

No. 711,599.

Patented Oct. 21, 1902.

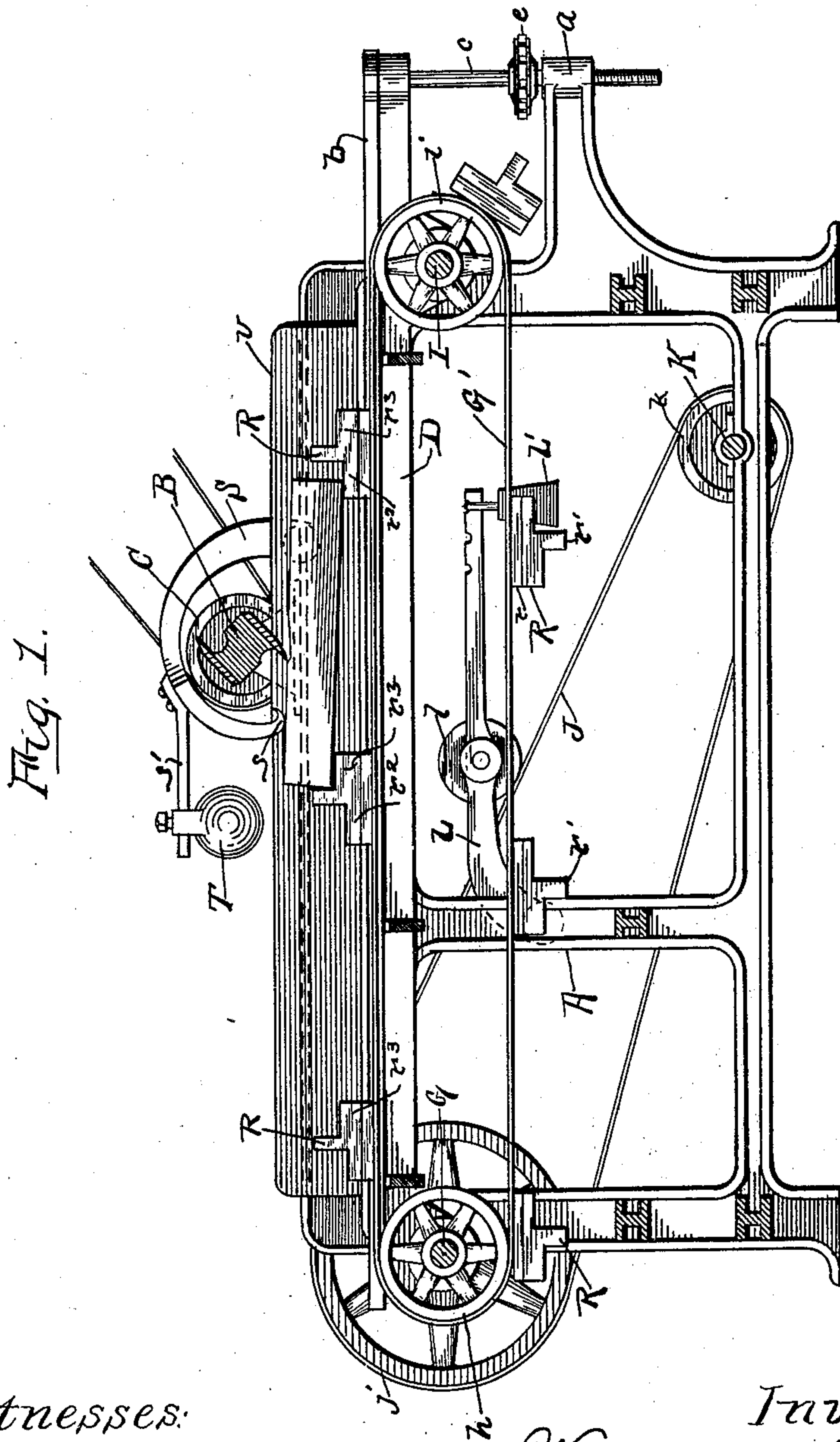
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STAVE TAPERING MACHINE.

(Application filed Aug. 12, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 2.

