

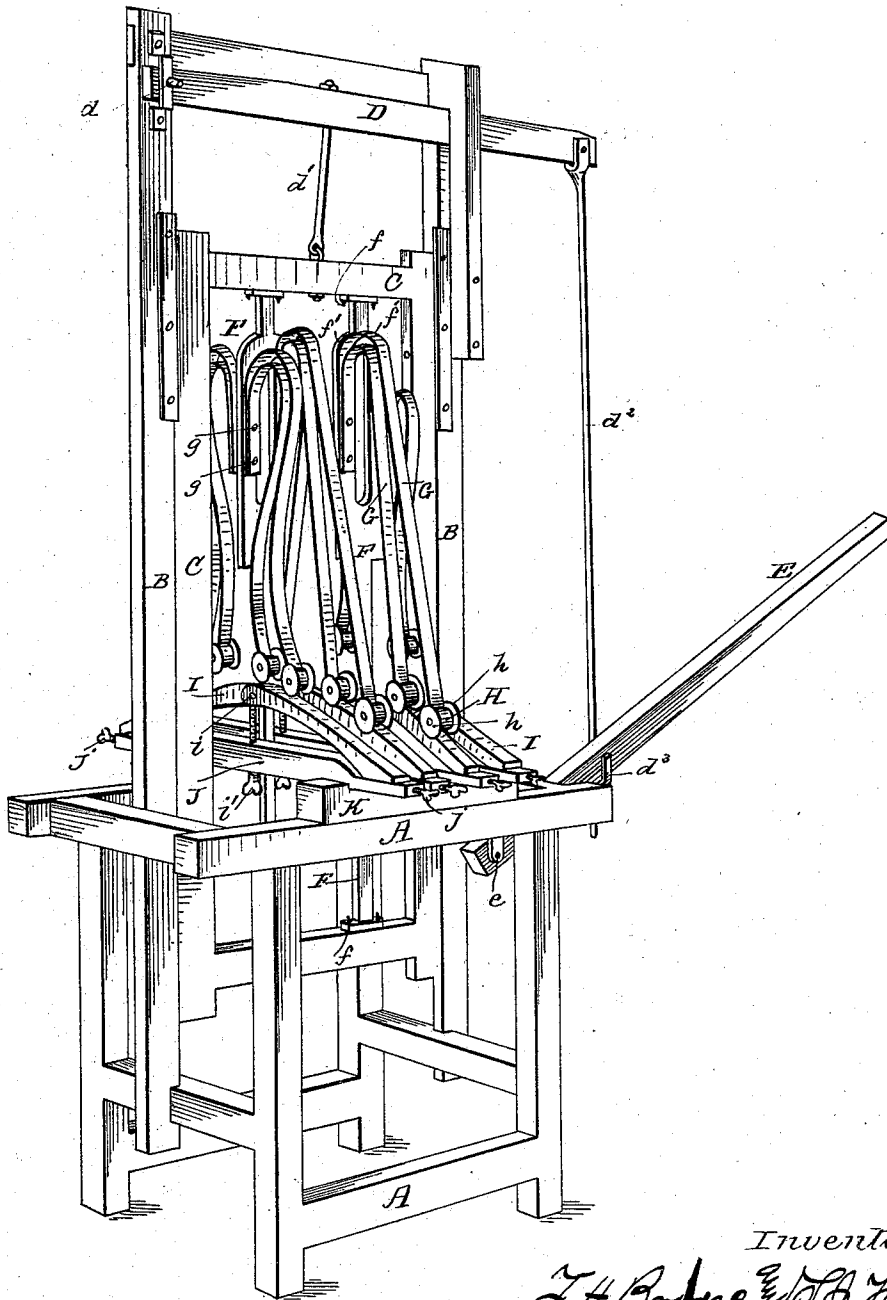
(No Model.)

T. H. BRIGGS & S. J. HESS.

CARRIAGE SPRING MACHINE.

No. 268,995.

Patented Dec. 12, 1882.



Witnesses:
E. B. Stocking
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Inventors:
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By *[Signature]*
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UNITED STATES PATENT OFFICE.

THEODORE H. BRIGGS AND SANDFORD J. HESS, OF OTEGO, NEW YORK.

CARRIAGE-SPRING MACHINE.

SPECIFICATION forming part of Letters Patent No. 268,995, dated December 12, 1882.

