C. B. KOON.

MACHINES FOR FITTING AND TEMPERING SPRINGS.

No. 183,765. Patented Oct. 31, 1876.

Fig. 1.

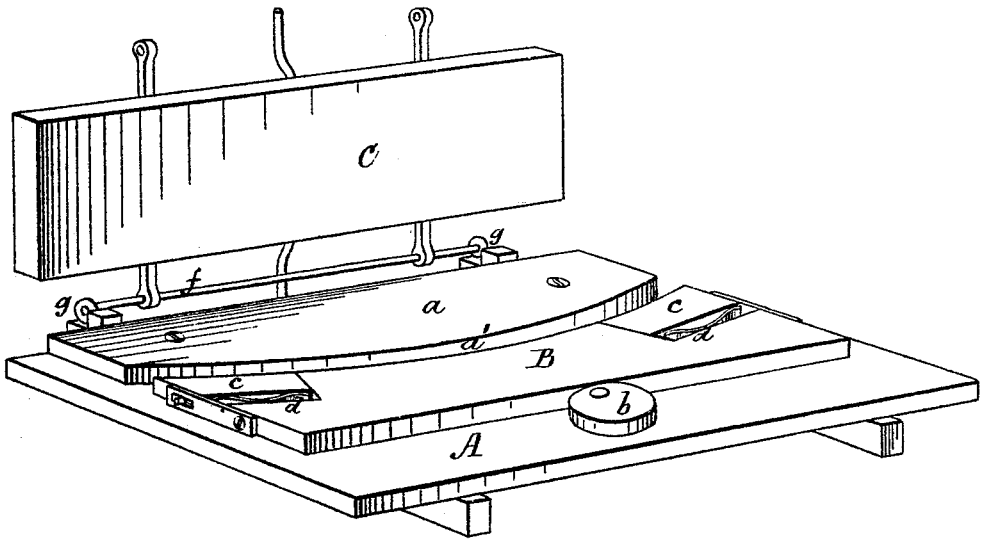
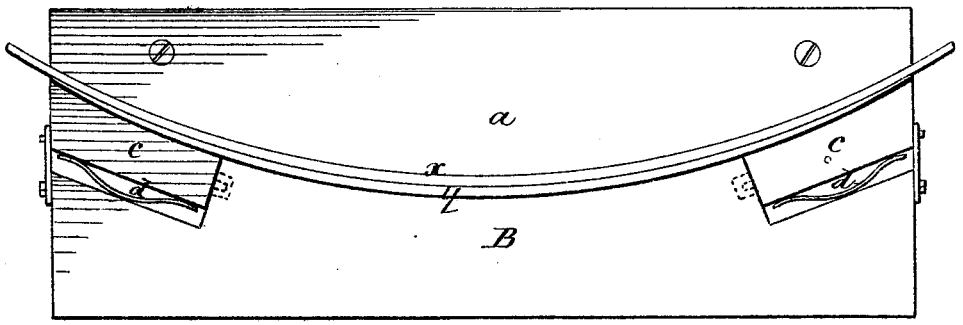


Fig. 2.



Witnesses:

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IMPROVEMENT IN MACHINES FOR FITTING AND TEMPERING SPRINGS.

Specification forming part of Letters Patent No. **183,765**, dated October 31, 1876; application filed September 9, 1876.

To all whom it may concern:

Be it known that I, CHARLES B. KOON, of the city of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Combined Machines for Fitting and Tempering Leaf-Springs for Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents the machine in perspective; and Fig. 2 represents, in top view, the templets in use.

The bending and setting or fitting of vehicle-springs, as well as the tempering, is an operation, as it is now generally done, that requires many manipulations and skilled mechanics to accomplish while the steel is at the proper temperature; otherwise the result is badly fitted or tempered springs.

The object of my invention is to fit the main leaves of vehicle-springs to a prepared form or templet and temper them at one operation, and also to fit the outer leaves to the main leaves, and to each other, by means of a sliding flexible templet, composed of several sections or parts, so arranged and adjusted that each may act independently of the other through a short distance, and adapt itself to the slight inequalities of spring-leaves, while fitting them and tempering them at the same time, thus rendering careful manipulations by skilled hands unnecessary to produce uniform results, and, consequently, much reducing the expense.

In the drawings, A represents a platform or bed-piece, constructed preferably of iron, to which is firmly fastened the stationary metallic templet *a*, equal in thickness to the width of the leaf to be fitted. The front edge *a'* is curved to correspond with the curve or set desired in the leaf to be fitted and tempered. In first fitting the main leaves a solid concave templet is used in place of the sectional templet B, (shown in the drawings,) and the steel plate that is to be shaped is placed, at a red heat, between the templets *a* and a solid concave templet, which is forced by an eccentric, *b*, so as to bend it to the desired curve. While it is held in this position, and before it has time to cool, a heavy metallic block, C, hinged to the frame by a rod, *f*, passing through eyebolts *g*, by which it can be adjusted to the height of the leaf and said block, extending the whole length of the leaf, is dropped upon the edge of the leaf, for the purpose of driving it down against the bed-plate A and straightening it edgewise. The templets are kept cool by the application of water between each operation, and thus the leaf is tempered by its contact with the cold metal while it is held in the required position. To fit and temper the next leaf to the main leaf, a templet similar to templet *a* is used, made to correspond with the curve required in this leaf when tempered; or the main leaf *x* is retained in position against the templet *a*, and the leaf *y* is pressed and fitted against it by the templet B and sections *c c*. This templet B is formed of three or more sections joined together, so that each may move a short distance independently of the others, and, when pressure is applied to the templet B to force it toward *a*, the sections press in succession against the leaf *y*, which is then at a red heat, forcing it against the tempered leaf *x*, if it is retained, which, in turn, is pressed against the templet *a*. The templet B, being formed in sections, adjusts itself to the curve intended to be given to the leaf *y*, thus fitting it closely to the leaf *x*. The sections *c c* of the templet B are intended to fit the taper or draw at the ends of the leaves *y*, and are free to slide a short distance back or forward in recesses formed in the templet B under the impulse given to them by the ends of the spring-leaf *y*, or by their own springs *d* during the operation. The block C is then dropped upon the edge of both leaves *x* and *y*, and brings their edges in the same horizontal plane, and the templets, block C, and bed-piece A chill and temper the leaf on both sides and edges, while it is held in the required position, without bringing any water in contact with it, as it is liable to warp and twist the spring, even when held rigidly to the templets. In like manner, and by means of templets properly curved, another leaf is fitted and tempered against the leaf *y*, or between the templets *a* and B *c c*, the horizontal bed-plate, (similar to templet *a*,) and the block C. The main part of tem-

plet B may be divided into two or more sections; but I prefer to use it as shown in the drawings.

I am aware that templets for bending vehicle-springs have been used so as to operate vertically upon corresponding templets or formers, said templets being either solid or formed in sections, tappets, or supports, placed either side by side, or at a distance apart. I am aware, also, that hollow or divided templets have been operated vertically, and used, in connection with water, to chill the leaves of springs; and I do not claim any of these devices.

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

1. The combination, with a horizontal base-plate, A, of two opposing templets and a straightening-block, substantially as and for the purpose described.

2. The combination of a sectional flexible templet, B *c c*, a solid templet, *a*, and a horizontal bed-plate, A, with the block C, hinged to said bed-plate or foundation, for fitting, straightening, and tempering vehicle-springs at one operation, substantially as described.

CHARLES B. KOON.

Witnesses:
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