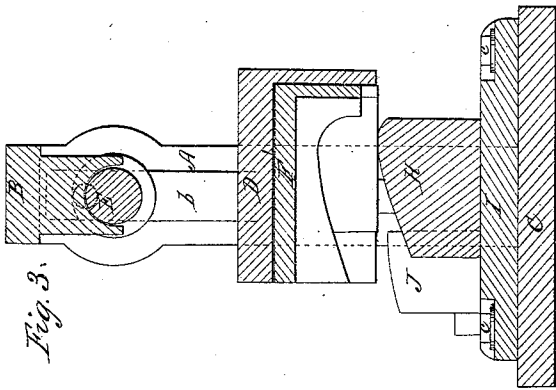


*J. Evans,*

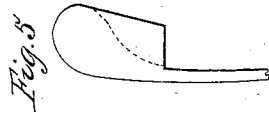
*Making Carriage Springs,*

*N<sup>o</sup> 33,580.*

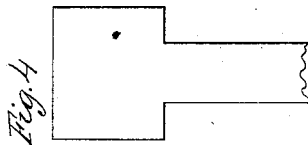
*Patented Oct. 29, 1861.*



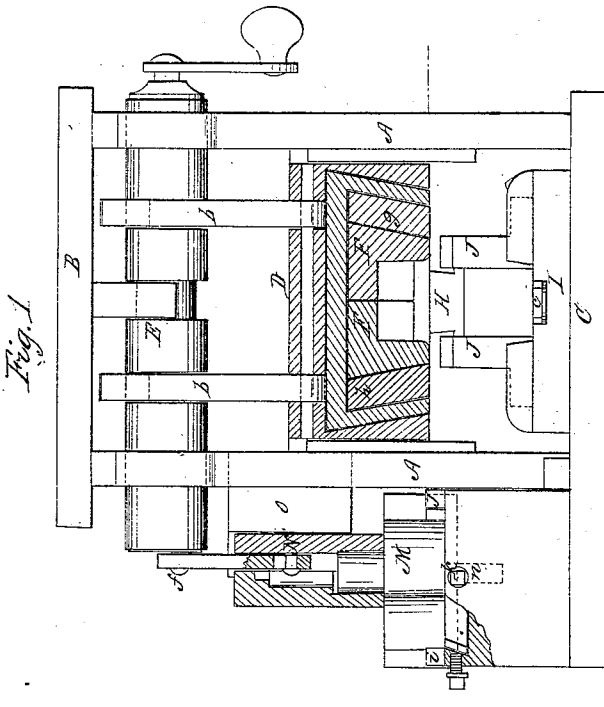
*Fig. 3.*



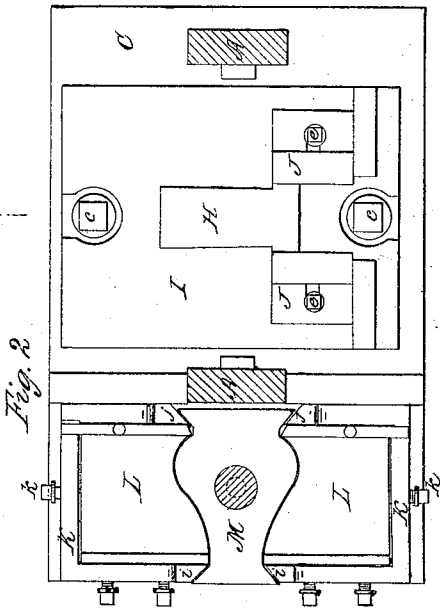
*Fig. 5.*



*Fig. 4.*



*Fig. 1.*



*Fig. 2.*

*Witnesses;*  
*J. Coombs.*  
*Geo. Reed.*

*Inventor;*  
*John Evans*  
*per Messrs J. C.*  
*attorneys.*

# UNITED STATES PATENT OFFICE.

JOHN EVANS, OF NEW HAVEN, CONNECTICUT.

## IMPROVED MACHINE FOR HEADING CARRIAGE-SPRING HEADS.

Specification forming part of Letters Patent No. 33,580, dated October 29, 1861.

