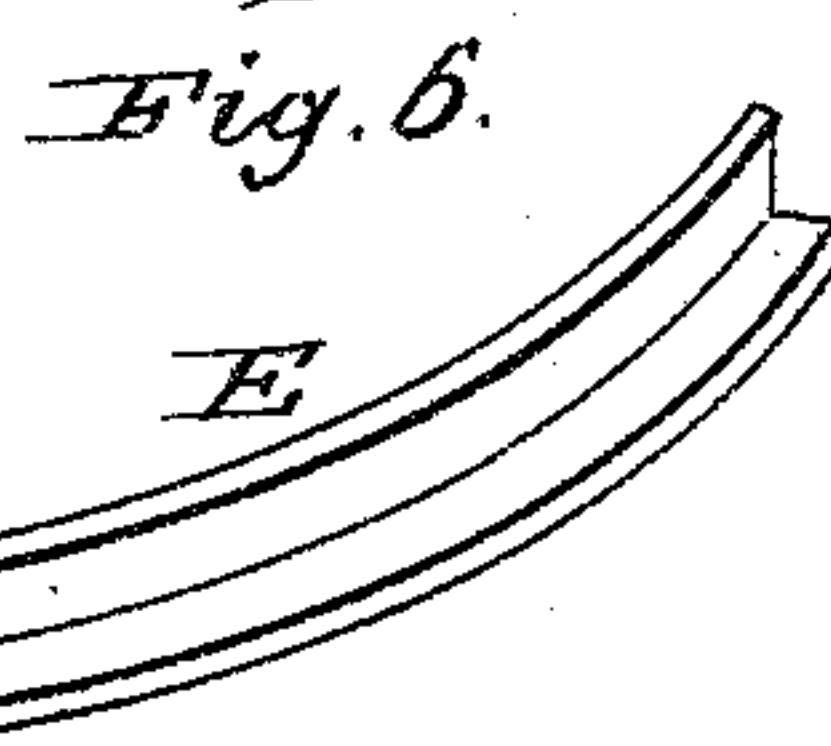
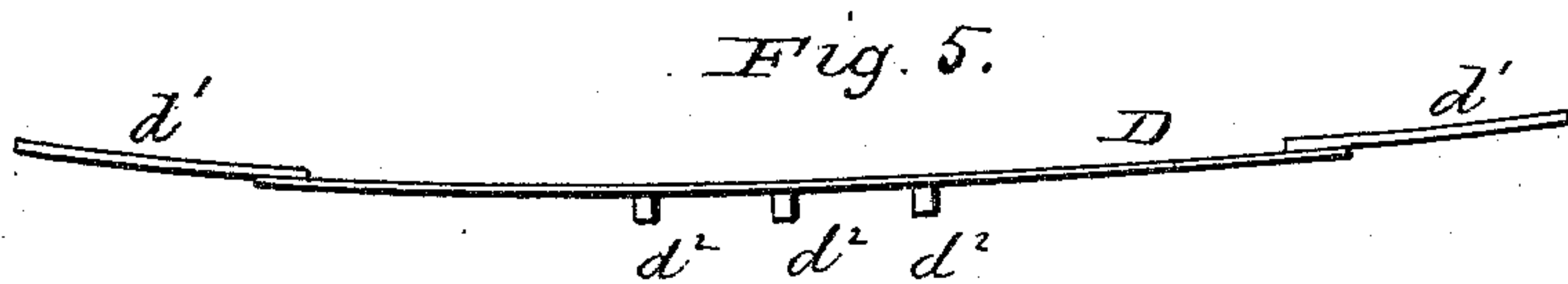
