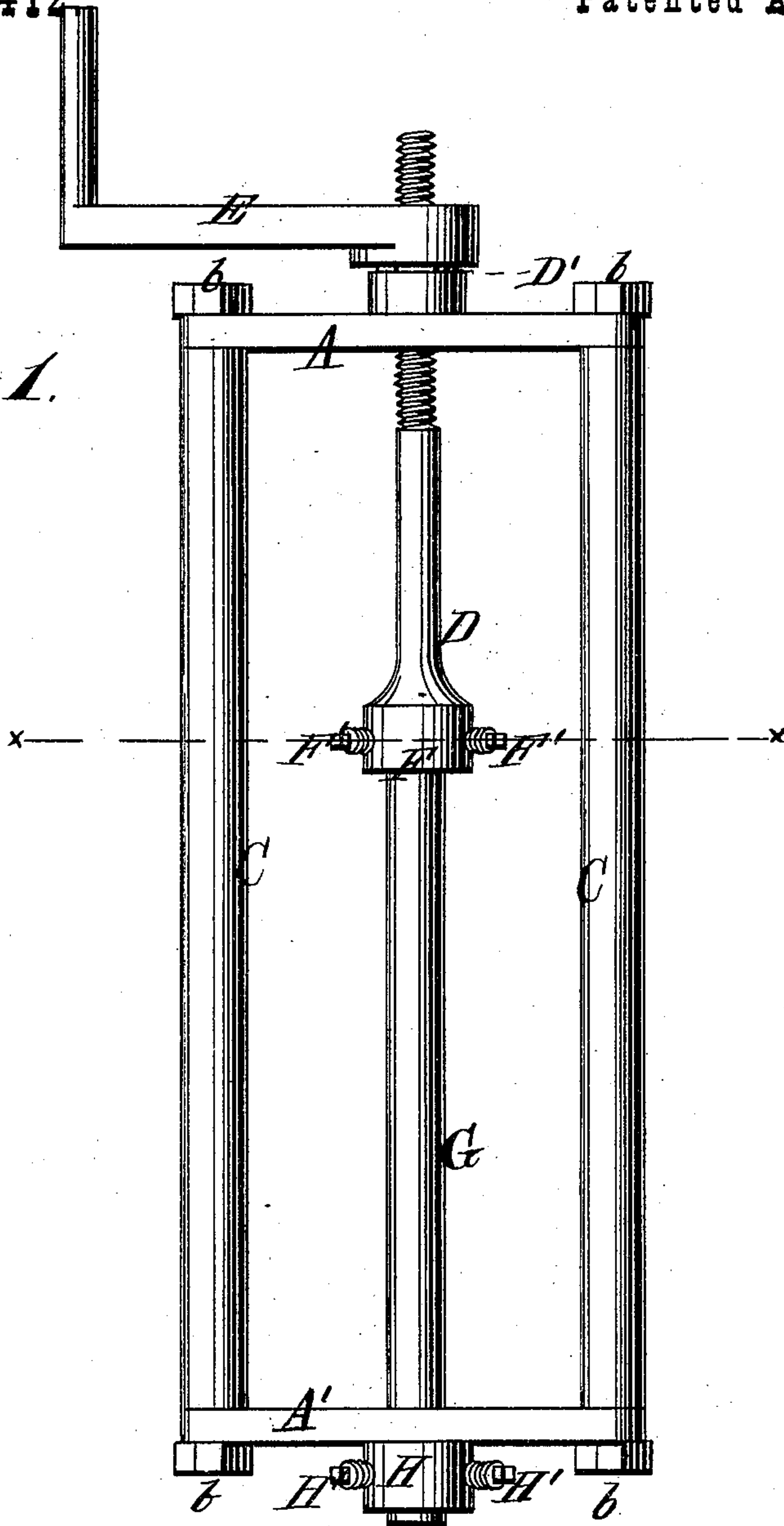


J. T. CONNELLY.  
TUBE STRETCHING MACHINE.

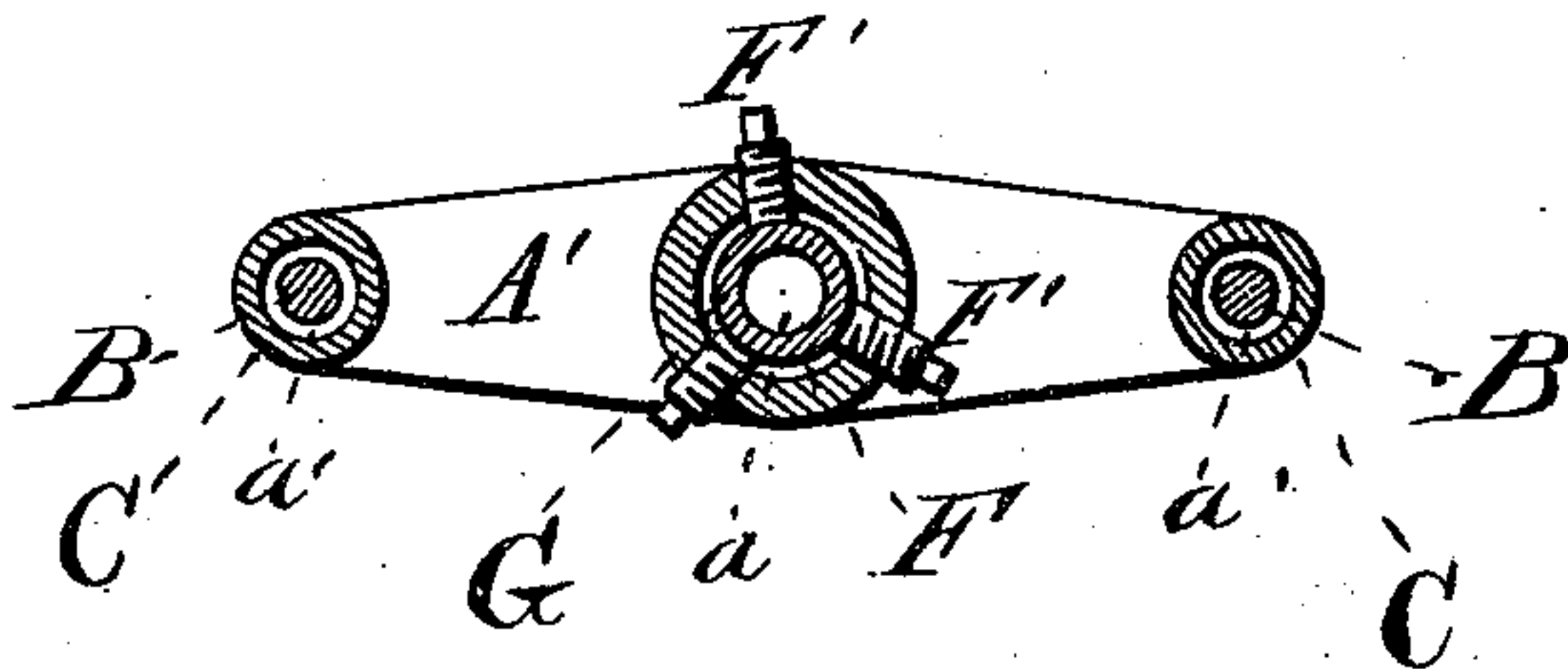
No. 181,412

Patented Aug. 22, 1876.

*Fig. 1.*



*Fig. 2.*



WITNESSES

*Robert Everett*  
*George E. Upham.*

INVENTOR,

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# UNITED STATES PATENT OFFICE.

JAMES T. CONNELLY, OF CONNELLSVILLE, PENNSYLVANIA.

## IMPROVEMENT IN TUBE-STRETCHING MACHINES.

Specification forming part of Letters Patent No. **181,412**, dated August 22, 1876; application filed July 29, 1876.

*To all whom it may concern:*

Be it known that I, JAMES T. CONNELLY, of Connellsville, in the county of Fayette and State of Pennsylvania, have invented a new and valuable Improvement in Machines for Stretching Tubes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a front elevation of my machine for stretching tubes, and Fig. 2 is a transverse vertical sectional view of the same.

The object of this invention is to provide a cheap and efficient means for lengthening metal tubes or pipes without welding or swaging them; and the nature of said invention consists in the employment of a strong metal frame and a longitudinally-adjustable rod provided with a socket and clamp-screws, for grasping one end of the tube to be stretched, and applying thereto a longitudinal draft, the other end of said tube being held stationary.

This invention is especially applicable to wrought-iron tubes or pipes.

In the annexed drawing, A A' indicate two metal end plates, each of which has a central perforation, *a*, and additional perforations *a'* *a'* near its ends. B B are rods, the ends of which pass through perforations *a'* *a'*, and are provided with nuts or heads *b b*, which are connected either permanently or detachably to their ends outside of plates A A'. C C are two sleeves or tubes, which set over rods B B and against the inner faces of plates A A'.

The effect of the combined action of said rods, nuts or heads, and sleeves is to clamp said end plates firmly in place, completing the frame of the device.