Application filed July 5, 1882. (No model.)

To all whom it may concern:

Be it known that we, T. H. BRIGGS and S. J. HESS, citizens of the United States of America, residing at Otego, in the county of Otsego and State of New York, have invented certain new and useful Improvements in Carriage-Spring Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to letters or figures of reference marked thereon, which form a part of this specification.

Our invention relates to a machine designed for use in the manufacture of elliptic springs; and it consists in certain features hereinafter described, and specifically set forth in the claims.

The drawing represents in perspective a machine embodying our improvements.

A represents a suitable frame-work, in which is supported an upright rectangular frame, B, adapted to receive and permit the vertical reciprocation of a second rectangular frame, C, in which are arranged certain operative devices, hereinafter described. The frame C is reciprocated in one direction by means of a lever, D, pivoted to the frame B at *d*, and connected to the frame C by a rod, *d'*, and to the operating-lever E by the rod *d''*, which passes beneath the lever E in hook form, as at *d'''*, whereby its place on the lever may be located at will at desired distances from the fulcrum *e* thereof. Within the frame C are secured one or more metal bars, F, by means of screws or bolts *f*. Each of the bars F is throughout the greater portion of its length narrow, and throughout the remaining portion of its length is widened to provide surface for the firm attachment of operating devices, hereinafter described, in such manner that the narrow portion of the bar F may pass down through or between certain devices placed across the path, in and through which the bar is reciprocated during the operation of the machine; and in this case the bars F are widened at *f'*, and to the widened portion are secured spring-arms G, two each on either side—that is, front and back of each widened portion *f'*—the outer one

of the spring-arms G being longer than the inner one of the pairs, and both pairs being secured by bolts *g* passing through the spring-arms and through the widened portion *f'*, to which they are attached. The extremities of the spring-arms are each bent back upon itself to form a bearing for the roller H, having flanges *h*, which are adapted to embrace the sides of arched bed-pieces I. These bed-pieces are supported upon base-pieces J, resting in transverse blocks K upon or suitably secured to the frame-work. Each of the arched bed-pieces I is hinged at its apex, as at *i*, and rests upon the ends of thumb-screws *i'*, passing vertically through the base-pieces J, and these latter are at the end provided with thumb-screws *j*, which abut against the ends of the arched bed-pieces I. By this construction the curvature of the arched pieces I may be changed by means of the screws *i'* and *j* in a manner readily apparent. It will be seen that there is an arch for each set of spring-arms and the rollers attached thereto, so that the narrow portion of the rods F passes between the arches.

This being the construction, the operation of our invention is as follows: The spring-blank, heated as required, is placed upon the arch-piece I when the reciprocating frame C is in an elevated position, and consequently the spring-arms G and rollers H are free from contact with the arch-pieces. The blank at this time is substantially straight, and as the lever E is depressed the spring-arms and rollers are brought down upon the blank, and gradually shape it by pressing it firmly in contact with the arch-pieces, the action of the rollers being first in a direct line, and afterward diverging from the center toward the end of the arches, and as they diverge the resistance of the springs increases, and as the outer pair of springs arrive near the end of the arches their resistance decreases, while that of their mates—the inner rollers of the pairs—is retained to about the maximum, resulting in not only shaping the blank to the arched pieces, but operating in a drawing manner from center to end, and by means of the flanges *h* keeping the blank in proper position upon the arch-piece.

If desired, an increased number of spring-arms and rollers may be arranged to operate on each arched piece, and the spring may, after being put into proper shape by the spring-arms and rollers, be tempered or cooled while on the arched pieces.

We hereby reserve the right to make subsequent application for the devices and combination of devices herein shown or described, but not claimed.

Having described our invention and its operation, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the frames A, B, and C, of the arched pieces I, rods F and spring-arms G, flanged rollers H, levers D and E, and rods d' d^2 , substantially as shown and described.

2. The combination of the frame C, and the rods F, widened at f' , and provided with spring-arms G, having flanged rollers H, substantially as shown and described.

3. The combination of the frame C, bars F, spring-arms G, flanged rollers H, hinged arch-pieces I, and base-pieces J, provided with the screws i' j , substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

THEODORE H. BRIGGS.
SANDFORD J. HESS.

Witnesses:

CHARLES STILSON,
PHILO A. GOODRICH.