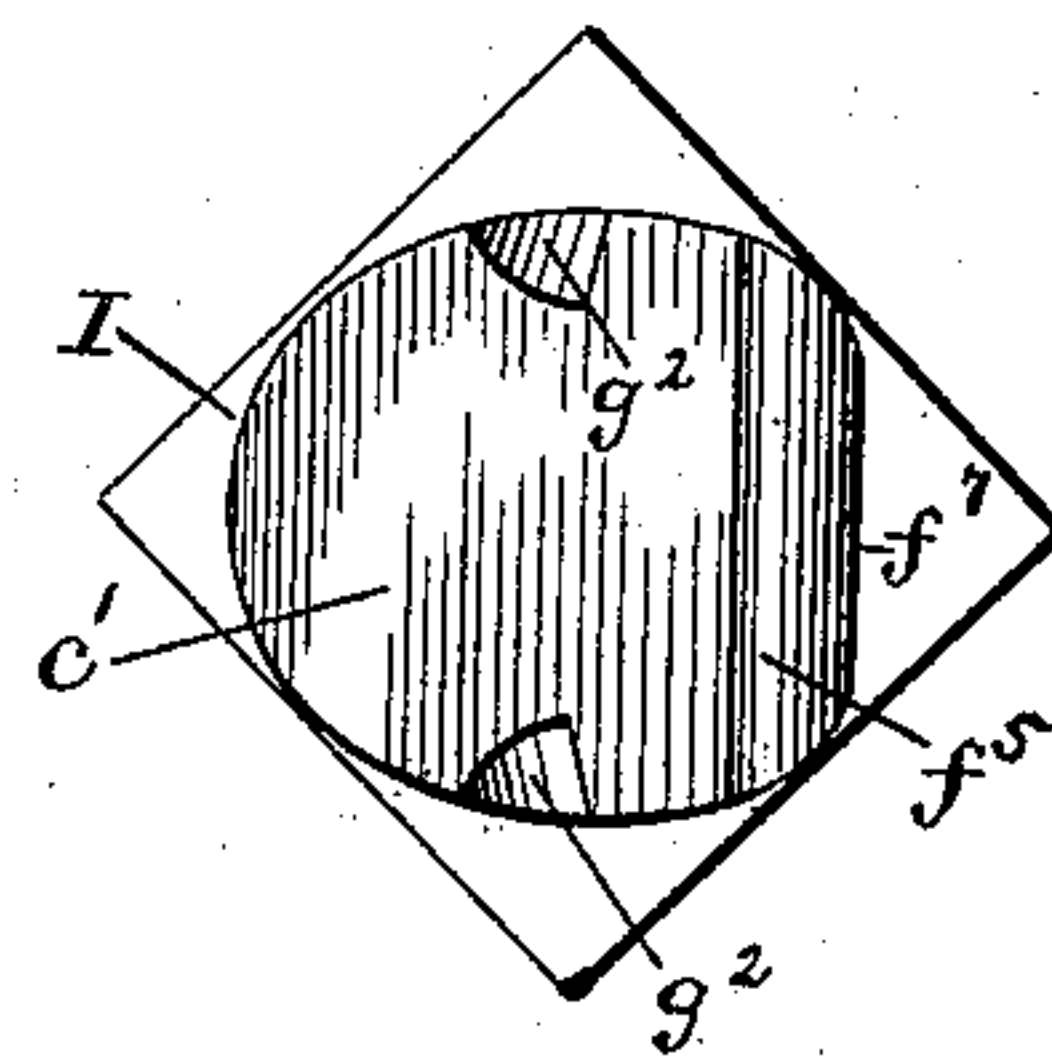


Fig. 2.