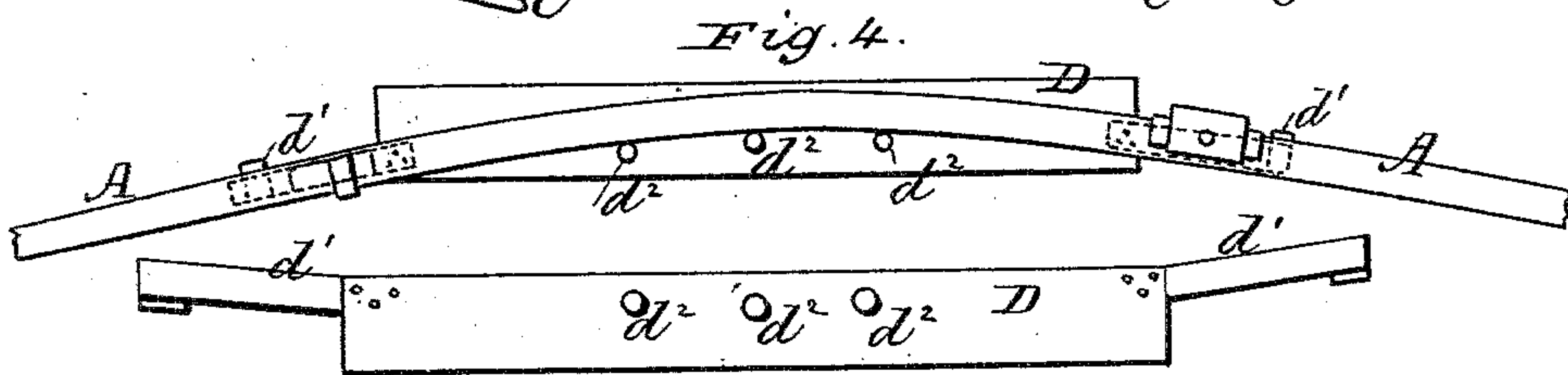
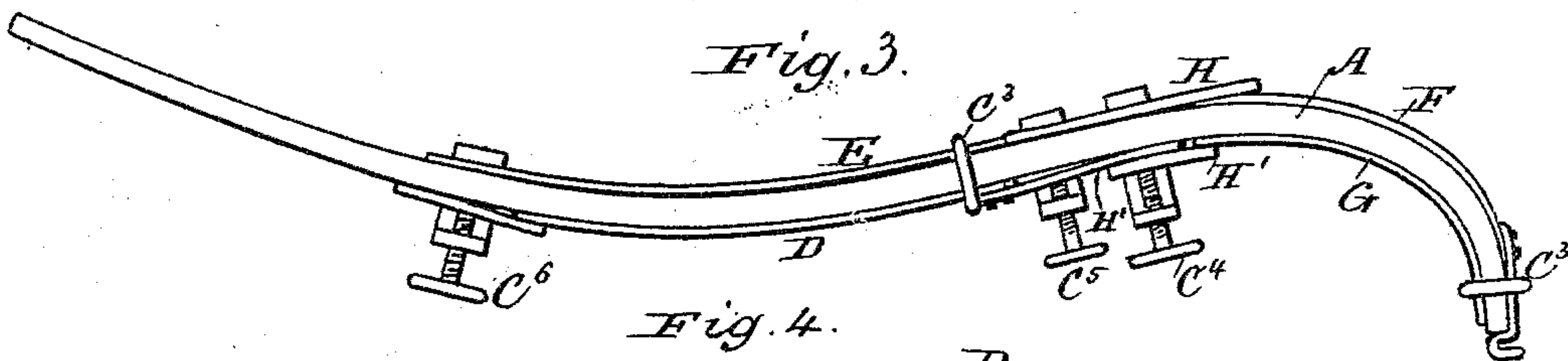
