

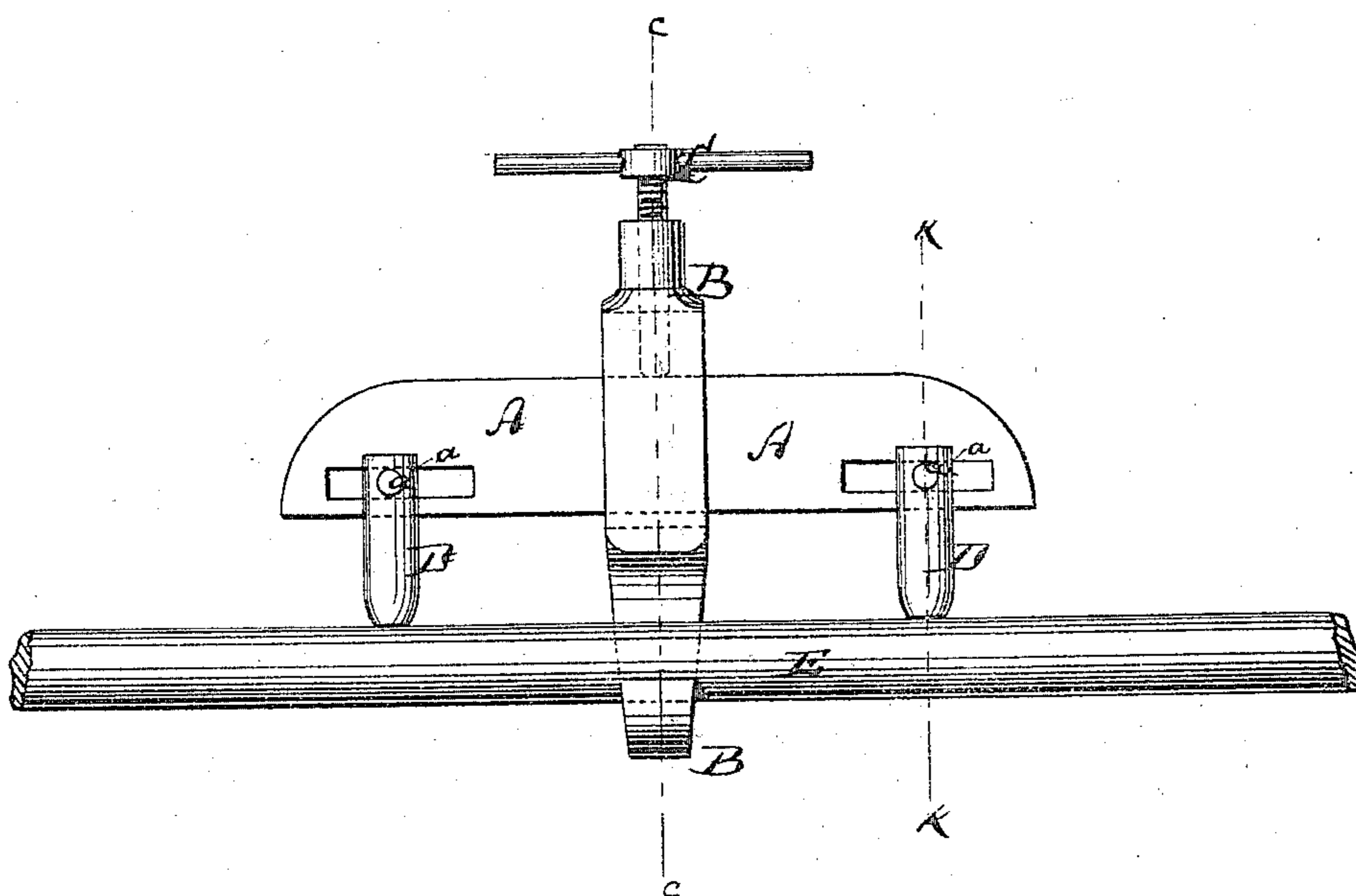
A. HARRIS.

Machines for Bending Bars and Tubes.

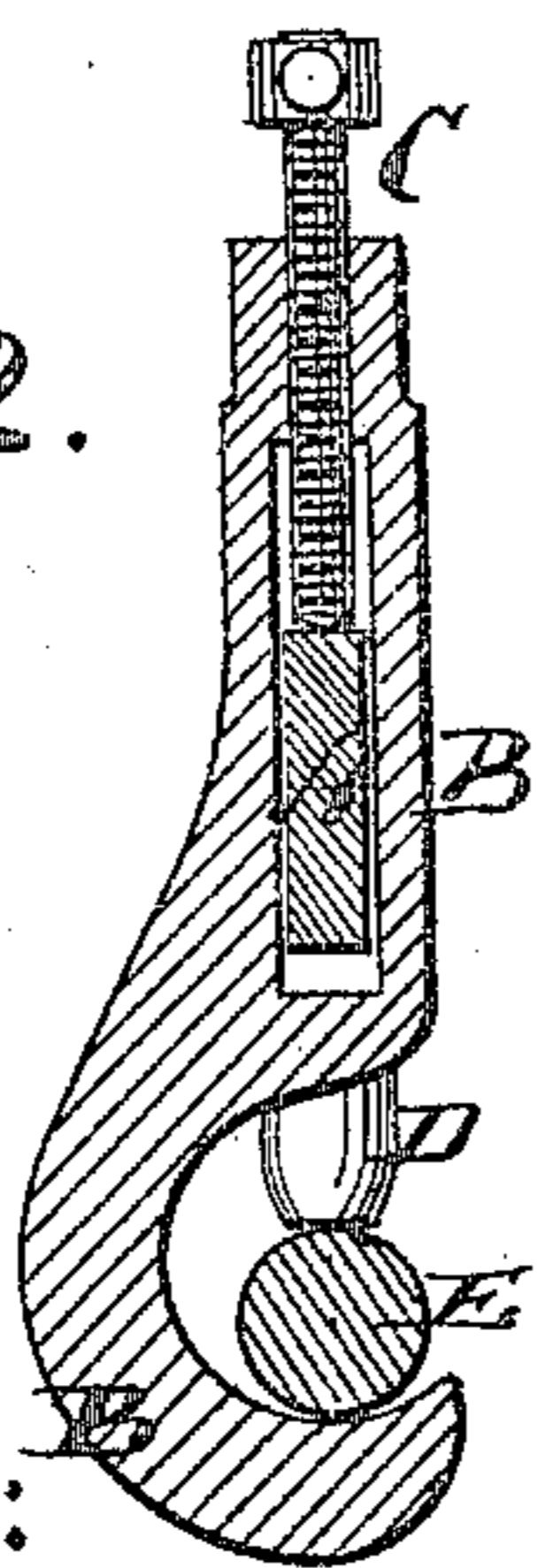
No. 134,428.