*To all whom it may concern:*

Be it known that I, JOHN EVANS, of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Machines for Heading and Trimming Spring-Heads; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents my invention by a side elevation, the movable head and cup-die and the sliding punch being shown in section. Fig. 2 is a horizontal section of Fig. 1, taken at the line *x x*. Fig. 3 is a transverse section of Fig. 1, taken at the line *y y*. Fig. 4 is a fragment of the outer leaf of a spring before the head is formed. Fig. 5 is a side elevation of the same after leaving the header, the dotted line showing the shape of the head after it is trimmed.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain improvements in machines for making carriage-spring heads; and it consists in an arrangement for gaging the heads so as to have them of a uniform size and shape, also in an arrangement of adjustable right and left hand dies and punch for trimming the ears of the spring-head separately from the under side, as hereinafter to be fully explained.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

The outside framing of this machine is constructed in a substantial manner of iron and consists of two uprights *A A'*, connected together at top by a cross-piece *B* and secured at bottom in the foundation or bed *C*.

*D* is a movable head fitted to slide up and down on ways on the inside of the uprights *A*.

*E* is a crank-shaft running longitudinally of the frame and fitted in boxes in the upper part of the standards. The movable head is connected to the offset portion or cranks of the said shaft by pitmen *b b*, through the medium of which motion is communicated to the head and cup-die.

*F F'* is a cup-die formed in two parts and fitted with a dovetail in the holder *G*, and secured therein by a wedge *g* and gib *h*. The

holder is also fitted with a dovetail in the movable head *D*.

*H* is a stationary counter-die provided with a shank on its under side, which is fitted in a mortise in the plate *I*, and secured in position on the bed by bolts *c c* passing through the plate into the bed *C*.

*J J* are adjustable guides or gages secured to the plate *I* upon each side of the counter-die by bolts *e e* passing through slots in the foot-pieces of the gages into the plate *I*. On the outside of the upright and secured upon the foundation are two beds *K K*, upon the tops of which adjustable right and left hand dies *L L* are fitted.

*M* is a punch attached to the under side of the cross-head, which is moved up and down in guides *O O* by means of its connection by a pitman with the wrist-pin *f* in the end of the shaft *E*.

The inner front *i* and back corners *j* of the beds *k k* project a short distance above the surfaces of the dies *L L* and serve to guide and steady the cutter during its descent. A pin *n*, secured in the center of the under side of the punch, (shown in dotted lines in Fig. 1,) serves as a gage in putting the heads in the dies to be trimmed. By changing this pin for one of a larger or smaller diameter ears of greater width can be trimmed. The dies *L L* can be adjusted to the cutter, as either one or the other wears away by means of the set-screws *k k*.

The operation is as follows: The ears being welded to the outer leaf of the spring, as shown in Fig. 4, it is placed upon the counter-die, with the inner edges of the ears resting against the adjustable gages, when the movable head and cup-die are forced down, the stationary die causing the end of the leaf and ears to conform to the shape of the cup-die, as shown in Fig. 5. As the movable head is raised, the spring-head is removed and the same operation gone through with another. The spring after being headed is ready for trimming and is placed between the dies, the back or upper side of the spring-head resting against the guide-pin and the front and under portion of one of the ears resting upon the die. The punch being now forced down the die cuts or trims the ear from the inner side to the shape shown in dotted line in Fig. 5, leaving the

barb or rough edge on the outside of the head, which can be easily removed in finishing. Only one side of the spring-head being trimmed at once prevents the ears being pressed out of shape. When it is desired to forge spring-heads of a greater width, a liner is interposed between the two parts of the cup-die, and a counter-die to correspond is placed in the stationary plate.

With a machine of the above construction three men can easily forge and trim one hundred sets of spring-heads per day, whereas in the ordinary way twenty-five sets is considered a good day's work.

By the use of the adjustable gages the spring-heads are all formed of a uniform length.

What I claim as new herein, and desire to secure by Letters Patent, is—

1. The combination of the adjustable gages J J with the counter-die H and plate I, when arranged and operating in the manner and for the purposes described.

2. The right and left hand punch M, in combination with the adjustable right and left hand dies L L and gage-pin *n*, when arranged and operating in the manner and for the purposes described.

JOHN EVANS.

Witnesses:

CHAS. SHELTON,  
JOHN INSULL.