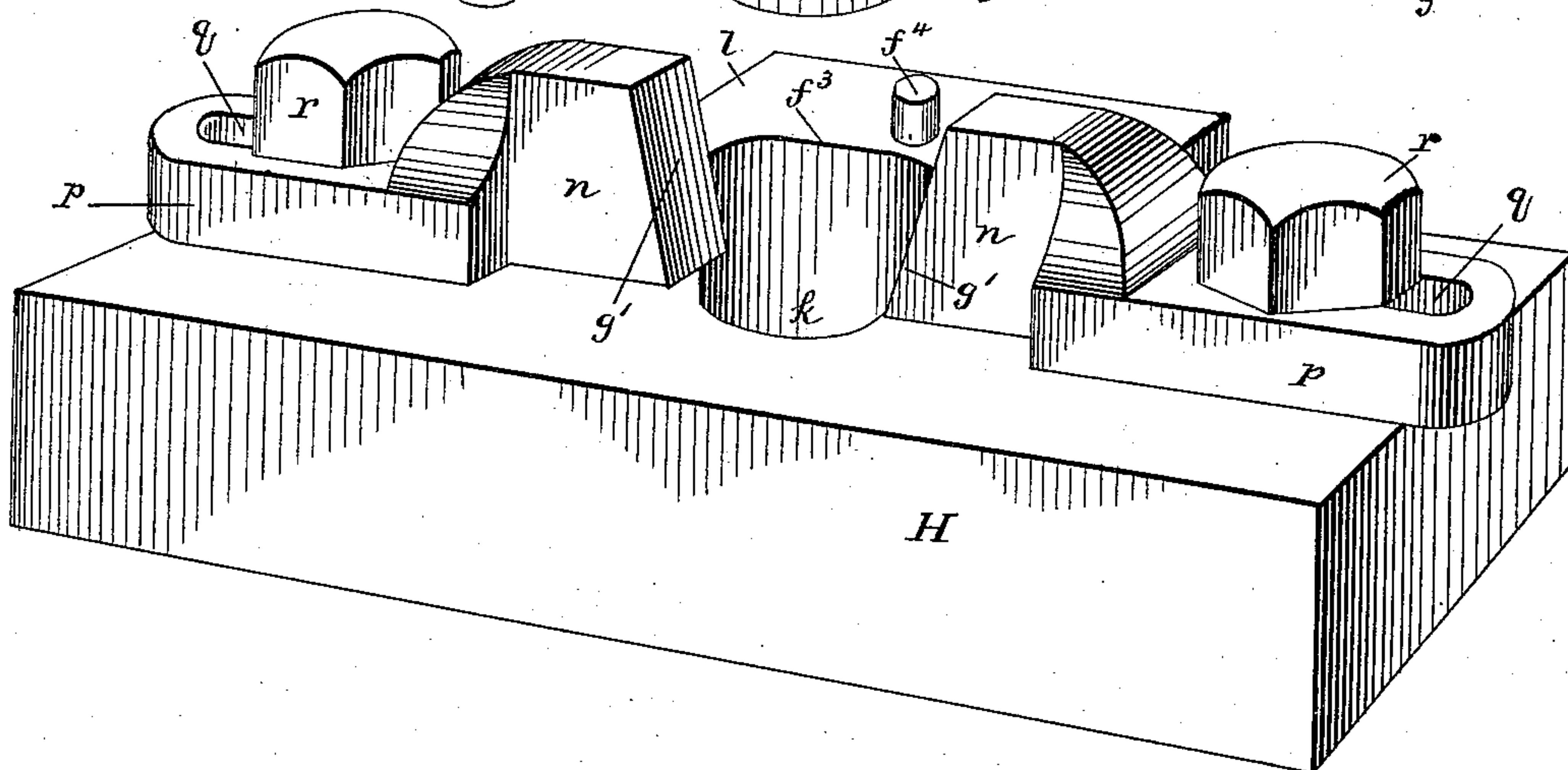


Fig. 5.