Patented Dec. 31, 1872.

*Fig. 1.*



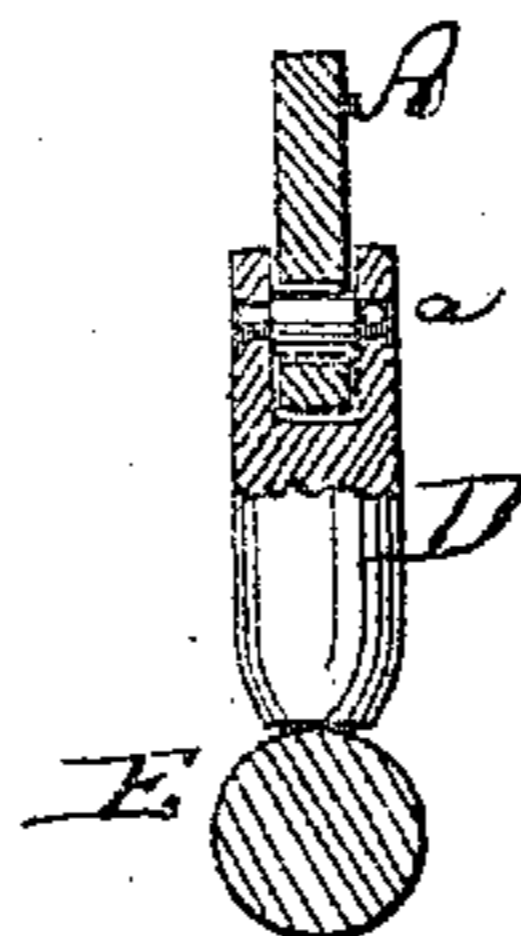
*Fig. 2.*



Witnesses:

A. Benneken  
C. Sedgwick

*Fig. 3.*



Inventor:

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# UNITED STATES PATENT OFFICE.

AMOS HARRIS, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO HIMSELF AND  
FRANKLIN L. PUTNAM, OF SAME PLACE.

## IMPROVEMENT IN MACHINES FOR BENDING BARS AND TUBES.

Specification forming part of Letters Patent No. 134,428, dated December 31, 1872.

*To all whom it may concern:*

Be it known that I, AMOS HARRIS, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and Improved Shaft and Bar Straightener, of which the following is a specification:

Figure 1 is a face view of my invention; Fig. 2, a vertical transverse section on the line *c c*, Fig. 1; and Fig. 3, a vertical section on the line *k k*, Fig. 1, of my invention.

Similar letters of reference indicate corresponding parts.

My invention relates to an improved apparatus for straightening or bending metal bars, shafts, tubes, rods, &c.; and it consists in the combination of a hook, a screw, and a bearing-plate, forming a clamp adapted to control wearing-surfaces on opposite sides of an article to be bent or straightened, and can be used to draw such surfaces nearer together or spread them further apart until the desired effect has been obtained. The invention is applicable to all shafts, &c., while the same are in lathes or hung in bearings in shops, or in any other position whatever.

In the accompanying drawing, the letter A represents a plate, which is fitted through the slot of a hook-shaped bar, B, so that it can be moved to either side within such slot. C is a screw fitted into the upper part of B, and bearing upon the upper part of A. The width of the plate A is less than the length of the slot in B, so that by means of the screw the

bolt can be moved further down or allowed to move further up. The ends of the plate A are slotted, and through the slots are fitted pins *a*, from which plugs D D are suspended. The article to be bent or straightened is placed within the hook and beneath the plugs, and the screw then applied to draw the plugs and the bearing-surfaces of the hook in opposite directions toward the article E, until the same has been shaped as it should be. By having the slots in the ends of the plate A the plugs can be shifted at a suitable distance from the hook, respectively, and thereby the shape to be imparted can be entirely regulated at will. In some cases, however, the plate may be made without these plugs, merely with projecting prongs, or otherwise have bearing-surfaces formed on it. The hook B may be made entirely closed to constitute a loop through which the article E is fitted, and instead of a screw, C, a cam and lever may be employed. In fact, the details of the invention may be varied to a great extent without departing from its principle.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

The screw C, combined with the hook B and plate A, as and for the purpose set forth.

AMOS HARRIS.

Witnesses:

P. S. CALKINS,  
R. R. BRYANT.