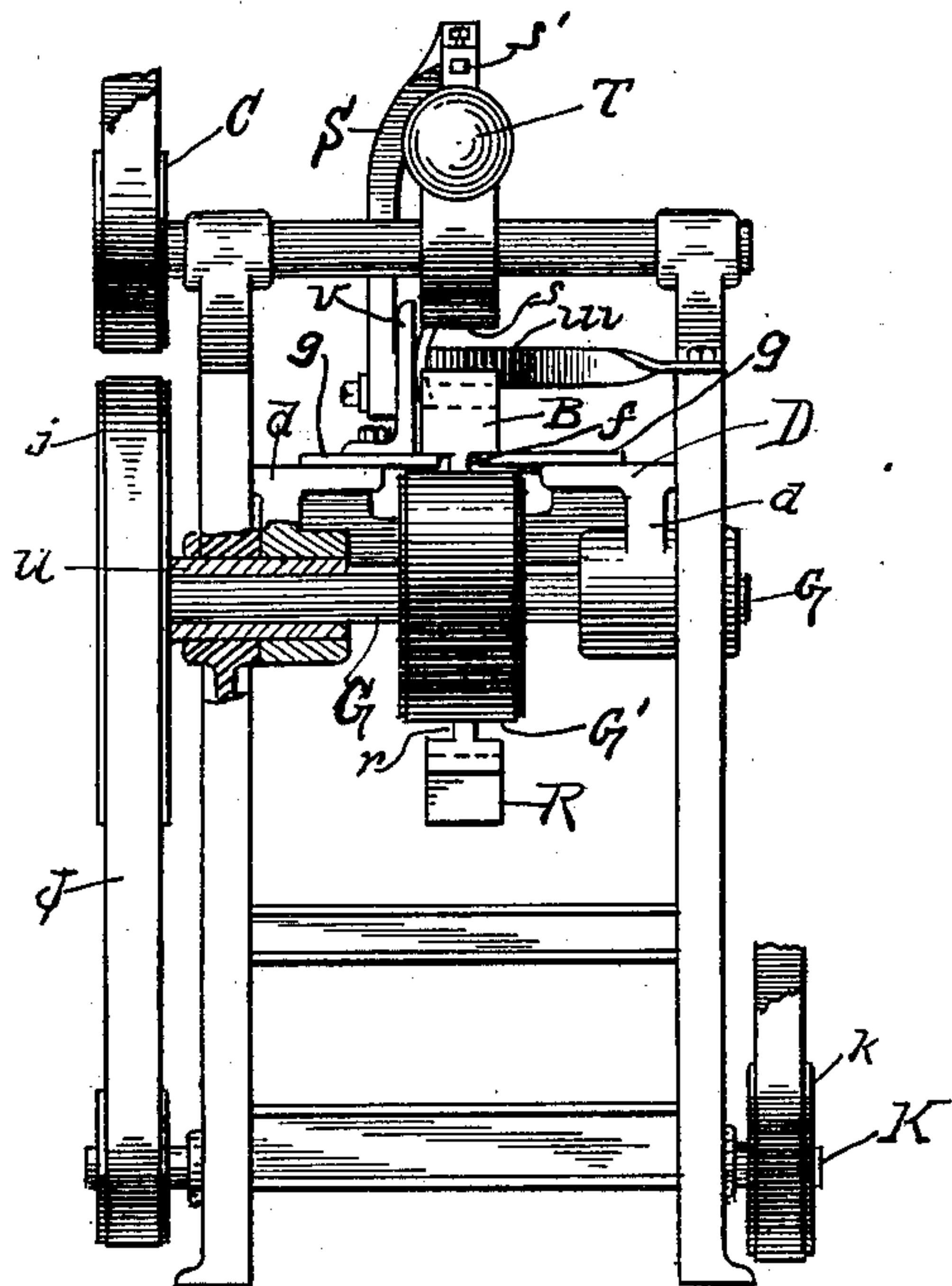


Fig. 3.