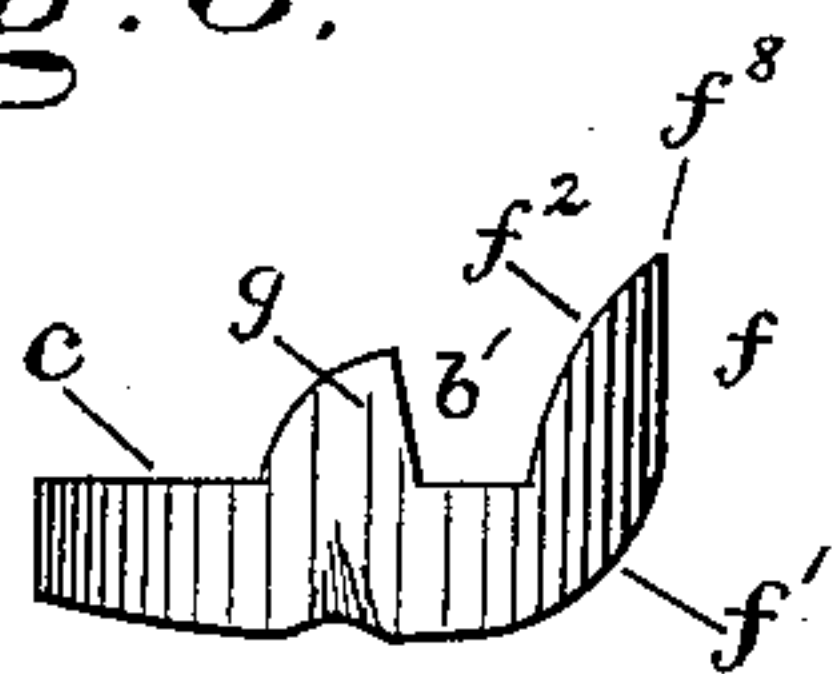


Fig. 6.

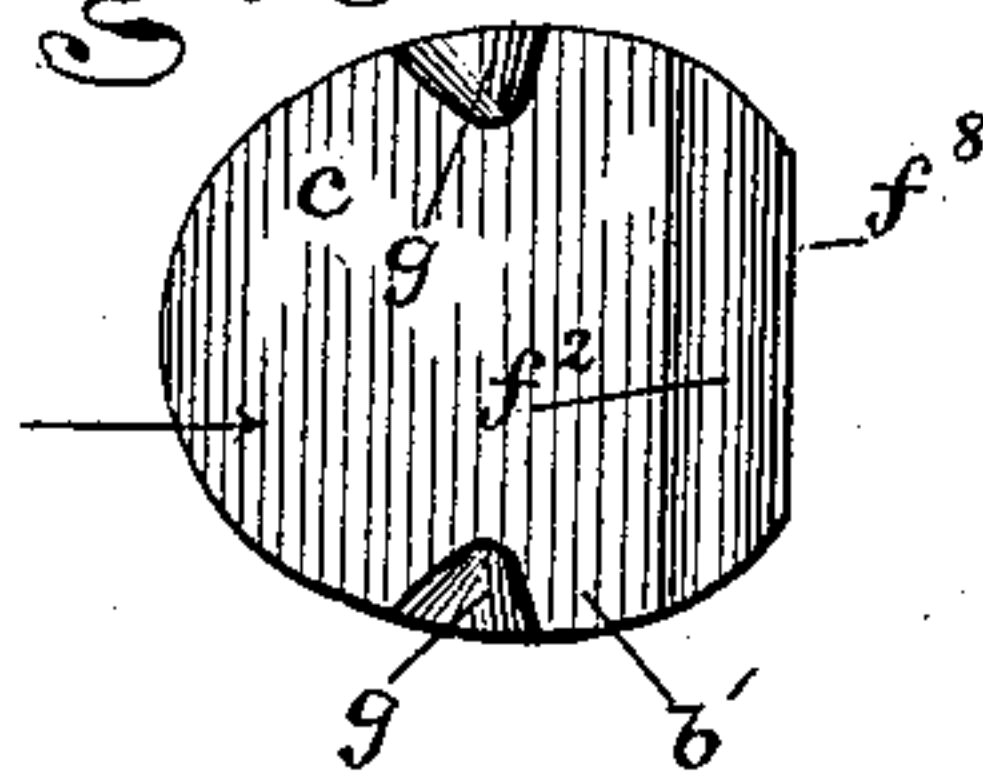


Fig. 7.

