(No Model.)

D. ROLSTON.

Machine for Straightening and Holding Sheet Metal Cylinders.

No. 241,424. Patented May 10, 1881.

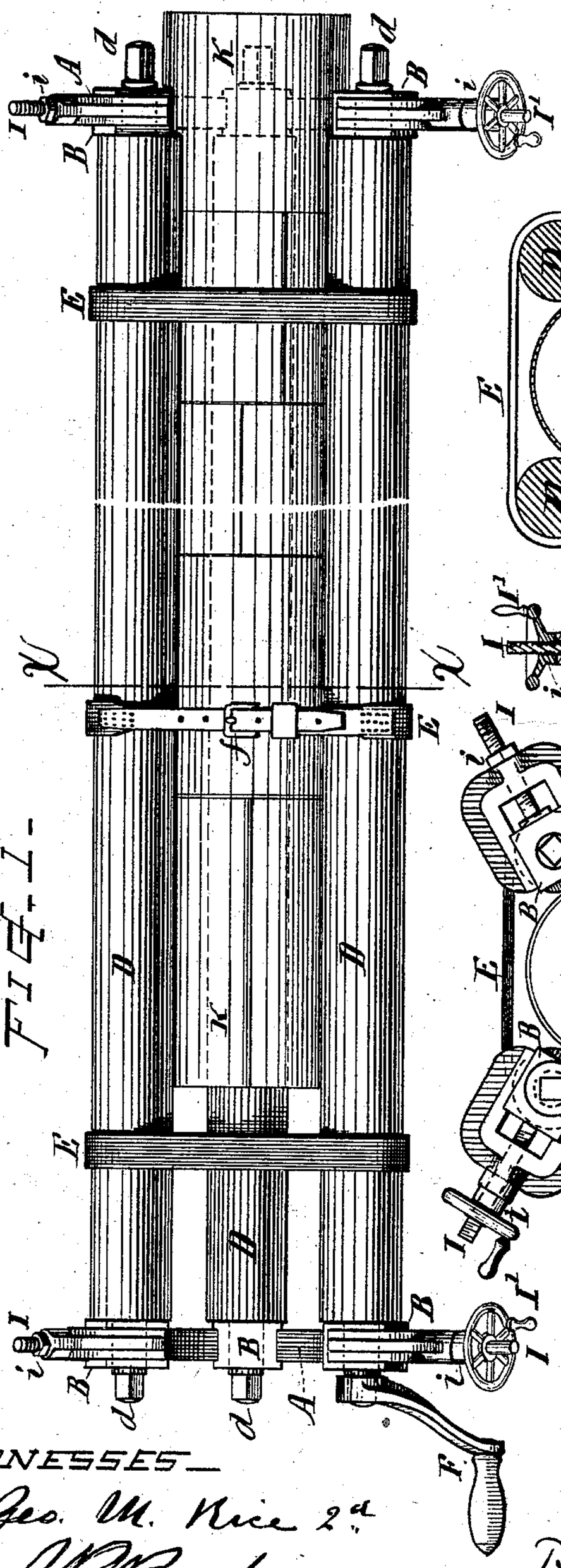

FIG. 1.

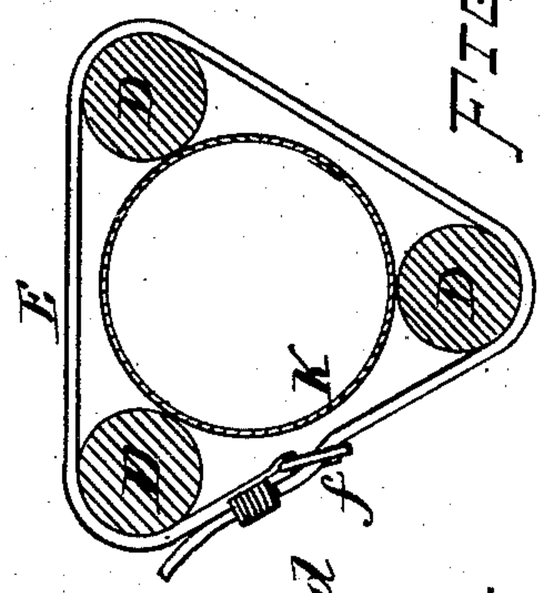

FIG. 3.