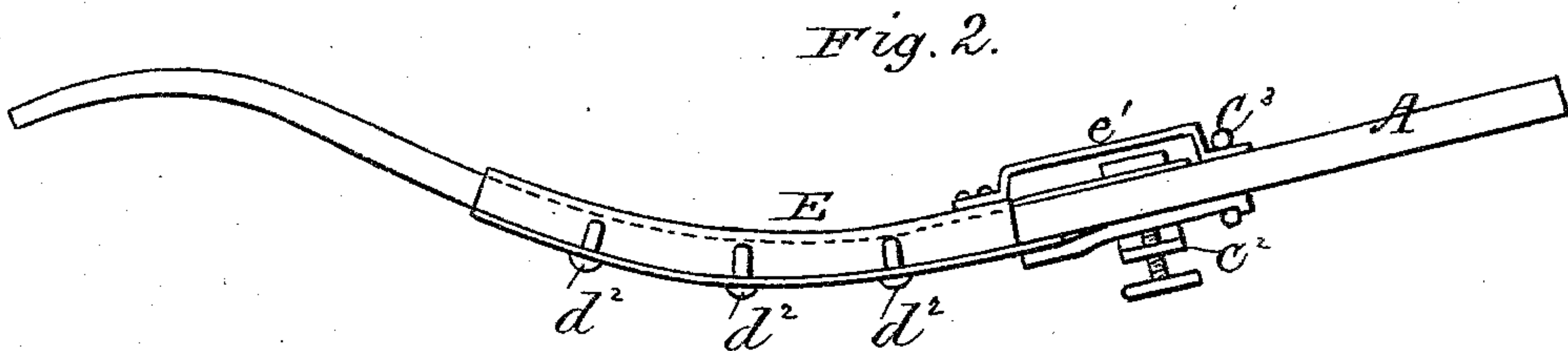
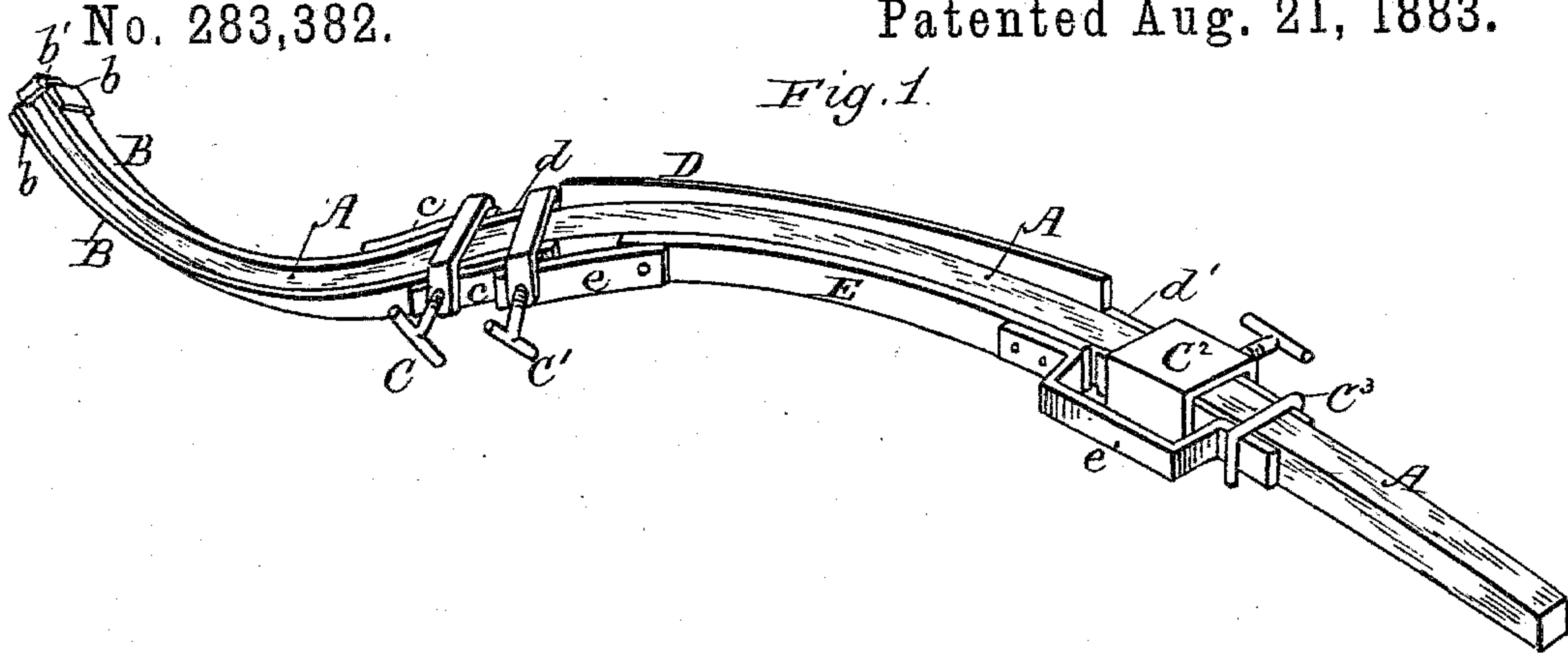