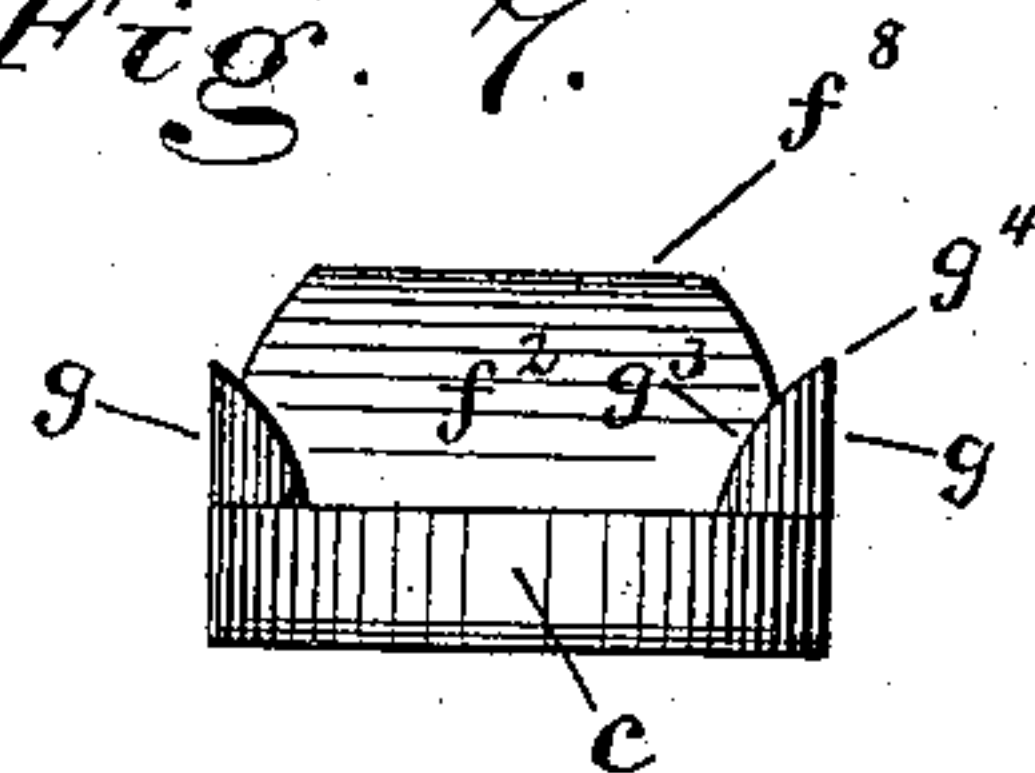


Fig. 8.

