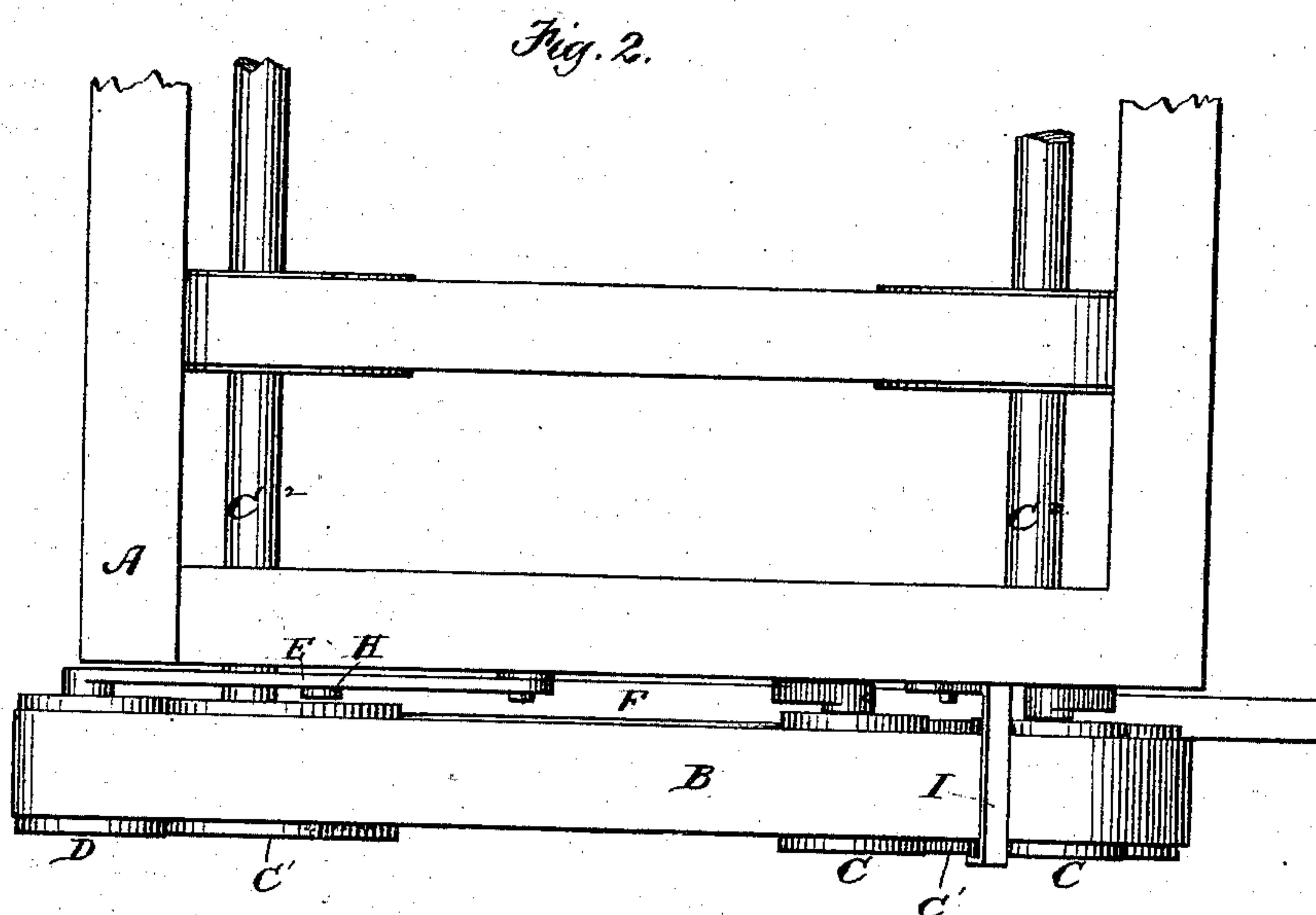
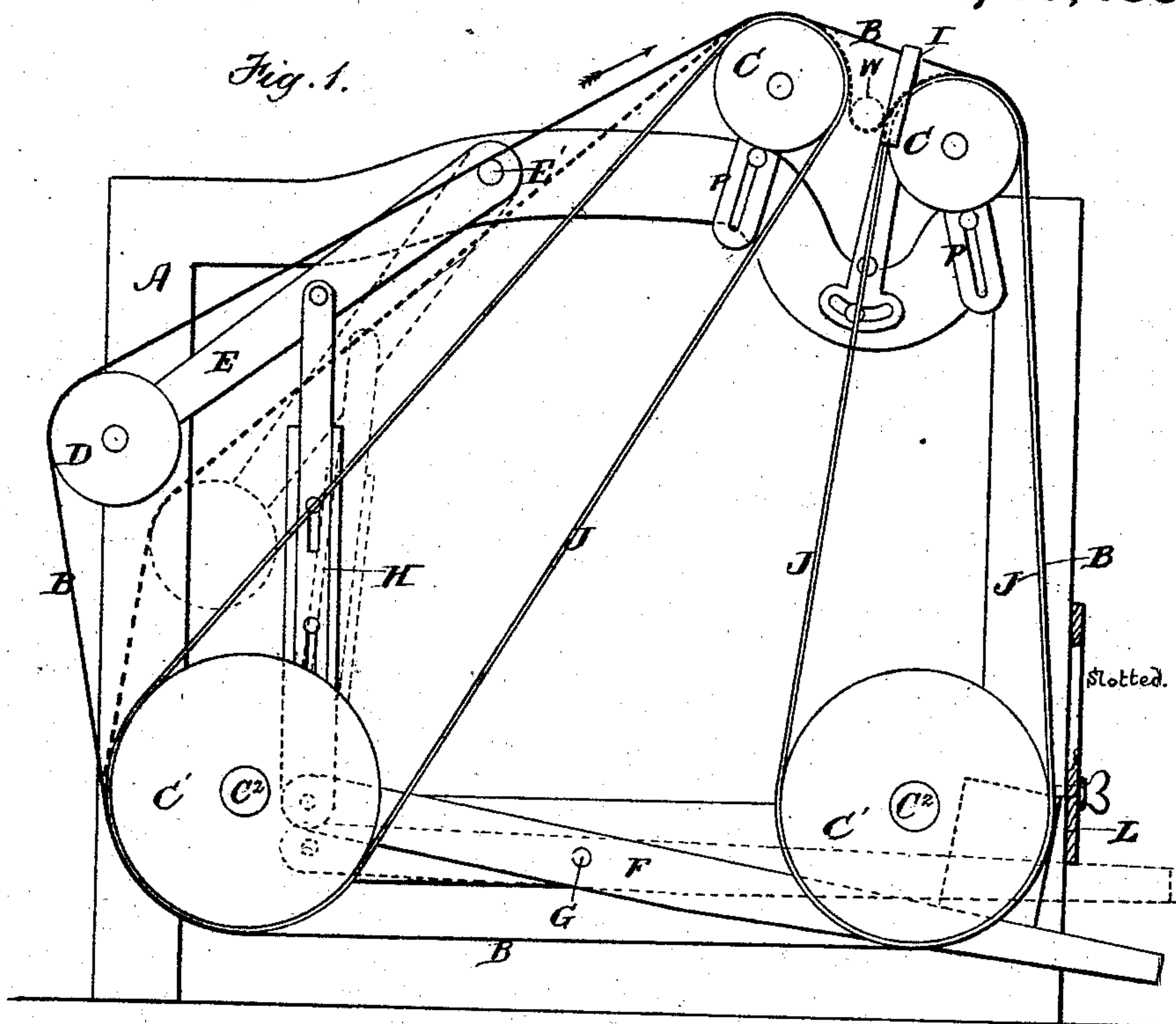


