

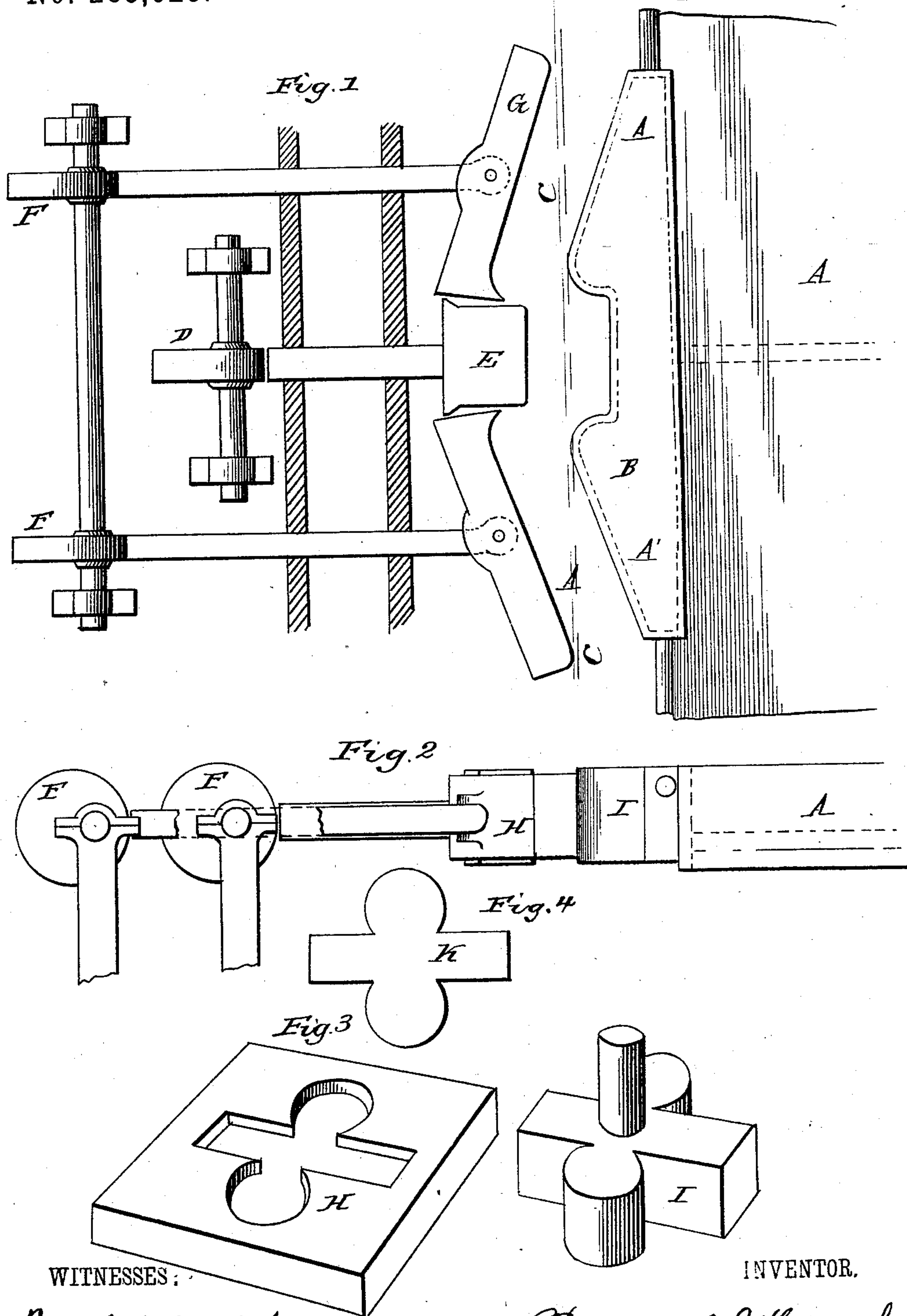
(No Model.)

R. S. HUNZEKER.

DIE FOR MAKING CARRIAGE SPRINGS.

No. 285,623.

Patented Sept. 25, 1883.



WITNESSES:

Fred. L. Dietrich
Victor Evans

INVENTOR.

Rudolph S. Hunzeker
By Daniel Breed ATTORNEY.

UNITED STATES PATENT OFFICE.

RUDOLPH S. HUNZEKER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO WILLIAM A. HERRON, WM. J. PATTERSON, AND RUFUS
H. HERRON, ALL OF SAME PLACE.

DIE FOR MAKING CARRIAGE-SPRINGS.

SPECIFICATION forming part of Letters Patent No. 285,623, dated September 25, 1883.

Application filed April 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH S. HUNZEKER, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Dies for Making Carriage-Springs, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention consists of an improvement in dies for making carriage-springs, and also in a new process of tempering springs, all of which will be understood from the following description and claims.

In the accompanying drawings, Figure 1 is a plan view of my machine. Figs. 2, 3, and 4 are detached views.

Upon a table, A, is placed a die, B, of suitable shape, for bending the spring. This die is made hollow and cooled by a constant flow of water through the same. The straight piece or plate of steel is placed in front of the die, as shown at C in broken lines. Then by means of a central cam, D, the follower E is driven home to form the central bend of the spring. Then by means of the two side cams, F, the two followers G are driven forward upon the ends of the spring, thus completing its shape. In the same machine is another die, H and I, for stamping out a cap, K, Fig. 4, to

fit over the ends of two springs, A', when put together, forming a double elliptic spring. By using this water-tempering die the spring is bent or set, and also tempered at the same time by once heating, while in the old way springs are usually heated three times: first, to bend and set the spring; second, to temper the same, and, third, to draw the temper, all of which burns and injures the steel and spring.

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

1. In a spring-bending machine, a hollow die adapted to have a constant current of water flow through the same without contact with the heated metal, whereby the spring may be bent, set, and tempered at the same operation and without reheating, substantially as set forth.

2. In a spring-bending machine, the central follower, E, operating first to bend the middle portion of the spring, and the two side followers, G, operating upon the ends of the spring after the central bend has been completed, substantially as set forth.

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

RUDOLPH S. HUNZEKER.

Witnesses:

DANIEL BREED,
ISAAC T. GIBSON.