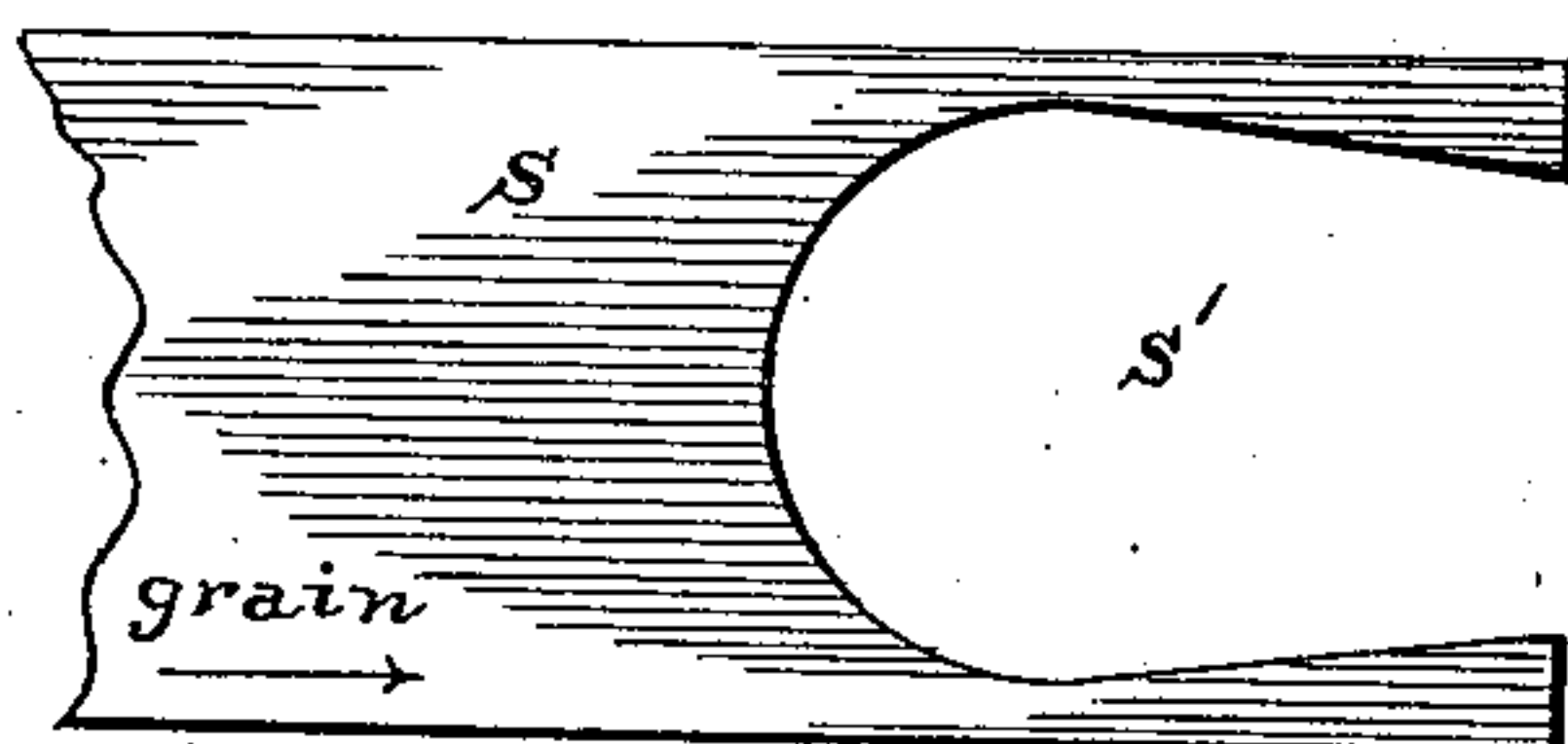


Fig. 9.