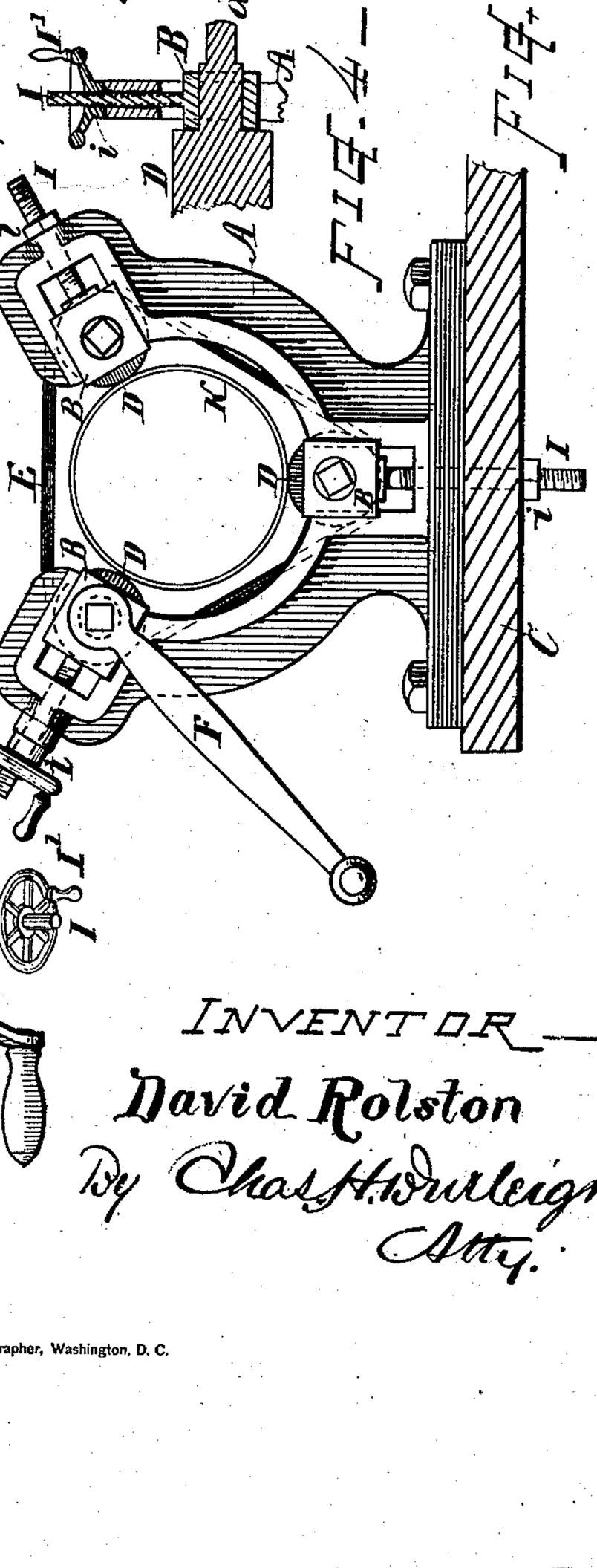

FIG. 4.

FIG. 2.

WITNESSES—

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UNITED STATES PATENT OFFICE.

DAVID ROLSTON, OF WORCESTER, MASSACHUSETTS.

MACHINE FOR STRAIGHTENING AND HOLDING SHEET-METAL CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 241,424, dated May 10, 1881.

Application filed March 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, DAVID ROLSTON, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Machines for Straightening and Holding Sheet-Metal Cylinders; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The object of my present invention is to provide a convenient and serviceable mechanism for holding and straightening sheet-metal cylinders and pipes, and for supporting the several sections of which the same are composed in proper position in a straight line with each other while soldering the joints which connect the parts or sections together; also to afford means for the adjustment of the mechanism to various sizes of cylinders. These objects I attain by the mechanism hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 represents a top or plan view of mechanism constructed in accordance with my invention. Fig. 2 represents an end view of the same, and Fig. 3 represents a transverse section at line *x x*, Fig. 1. Fig. 4 is a longitudinal section through one of the journal-boxes and its adjustment-screw.

