S. R. BAILEY.

WOOD-BENDING MACHINE.

No. 174,652. Patented March 14, 1876.

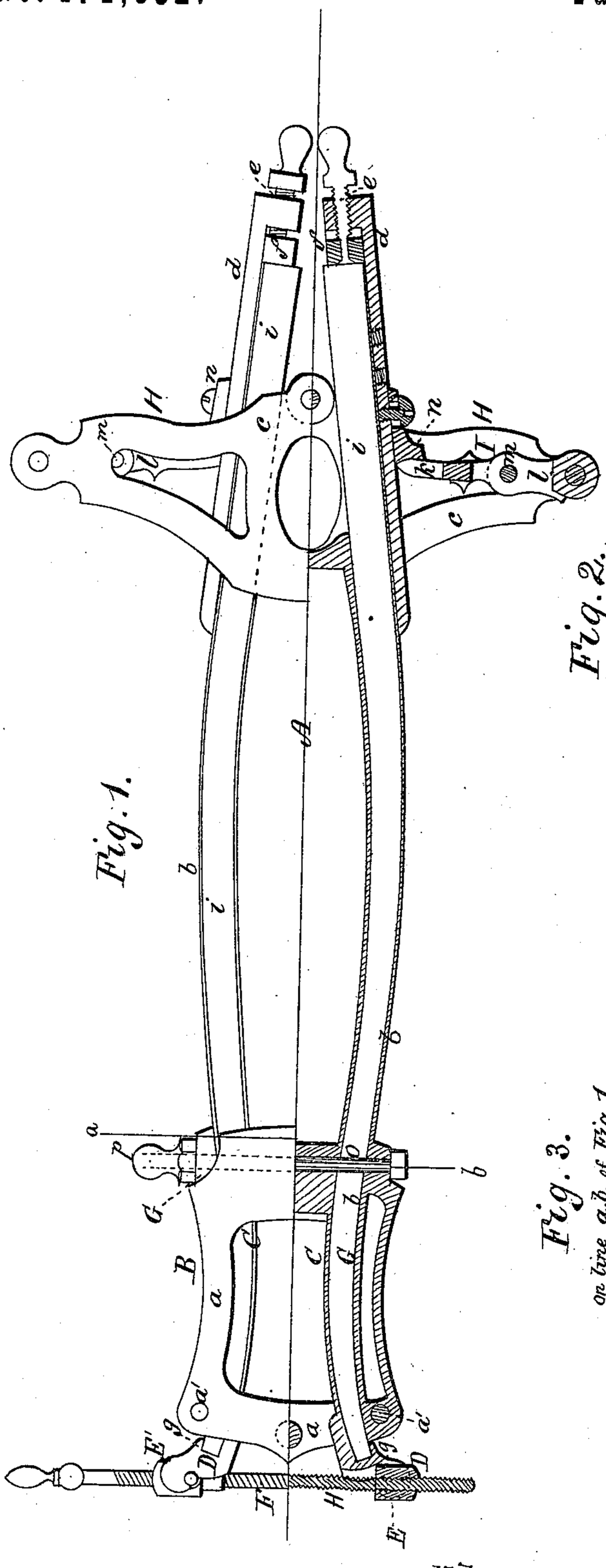

Fig. 1.

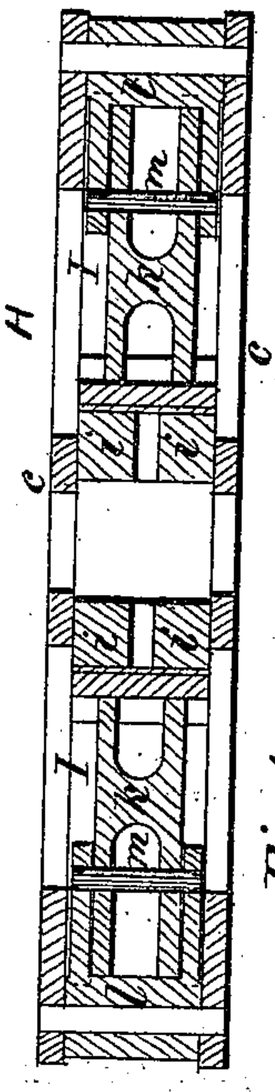

Fig. 2.

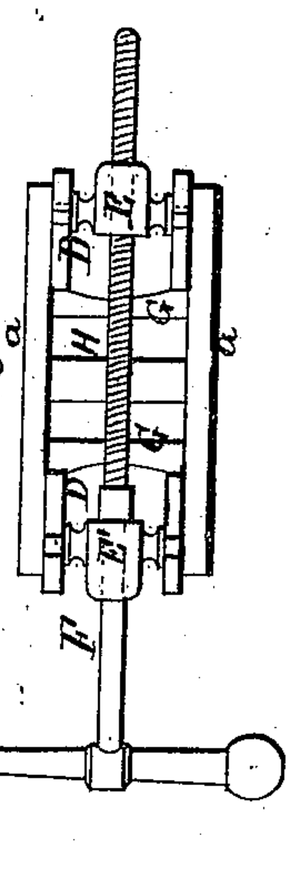

Fig. 4.

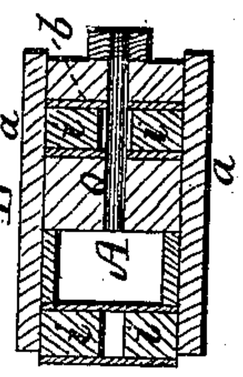

Fig. 3.
on line a.b. of Fig. 1.

Witnesses.
Francis Lentz
W. E. Boardman.

S. R. Bailey.
F. Curtis. Atty.

UNITED STATES PATENT OFFICE.