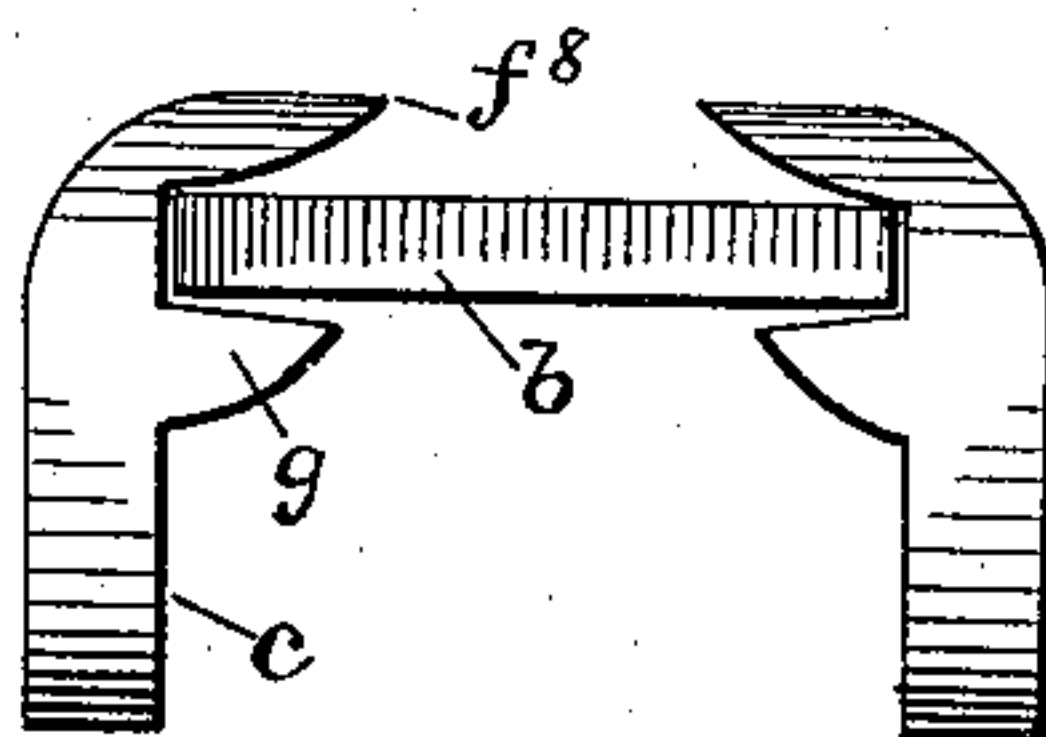
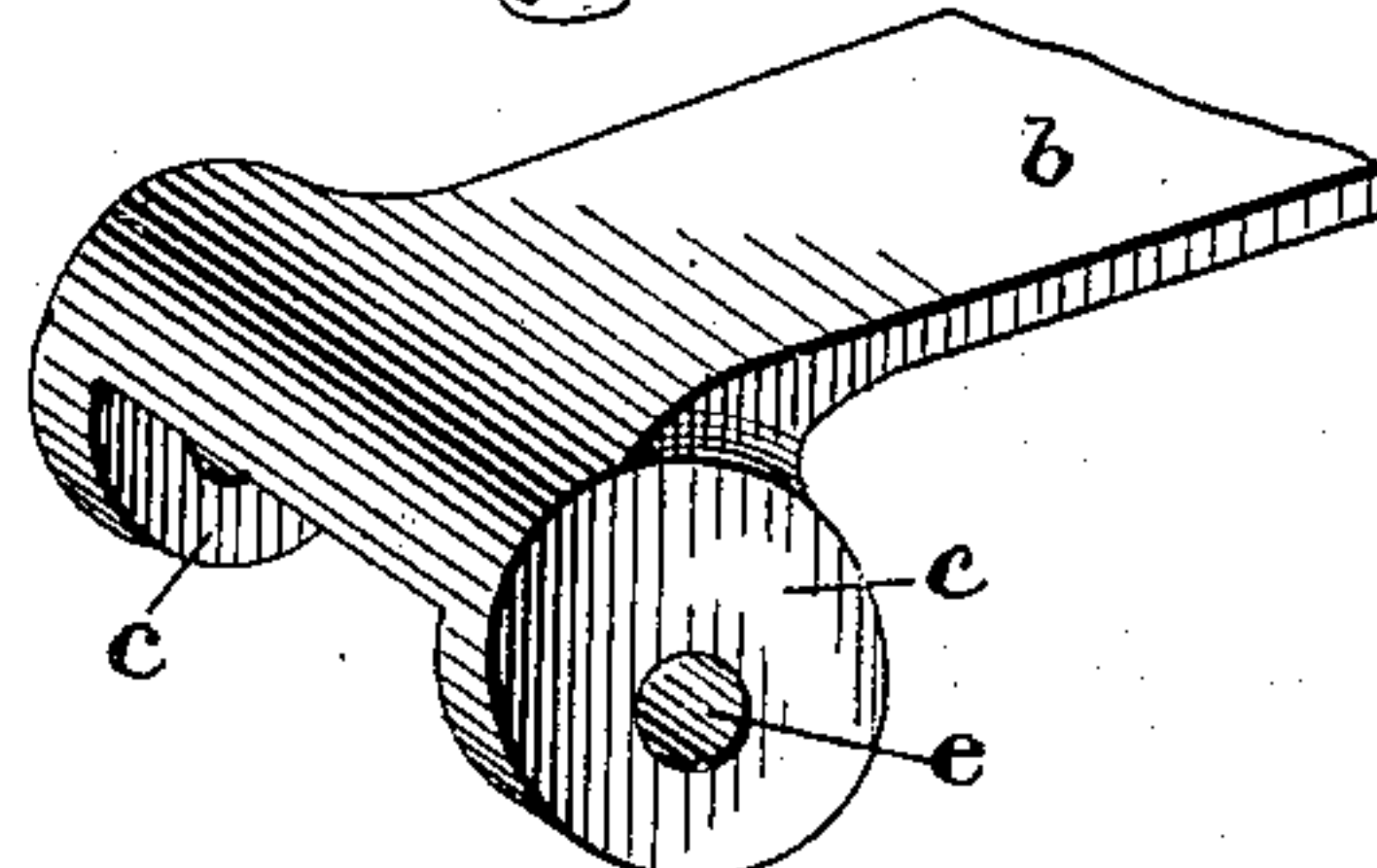


Fig. 10.