(No Model.)

J. W. DANN.
SHAFT BENDING DEVICE.

No. 283,382.

Patented Aug. 21, 1883.



Witnesses:
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W. Masson

Inventor:
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UNITED STATES PATENT OFFICE.

JESSE W. DANN, OF COLUMBUS, OHIO.

SHAFT-BENDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 283,382, dated August 21, 1883.

Application filed April 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, JESSE W. DANN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Coupé Shaft-Bending Devices, of which the following is a specification.

My invention relates to certain means for shaping coupé-shafts; and it consists of certain features hereinafter described, and specifically set forth in the claims.

Referring to the accompanying drawings, forming a part hereof, Figure 1 is a perspective of a shaft, to which is applied my improved means for shaping it. Fig. 2 is a bottom view of the shaft with a portion of the shaping devices applied thereto. Fig. 3 is a side view of the shaft with end-curving devices attached, and Figs. 4, 5, and 6 are details.

Like letters indicate like parts in all the figures.

It is well known that coupé-shafts have, in addition to the usual outward curve from the rear or coupling end, an outward and upward curve—that is, a lateral and vertical curvature in the direction of its length—and a final downward and outward curve at its front end; and the objects of my invention are, first, to provide means whereby the belly of coupé-shafts may be curved inwardly to the extent desired; second, to prevent breaking of the wood in producing the upward curve; third, provide means whereby shafts may be produced which are uniform in their contour, and means which shall permit of ready application and removal.

A represents the shaft, the front end of which is shaped by means of rigid forms B B, having a desired outline or conformation, and adapted by means of a clip having three prongs, *b b b'*, which embrace said forms and the end of the shaft, to be secured to and upon opposite sides thereof, as clearly shown in Fig. 1. The rear end of the straps B are forcibly drawn to the side of the shafts by means of a clamp, C, plates *c c* being interposed between the clamp and the forms B, so that the tip of end of the shaft is firmly held in a desired shape until it becomes set therein.

To give the desired upward and outward curvature or swell to the shaft at its central portion there is applied at the outside a wide

strap, D, having at each end inflexible plates, *d d'*, and having a series of studs, *d''*, arranged therein in a line curved to agree with the lateral curvature desired in the shaft, which, when brought to said curvature and secured to plates *d d'*, rests upon said studs, which preserve the inward-curved shape until the shaft is bent and secured upon the form E. A form, E, adapted to produce the upward curvature, and to preserve the conformation of the central portion of the shaft, is placed opposite the strap D, and is provided with plates *e e'*. A clamp, C', serves to secure the plates *d e* firmly upon the plates *c c*, while at the rear end of said form the plate *d'* is drawn firmly against the shaft by means of a clamp, C'', and the plate *e'* is formed into a loop and secured to the shaft by a clip, C³.

To give the desired curve to the front end of the shaft an upper strap, F, and a lower form, G, are employed, and which are held firmly in place by a clip, C³, and by plates H H' and a clamp, C⁴.

By the use of separate shapes or forms and binding-straps separate portions of a shaft may be consecutively, or, if desired, simultaneously brought to the desired curvature, and when set some may be removed for further application to other shafts, and being separate the same general curvature may be given to shafts of varied lengths.

The strap D may have several series of holes for the studs *d''*, in order to produce different lateral curvatures.

Having described my invention and its operation, what I claim is—

1. In a shaft-bending device, the wide strap D, having an outward curvature, provided with the plates *d d'* at the ends thereof, and the studs *d''*, projecting from the side and arranged thereon in an upward curvature, substantially as and for the purposes specified.

2. In a shaft-bending device, the combination of the strap D, having an outward curvature, and provided in the middle portion of its length with studs *d''*, arranged thereon in an upward curvature with the rigid curved form E, and means for securing the form and strap to a shaft, substantially as specified.

3. In a shaft-bending device, the form E, constructed with a curved flange, as described,

in combination with the strap D, provided with a curved row of pins, the straps B B at one end, clamps C' C², uniting the latter to the form E and strap D, and clip C³, substantially
5 as specified.

4. In a shaft-bending device, the combination of the straps F G at one end, the strap D, having a curved row of pins and plates, H H',

between the straps F G and straps E D, with clamps C⁴ C⁵, uniting the straps F G to strap 10 D and form E, substantially as and for the purpose specified.

JESSE W. DANN.

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