(No Model.)

O. SAWYER.  
Sanding Machine.

No. 241,429.

Patented May 10, 1881.



Witnesses.

W. Climo.  
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# UNITED STATES PATENT OFFICE.

OLIVER SAWYER, OF EAST TEMPLETON, MASSACHUSETTS.

## SANDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 241,429, dated May 10, 1881.

Application filed September 30, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER SAWYER, of East Templeton, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Sanding-Machines, of which the following is a specification.

This invention relates to mechanism for smoothing convex or rounded wooden surfaces by the agency of an endless belt coated with sand, emery, or other suitable abrading material.

The invention has for its object to enable said belt to operate advantageously on cylindrical or partially-cylindrical articles of wood, such as are employed in the manufacture of chairs of various kinds; and to this end it consists, as a whole, in the combination of a series of supporting-pulleys, two of which are arranged near each other, a loose belt coated with abrading material, and of such length that it can be drawn between the two pulleys above referred to, so as to bear on a considerable portion of a convex surface, and a weighted tightening device bearing against the belt with a yielding pressure, and keeping it always under a certain degree of tension.

The invention also consists in certain other improvements, all of which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a front view of a machine embodying my invention, and Fig. 2 represents a top view of the same.

The same letters refer to the same parts in both figures.

In the drawings, A represents the general frame-work of the machine, which may be of any desired form and construction.

B represents the smoothing-belt, coated with sand or other abrading material. For convenience of description I will designate this the "sand-belt." I support the sand-belt on a series of pulleys, which may be four or more in number, all having bearings supported by the frame A. This series includes two pulleys, C C, which are located near each other, and are separated only by an unobstructed space of sufficient width to allow the article to be smoothed by the belt to be inserted between the pulleys C C, as hereinafter described. The series of pulleys is preferably completed by two pulleys, C' C',

which may be arranged in any suitable and convenient manner. The belt B is of such length that it can be displaced or forced inwardly between the pulleys C C, as shown in dotted lines in Fig. 1, so that its displaced portion will partially encircle a cylindrical or convex surfaced article pressed against it.