WITNESSES.

A. C. Eader

John E. Morris.

INVENTOR

Anthony Kronenbitter

By Chas B. Mann

Attorney.

UNITED STATES PATENT OFFICE.

ANTHONY KRONENBITTER, OF COSHOCTON, OHIO, ASSIGNOR OF NINETWENTIETHS TO FERDINAND HORN, OF SAME PLACE.

EAR-PIECE FOR FORMING THE HEADS OF SPRINGS.

SPECIFICATION forming part of Letters Patent No. 322,545, dated July 21, 1885.

Application filed May 26, 1885. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY KRONENBITTER, a citizen of the United States, residing at Coshocton, in the county of Coshocton and State of Ohio, have invented certain new and useful Improvements in Ear-Pieces for Heads of Vehicle-Springs, of which the following is a specification.

My invention relates to an ear-piece for forming the heads of carriage-springs.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a view of the punch, and Fig. 2 of the die, employed in producing the ear-piece. Figs. 3 and 4 show the side and face views, respectively, of the punch. Figs. 5, 6, and 7 are views of the ear-piece. Fig. 8 is a view of the bar of iron from which an ear-piece has been cut by the punch and die. Fig. 9 shows the end of a strip of spring-steel plate which is to be made into a spring-head, and two of the ear-pieces in position against the said steel ready for forging. Fig. 10 is a view of a finished spring-head.

One head is formed on each end of the inner plate, *b*, of one half of the spring, and consists of two ear-pieces, *c*, one at each edge of the plate. Each end of the inner plate, *d*, of the other half of the spring is suitably formed to take position between the two ear-pieces, and a hole, *e*, is in each ear-piece for the passage of the bolt which secures the two halves of the spring together.

The object of my invention is to provide a superior ear-piece for the formation of the heads.

The improved ear-piece is shown in Figs. 5, 6, and 7.

The letter *c* designates the ear-piece, which has a flange, *f*, bent at a portion of the edge forward on or toward the inner face. On the outer face a curve, *f'*, is formed, whereat the said flange is bent, and the inner face, *f''*, of the flange from the bend bevels or tapers and forms, with the outer side, *f*, of the flange, a knife-edge, *f'''*. The inner beveled face, *f''*, of the flange is to lap over the outer surface of the spring-plate *b*, as at Fig. 9, and be welded thereto. The advantage of having the ear-piece flange beveled or tapered to

a "knife-edge" is that the welding of the ear-piece to the spring-plate is greatly facilitated, and thereby, also, a symmetrical-shaped head can be produced with much less labor. A feature in the formation of this flange is that the grain of the iron is continuous across the ear part *c*, curve *f'*, and flange, whereby the liability of the said flange splitting off or separating from the ear-part, as in ear-pieces heretofore used, is obviated. This result is obtained by first preparing straight bars or plates of iron, like that shown in Fig. 8, flat on both surfaces, with the grain running lengthwise of the bar, and then presenting the bar to the die in such manner that the parts of the die which cut and bend the flange *f* will take effect crosswise of the grain. Near each end of the flange the ear-piece has a tang, *g*, also bent at the edge of the ear forward on or toward the inner face, as shown in Fig. 7. The inner face, *g''*, of each tang bevels or tapers, and forms with the outside a pointed extremity, *g'''*, the advantage of which is that such tangs may be formed of metal pressed up in large part from the ear-piece blank *c*, and thereby obviate cutting the tang from another portion of the metal bar, thus at once simplifying the operation of manufacture, as one stroke of the punch cuts and shapes the ear-piece, and also less metal is cut from the bar. This is illustrated in Fig. 8, where the horseshoe-shaped notch *s'* in the iron bar shows the form of cut made by the removal of one ear-piece. The two tangs are diametrically opposite each other. Between each tang and the flange *f* is a space, *d'*, which is to be occupied by the edge of the spring-plate *b* when the welding is done. The tangs serve to keep the ear-piece in position on the edge of the spring-plate while the flange *f* is being welded. When in the welding process the initial union has been effected between the flange *f* and spring-plate, the welding may then be easily completed and the union made thoroughly homogeneous, as there is nothing projecting from the inner face of the ear-piece but the two little tangs, which are so slight as not to interfere with the operation.