This mechanism is designed for use in the manufacture of band-cylinders for spinning machinery, of conductor-pipes, and of other tubes and cylinders formed from sheet metal, and of considerable length, or wherein two or more sections or pieces require to be joined together in straight alignment with each other.

On the drawings, A denotes the supporting-frames at the ends of the machine. These frames are made with a large central opening sufficient to admit any size of cylinder within the capacity of the machine, and with a series of radial jaws or guides for the reception of sliding journal-boxes B, which are fitted to said jaws and adapted for outward or inward adjustment toward or from a common center or axis. These end frames are fixed upon a bed or table, C, at a proper distance apart, (say ten feet, more or less, as required;) and between said frames, with their ends journaled in the respective boxes B, are arranged a series of parallel rolls, D, surrounded at intervals by strong flexible elastic bands or straps, E, which hug the rolls inward toward the common center or axis by their contractive force.

The rolls D may be about three inches, more or less, in diameter, and three rolls or more may be employed in the series, according to the size or requirements of the machine. The journals of the rolls D project beyond the outer ends of the boxes B, as at *d*, and are fitted to receive the crank F, which may be used on either end of the machine, and on either of the journals *d*, as most convenient, said crank being made to slip on and off at pleasure.

The elastic bands E may be made of plain rubber rings, or may be provided with buckles or take-up devices, as at *f*, to permit adjustment of their tension. Said bands not only serve as springs to draw the rolls together, but also act to cause the rolls to all revolve in unison, and to prevent springing or flexure of the rolls outward at the central part.

Screws I are arranged in connection with the journal-boxes B, for drawing back said boxes and adjusting the position of the rolls to the size of cylinder to be worked upon. The screws I in the present instance are rigidly fixed to the journal-boxes B, and are arranged to work loose through openings in the frame A, outside of which they are provided with check-nuts *i*, serving as adjustable stops, so as to prevent inward motion of the rolls beyond the given adjustment, so that the strain of the elastic bands will not cause the rolls to crush the cylinders out of proper shape. The nuts or screws at the forward side of the machine are provided with hand-cranks I′, for convenience of raising the front roll when inserting or discharging the cylinders into or from the machine.

In the operation the sheet-metal cylinder K is made up in short sections, such as may be formed from an ordinary sized sheet of tin or other metal used. These sections are placed together end to end, and inserted in the machine, in the manner illustrated, by passing them longitudinally through the opening of the end

frame, A. The front roll screws are then run down, so as to allow the elastic bands E to hug the rolls D against the surface of the cylinder K, and confine it between the several rolls. The rolls D are then revolved by a turn of the crank F, which, by rotating the cylinder between them, brings all of the sections into straight line with each other. The joints are then soldered while the cylinder K is supported between the parallel rolls D, the mechanism being revolved, as required, to bring other parts of the joints uppermost as the work proceeds. When the sections within the machine have been completed the cylinder K can be moved along and other sections added thereto, these being straightened, supported, and soldered in like manner, thus producing a continuous straight tube or cylinder of any required length in an expeditious, accurate, and convenient manner.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. A machine for straightening and holding sheet-metal cylinders while soldering, consisting of a series of three or more revoluble parallel rolls, in combination with devices for adjusting and sustaining said rolls in contact with the surface of the cylinders, substantially as set forth.

2. The combination, substantially as described, of the open-centered end frames, the adjustable journal-boxes supported therein, the series of parallel rolls journaled in said boxes, and the elastic bands embracing said rolls, for the purposes set forth.

3. The combination, substantially as described, of the open-centered end frames, the radially-adjustable journal-boxes sliding in jaws or guides therein, the back-screws for checking inward movement of said boxes, the series of parallel rolls journaled in said boxes and having projecting squared ends on their journals, and the elastic contracting-bands embracing said rolls, and provided with buckles or take-up devices, for the purposes set forth.

Witness my hand this 11th day of March, A. D. 1881.

DAVID ROLSTON.

Witnesses:
CHAS. H. BURLEIGH,
WILLIAM H. EDDY.