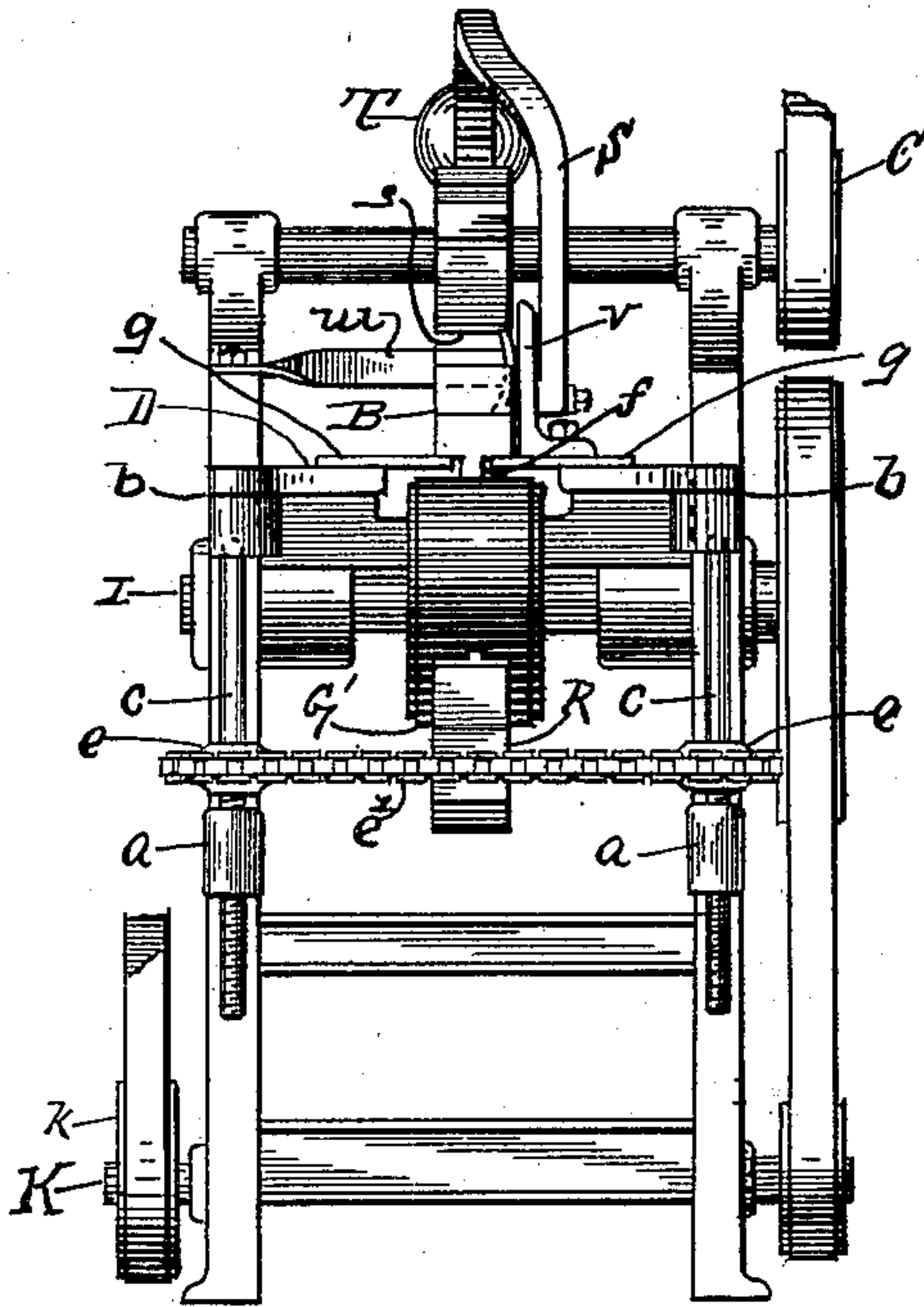