The letter *H* designates the die-block, and *I* the punch. An opening, *k*, having the shape of the finished ear-piece, is in the center of

the block, through which the ear-piece passes when cut by the punch. Fixed on the top of the block, at one side of the opening, is a raised ledge, l , having a top edge, f^3 , which curves nearly half-way around the opening. On the surface of the ledge, just back of the edge f^3 , is a stud, f^4 . When the bar of iron from which the ear-piece is to be cut is placed with its end against the stud f^4 , and the punch I begins to descend on the bar, the edge f^3 bends the end of the bar up to form the ear-piece flange f . Then the punch continuing to descend cuts the ear-piece.

At opposite sides of the opening k , and in front of the raised ledge l , are guides n , which set directly on top of the block H . The guides have beveled upright sides g' , which adjoin the opening. The bar of iron s , from which the ear-piece is to be cut, should be broader than the opening k , and when the bar is placed with its end against the stud f^4 it will set between the beveled sides g' , with its edges against said sides.

The end or face c' of the punch is flat. Extending across one side of the punch, and adjoining the face is a curved hollow or bevel, f^5 , which in the operation of cutting the ear-piece receives the inner bevel, f^2 , of the flange. The said flange bends up over the lower edge, f^6 , and is cut by the upper edge, f^7 , on the side of the punch. Two notches, g^2 , are in the edge of the face, one opposite the other. When the punch descends, each notch passes adjacent to one of the beveled sides g' of the guides. The tangs g on the ear-piece are formed by these notches. It will be understood from the foregoing that the ear-piece is cut and all its parts pressed into form at one descent of the punch I.

The guides n are adjustable toward and away from each other. Each guide has a shank, p , with a slot, q , in it, and a set-screw, r , passes through the slot into the top of the block. By this means the guides may be adjusted.

Ear-pieces of the kind here shown and described are suited for heads of carriage and wagon springs of various kinds.

The ear-pieces may vary in shape from these here shown to suit different kinds of springs. The ear-part c may have a shape

different from that shown in Fig. 6—that is, instead of being nearly circular may be elongated—and the length of the flange f may be correspondingly greater. Such differences are immaterial.

The punch and die here shown constitute the subject-matter of another application for Letters Patent filed by me June 21, 1884.

I am aware that it has been proposed in Letters Patent to make ear-pieces for spring-heads having a flange which is as thick at the edge as at any other part, and also having tangs or lugs the extremities of which are as broad and as thick as any other part. To make such an ear-piece requires two operations—first, to cut a blank having a given shape, and, second, to turn or bend the tangs and flange up. Such ear-pieces therefore require more labor and consume more metal.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. As an article of manufacture, an ear-piece for heads of springs, consisting of an ear part, c , provided at a portion of its edge with a flange, f , which is beveled or tapered to form a knife-edge, f^8 , and also provided with two tangs, g , projecting on the same face as the flange, as set forth.

2. As an article of manufacture, an ear-piece for heads of springs, consisting of an ear part, c , provided at a portion of its edge with a flange, f , and also provided with two beveled or tapered tangs, g , projecting on the same face as the flange, each tang having a pointed extremity, g^4 , as set forth.

3. As an article of manufacture, an ear-piece for heads of springs, consisting of an ear part, c , provided at a portion of its edge with a flange, f , which is beveled or tapered to form a knife-edge, f^8 , and also provided with two beveled or tapered tangs, g , projecting on the same surface as the flange, each tang having a pointed extremity g^4 , as set forth.

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

ANTHONY KRONENBITTER.

Witnesses:

J. S. ELLIOTT,

ROBERT LENMON.