SAMUEL R. BAILEY, OF BOSTON, MASS., ASSIGNOR TO EDWARD A. GILLETT, OF SAME PLACE, AND OSCAR S. GILLETT, OF BUFFALO, N. Y.

IMPROVEMENT IN WOOD-BENDING MACHINES.

Specification forming part of Letters Patent No. **174,652**, dated March 14, 1876; application filed August 24, 1875.

To all whom it may concern:

Be it known that I, SAMUEL R. BAILEY, of Boston, Suffolk county, Massachusetts, have invented certain Improvements in Wood-Bending Machines, of which the following is a specification:

The drawings accompanying this specification represent, in Figure 1, a sectional plan, in Figs. 2 and 3 cross-sections, and in Fig. 4 an end view, of a machine embodying my improvements.

In these drawings, A represents a horizontal box or drum, whose interior is to be heated in a proper manner, in order to rapidly dry or "set" the wood, which may be bent upon its sides, such sides being intended to receive the greater part of a carriage-shaft, or number of shafts, and being of the form or curvature which is to be imparted to the latter. The outer end of this shaping-box or former A terminates in an open frame, B, whose cheeks *a a* project beyond the sides of said former, while such sides terminate in flexible straps C C, which are received within the frame B. The outer ends of these straps C C, which protrude beyond the frame B, each terminate in a pair of hooked ears, D D, while engaging each pair of ears is a trunnioned cross-head, E or E′, and through the latter, and swiveled to it, passes a rod, F, the body of which is converted into a screw, H, and screws through the opposite cross-head E. One extremity of the rod F is provided with a crank, and by rotating it in one or the other direction the straps C C are caused to recede or approach one another. Within the cheeks *a a*, and outside of the straps C C, I dispose, upon each side, a shaping-block or former, G, which, like the central former A, may be hollow and heated internally, and I pivot each former G, at its outer end, to the cheeks, as shown at *a′*. The inner face or side of each former G is composed of a thin metal strap, *b*, which constitutes a continuation, and is, in effect, a part, of the former, and is prolonged to such a length as to extend considerably outside of the front end of the central former A, and between two pairs of cheeks, *c c*, which constitute part of a frame or guide, H, that is secured to the front end of the said former A. The front extremity of each strap *b* terminates in a head, *d*, through which screws a screw, *e*, the rear end of such screw being swiveled to a plate, *f*.

In operating with this machine a strip of wood, *i*, of the proper length and size to produce a carriage-shaft, and properly steamed, is passed between the cheeks *c c* and *a a* upon each side of the central former A, and with its smaller end abutting against one of the ears D D, a small spur or rib, *g*, being preferably formed upon the latter, to properly retain the end of the shaft in contact with the adjacent strap C. Each screw *e* is next advanced until each strip of wood *i* is firmly clamped between the ear D and plate *f*, and thus firmly held in place. The rod F is now rotated in such a direction as to separate the straps C C, and continued until the ends of the shafts have been bent about the inner faces of the formers G and received the form of the latter. The front ends of the straps *b* and of the shafts *i* are now brought together, and the latter bent about the central former A, where they are permitted to remain until dry or set. In order to retain the straps *b* and shafts *i* in the position last named until such shafts are dry or set, I employ, in the present instance, to operate with each strap, a toggle-jointed lever, I, composed of two arms, *k l*, jointed together, as shown at *m*, and disposed between the outer ends of the cheeks *c c*, the outer end of the outer arm *l* being pivoted to such cheeks, while the inner end of the inner arm *k* abuts against the outer face of the contiguous strap *b*, and brings up against an adjustable stop, *n*, applied to each strap.

As the strips of wood to be bent in this machine may vary in thickness, the stop *n* is applied to the strap in such manner as to be readily changed in position, thus enabling me to adapt the lever I to any desired thickness of shaft. For the same reason it is important to vary the distance between the free end of each former G G and the outer face of central former A, since it is desirable that the connection between the two at this point should be a rigid or unyielding one. To effect this I employ a bolt, *o*, which passes entirely through

both of the formers G G and the central former A, and is provided at one end with a clamp screw or head, *p*.

In practice, the formers and staying-straps are to be of such depth as to receive a number of shafts upon each side, the machines I am now using each containing several pairs of shafts.

My object in making the machine double—that is, bending a shaft upon each side the central former A—is to economize space and time.

I claim—

1. In combination with a central former, about one or both sides of which the body of a shaft is bent, an auxiliary former, against which the end of the shaft is bent, provided with a flexible strap, which extends the length of and incloses the shaft on the side opposite to the central former, and a flexible strap, C, which is a continuation of the main former, and is forced against or toward the auxiliary former, to bend and properly shape the interposed end of the shaft, substantially as set forth.

2. The combination, with the central former, of the end formers, the flexible straps C, and the mechanism, substantially as shown and described, for expanding or spreading said straps simultaneously in opposite directions, so as to press toward their respective formers, substantially as set forth.

3. In combination with the central former, the auxiliary former, provided with a flexible strap, extending the length of and supporting the shaft on the side opposite the central former, and the flexible strap constituting a continuation of the central former, the ears D and adjustable platen or block *f*, for confining the ends of the shaft, substantially as set forth.

4. The combination, with the central former A and strap *b*, of the toggle-lever for confining said strap to the shaft, substantially as set forth.

5. In combination with the central former A and strap *b*, the toggle-lever and the adjustable stop *n*, substantially as set forth.

6. As a means of expanding the straps *b* and bending the wood about the former G, the screw-rod F and cross-heads E or E′, operating with the ears D, substantially as and for purposes stated.

SAMUEL R. BAILEY.

Witnesses:

FRED. CURTIS,

W. E. BOARDMAN.