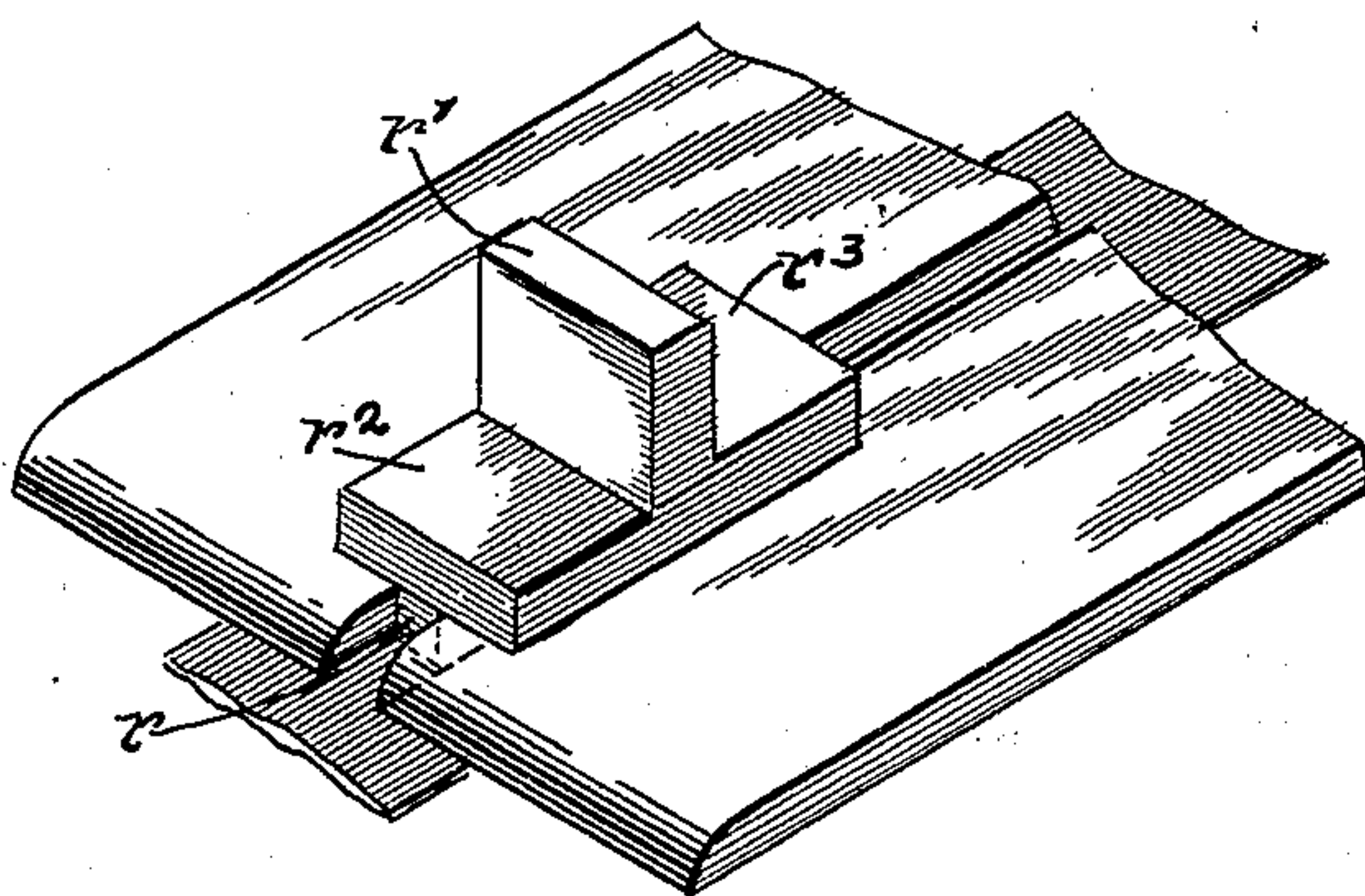