D is a metal stretching-rod, which passes through central perforation *a* of plate A, and is screw-threaded on its outer portion so as to be capable of longitudinal adjustment by means of prismatic nut D' and wrench E. The inner end of said stretching-rod terminates in a cup or socket, F, which is adapted to receive the end of a wrought-iron tube of any ordinary size, and is provided with clamp-

screws F' F', which tightly grasp the same, and make the device available for tubes of diameter much smaller than that of said socket. G represents the tube which is to be stretched, and H a collar provided with adjusting and clamping screws H' H'. Said tube or pipe passes through central perforation *a* of end plate A', and said collar is then secured on said tube just outside of said plate, so as to prevent said tube from being drawn through said plate by the draft of stretching-rod D.

In practice, heat is applied to tube G in any convenient manner, (preferably by a fire below,) and nut D' is then turned by wrench E until the draft on rod D thereby produced has sufficiently stretched tube or pipe G.

This device obviates the need for the old processes of swaging or welding as applied to metal tubes for the purpose of lengthening them, and thereby avoids several objections incident thereto. For instance, swaging is very apt to destroy the fiber of the iron and greatly weaken or break the tube. Welding is not applicable to many kinds of metal tubes, and where it is applicable it almost always leaves a raised or lumpy place at the point of union, and also a weakened portion.

This device is applicable to all kinds of metal tubes, and to rods and bars as well, but is especially designed for stretching boiler-tubes of wrought-iron. Such tubes may be stretched several times in this way without unduly weakening them, and will last as long as the boiler.

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

The combination of perforated plate A', collar H, having clamping-screws H' H', perforated plate A, screw-threaded stretching-rod D, having socket F and clamping-screws F' F', nut D', and suitable framing connecting said end plates A A', substantially as set forth.

In testimony that I claim the above I have hereunto subscribed my name in presence of two witnesses.

JAMES T. CONNELLY.

Witnesses:

W. NEWTON PORTER,  
CHARLES PRINCE.