To take up the slack of the belt and keep it under tension, I employ a yielding weighted tightening device, which is composed, preferably, of an idle-pulley, D, journaled on the end of a pivoted lever, E, and forced against the belt B with a yielding pressure by a weighted lever, F, which is pivoted at G to the frame A, and is connected to the lever E by a rod, H. The lever E is pivoted at E' to the frame A.

It will be seen that the tightening device enables the belt B to yield readily to pressure applied to any part of its unsupported surface, holds the belt with a yielding pressure against the body pressed against it, and returns the belt to its former position when the displacing-pressure is removed. I do not limit myself to the described construction of the tightening device, as it may be varied in construction, as desired, so long as it accomplishes the end described.

In the operation of the machine the belt B is driven in the direction indicated by the arrow, and a rounded chair post or rail, or other wooden article, W, is pressed against the portion of the belt B between the pulleys C C, thereby displacing the belt in the form of a loop adapted to cover a semicircular convex surface on the article W, as shown in dotted lines. The article W is therefore rapidly smoothed by the belt, the operator turning and moving the article from time to time until it is finished. The yielding pressure caused by the tightening device makes the operation of the belt rapid and positive, and enables it to commence its work as soon as the article is laid against it, without waiting until the displacement is entirely effected.

To assist the operator in holding the article I provide a rest, I, which is preferably composed of a bent arm attached to the frame A, and projecting over the belt between the pulleys C C, as shown, and affording a side bearing, against which the article being smoothed is pressed by the motion of the belt. The rest therefore steadies the article, and enables the



operator to hold it firmly without its coming in contact with the pulleys C C. The rest is made adjustable by means of slots, through which the screws pass which attach it to the frame A, and it may occupy a nearly vertical position, as shown, or may be in the form of a nearly-horizontal table, notched to receive the belt when the pulleys C C are arranged one above the other, as may be required in some kinds of work. The pulleys C C are supported on slotted brackets or plates P, and are capable of being adjusted to various positions. The pulleys C' C' are located on shafts C<sup>2</sup> C<sup>2</sup>, which are belted together and driven by a suitable prime motor.

I prefer to connect the pulleys C C with the pulleys C' C' by independent driving-belts J J, arranged as shown in Fig. 1, so that the pulleys C will be driven continuously and positively, and the space between them will not be obstructed by the driving-belts. I have found that if the pulleys C C are driven only by the sand-belt there is a momentary stoppage of both pulleys when the belt is forced down between the pulleys by the article to be smoothed, and that the forward pulley, which is the first to resume its rotation, has a tendency, when it first starts, to pull or jerk upwardly on the displaced portion of the belt, the result being that the article being smoothed is liable to be jerked upwardly, so that the operator has to guard against this liability. This objection is obviated by continuously driving the pulleys C C, as above described. I do not limit myself, however, to the employment of special means for driving the pulleys C, as the sand-belt alone may be used, if desired, without departing from the spirit of my invention.

The degree of displacement of the sand-belt may be regulated by providing an adjustable stop to limit the yielding movement of the pulley D. In the present instance the stop is composed of a slotted plate, L, attached by a set-screw to the frame A and projecting over the end of the weighted lever F, so as to limit the upward movement of the latter. By regulating the displacement of the sand-belt I adapt it to surfaces having different degrees of convexity. The weighted lever F is extended at its outer end to form a treadle, to enable the operator to suddenly increase the tension

of the belt, or to vary the extent of displacement of the belt, so that in smoothing wheel-spokes or other articles having two or more different curves the displacement may be made less by the treadle when the broader side of the article is being smoothed. The treadle also enables the belt to be made extremely tight when it is desired to smooth flat surfaces by pressing them against the portion of the belt that is supported by one of the pulleys C.

I claim—

1. The combination of the pulleys C C C' C', disposed as shown, the sand-belt B, encompassing such pulleys, and of greater length than the distance around them, and the automatically-yielding tension device D, operating to keep the band distended and to yield to permit the band to descend between the pulleys C C, so as to encircle or surround an article, W, to be sanded, all constructed and arranged to operate substantially as described.

2. The pulleys C C C' C', their shafts and driving-bands J J, disposed as shown, a sand-band, B, supported by the pulleys, and of greater length than the distance around the said pulleys, the automatic tension device D, and a rest or table, I, overhanging the pulleys C, all combined and arranged to operate, substantially as described.

3. In a sanding-machine, the combination, with the loose sand-belt and its supporting-pulleys, of the yielding tightening device, consisting of the idle-pulley D, the pivoted lever E, supporting said pulley, and the pivoted weighted lever or treadle F, connected to the pivoted lever E, as set forth.

4. In combination with the loose belt having the supports C C and the yielding tightening device, of a stop to limit the yielding movement of the tightening device, and the consequent displacement of the belt between its supports C C, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 23d day of September, A. D. 1880.

OLIVER SAWYER.

Witnesses:

C. F. BROWN,  
W. CLIMO.