Fig. 4.



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UNITED STATES PATENT OFFICE.

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STAVE-TAPERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 711,599, dated October 21, 1902.

Application filed August 12, 1901. Serial No. 71,782. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. VOSS, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Stave-Tapering Machines, of which the following is a full, clear, and exact specification.

In manufacturing staves for barrels and similar articles it is customary to first form blanks with parallel edges and then to make the desired taper, either single or double, as the case may be, by cutting off the edges on a line oblique to the stave-axis.

This invention relates to a machine for tapering staves, having an automatic feed whereby the staves are held on edge and presented in succession to the action of the cutter, means for adjusting the machine for any size or width of blank and for obtaining any taper, and also means for adjusting the feed whereby when one edge of a blank has been dressed the blank may be refed to the cutter in an inverted position and the other edge be operated upon.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a longitudinal sectional view of a machine embodying all the salient features of the invention excepting the spring retaining-arms, which are omitted. Fig. 2 is an end elevation showing a portion broken away, so as to expose the table-bearings in section, and omitting the feed-belt slack-idler. Fig. 3 shows an elevation of the opposite end of said machine with the feed-belt slack-idler omitted. Fig. 4 is a view in detail of a carrier-block.

Referring to the drawings, A represents the main frame of a machine, in the upper portion of which a horizontal cutter B of the type common in lumber planers and edgers is revolubly journaled, that is operated by means of an independently-driven pulley C, substantially as shown.

The top of the machine consists of a feed table or bed D, which is supported at one end between the side rails of the main frame by means of lugs *d d*, depending from the cor-

ners thereof and journaled on sleeves *u*. These sleeves comprise suitable pieces of metal tubing that are inserted in the main frame to provide bearings E for the main shaft G and have their inner adjacent ends extended toward each other just for the purpose of affording a bearing for lugs *d*. It will, however, be understood that said sleeves might be omitted and lugs *d* rest directly on shaft G. The opposite end of the bed D is provided with two parallel corresponding arms *b b*, which extend longitudinally a suitable distance and have vertically-depending legs *c c*, the lower screw-threaded ends of which extend loosely down through openings in the ends of brackets *a a*, projecting from the end edges of the side portions of the main frame, substantially as shown in the drawings. On these legs, just above brackets *a*, are sprockets *e e*, the boss of each of which is provided with an interiorly-screw-threaded central opening to enable them to engage the said rods, and these sprockets are connected by a suitable chain *e'*. By moving chain *e'* in either direction the sprockets are turned in the same direction to a corresponding extent, and said sprockets resting on bracket *a* and having screw-threaded engagement with legs *c* move the latter up or down, and thus tilt or incline the bed D in a greater or less degree to the plane of the periphery of cutter B, according as desired. A longitudinal guide-slot *f* is formed in the bed in the plane of rotation of the cutter B by two parallel flat bars *g g*, extending from end to end thereof.

Running beneath the table the entire length of the slot *f*, with its upper portion in close proximity and parallel to the under sides of the guide-bars *g g*, is an endless belt which connects a pulley *h*, located about the center of the main shaft, and a corresponding pulley *i* in a similar position on a transverse shaft I, journaled in bearings at the opposite end of the bed in lugs depending from the lower edges of the sides thereof about at the points where the arms *b b* extend therefrom. One end of the main shaft is provided with a pulley *j*, and motion is imparted to this main shaft by means of a belt J, connecting pulley *j* to a suitable pulley *k*

on the contiguous end of a drive-shaft K, which latter is journaled, as shown, in the lower part of the main frame near the end thereof opposite main shaft G. In order to
 5 take up the slack and keep belt J tight at all times, I have provided a belt-tightener therefor, consisting of a lever L, fulcrumed at one end to the main frame, an idle roller l , journaled on a stud projecting from said lever
 10 and bearing down upon the upper slant stretch of the belt, and an adjustable weight L' on the end of the lever extending beyond the point where the roller is revolvably secured thereto.

15 Secured transversely at regular intervals on the outer face of the endless belt J are blocks R. These each have a narrow longitudinally-elongated shank r , which is adapted to enter the guide-slot f and is fastened at its
 20 outer end by flat-headed screws or other suitable means to the belt. The main body of the block is carried by said shank r above the bed and is adapted to rest on and have sliding engagement with the upper faces of the
 25 guide-bars $g g$. Each of the blocks is provided with a central transverse vertical rib r' and has one flange or step r^2 in front of said rib and one, r^3 , back of or following it, which are of unequal thicknesses or heights.
 30 Said blocks are so disposed and arranged as to admit of stave-blanks being placed on edge between each pair of blocks, as shown in Fig. 1, as the latter traverse the guide-slot f , each end of the blank being supported on a step
 35 of the block and abutting against the center rib r' . Owing to the unequal thicknesses or heights of the adjacent steps of the blocks, the blank is advanced to the cutter in a position oblique to the plane of the cutting action
 40 thereof, and this obliquity may be varied according as desired by raising or lowering the table end d by means of the sprockets and chain, as hereinbefore described. In order to steady each blank as it passes the cutter,
 45 a longitudinal gage-plate is suitably secured to the one of the guide-bars g , with its perpendicular face close to the outer line of travel of the blocks, and curved spring arms or fingers w extend from the frame and press the
 50 blank against the gage-plate v as it passes beneath the cutter. In addition to these a curved lever S is pivoted to said plate behind the cutter, which extends over the latter and is provided with a shoe s , that en-
 55 gages and slides along the upper uncut edge of the blank just beyond the incision of the revolving knives. An arm s' projects from lever S and is provided with an adjustable secured weight T, whereby the shoe is kept
 60 bearing down upon the passing blank to retain it in place.

The operation of the machine is as follows: Blanks are placed in succession on the carrier-blocks and are advanced thereby under
 65 the weighted shoe and between the spring-fingers and gage-plates to the cutter, which

tapers them at a predetermined angle to the blank-axis. If the double taper of the same edge of a barrel-stave is desired, the machine is adjusted so that the cutter does not engage
 70 the edge of the blank until it has passed half its length. As it leaves the cutter it may then be turned end for end and re-fed, whereupon the cutter shaves off the uncut portion. When a quantity of blanks have been thus
 75 trimmed on one edge, a quick adjustment of the table by the sprockets without stopping the cutter or carrier-belt brings the guide nearer the cutter, and the blanks can then be run through in an inverted position and
 80 the other edges dressed. In case the blanks vary in thickness the operator can instantly change the cut and angle without stopping the mechanism.

What I claim as new is—

85 1. A stave-tapering machine, comprising a revolving cutter, a feed-table beneath said cutter, a guide-slot extending from end to end of the table and a carrier comprising an endless belt traveling beneath the table, and
 90 blocks secured to the outer face of the belt, each having a shank adapted to enter said slot, and a body on said shank adapted to bear with its under side on the upper surface of the table, said body having a central ver-
 95 tical rib transverse to the belt, and horizontal supporting-steps on either side of said rib.

2. A stave-tapering machine, comprising a revolving cutter, a feed-table beneath said
 100 cutter, a guide-slot extending from end to end of the table, a carrier comprising an endless belt traveling beneath the table, and blocks secured to the outer face of the belt, each comprising a shank adapted to enter said
 105 slot, and a body on said shank adapted to bear with its under side on the upper surface of the table said body having a central, vertical rib transverse to the belt, and two horizontal blank-supporting surfaces at unequal
 110 distances above the under side of the said body, extending from either side of said rib.

3. A stave-tapering machine comprising a main frame, a revolving cutter secured therein, a feed-table pivotally supported at one end
 115 in said frame and adjustably secured at its other end to the frame a guide-slot extending from end to end of said table, a drive-pulley secured on a shaft whose axis coincides with the axis of the pivotal table-support, a loose
 120 pulley rotatively secured to the other end of the table in line with said drive-pulley a carrier comprising an endless belt traveling on said pulleys parallel to and beneath the table, and blocks secured to the belt at intervals
 125 adapted to successively traverse the upper side of the table each having a shank adapted to enter said slot and a body on said shank adapted to bear with its under side on the upper surface of the table, said body having
 130 a central vertical rib transverse to the belt, and horizontal blank-supporting surfaces extending from either side of said rib at un-

equal distances above the under side of said body and vertical adjusting-rods rotatively secured at their upper ends to one end of said table, having screw - threaded engagement
5 with the machine-frame, sprocket-wheels secured on said rods and a chain operatively connecting said wheels means to vary the vertical angular position of said table relative to the line of action of the cutter.

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