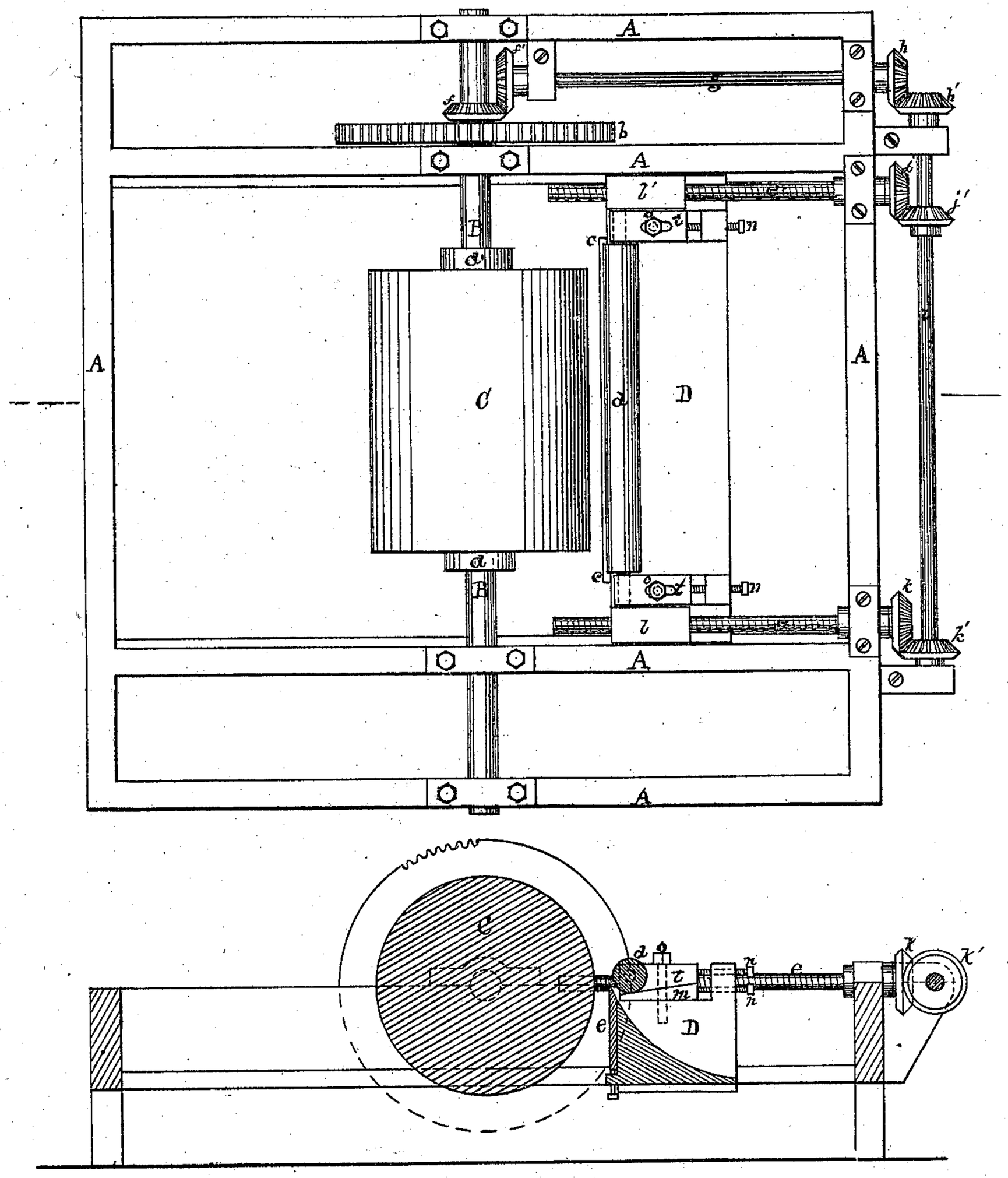
3 Sheets--Sheet 1.

J. C. BROWN.

Improvement in Machines for Cutting Veneers.

No. 124,880. Patented March 26, 1872.



Scale 1 inch to the foot.

Witnesses

Wm Reddy

A. S. Fitch.

Inventor:

Jonathan C. Brown

By Dick & Co.

his Attys.

3 Sheets--Sheet 2.

J. C. BROWN.

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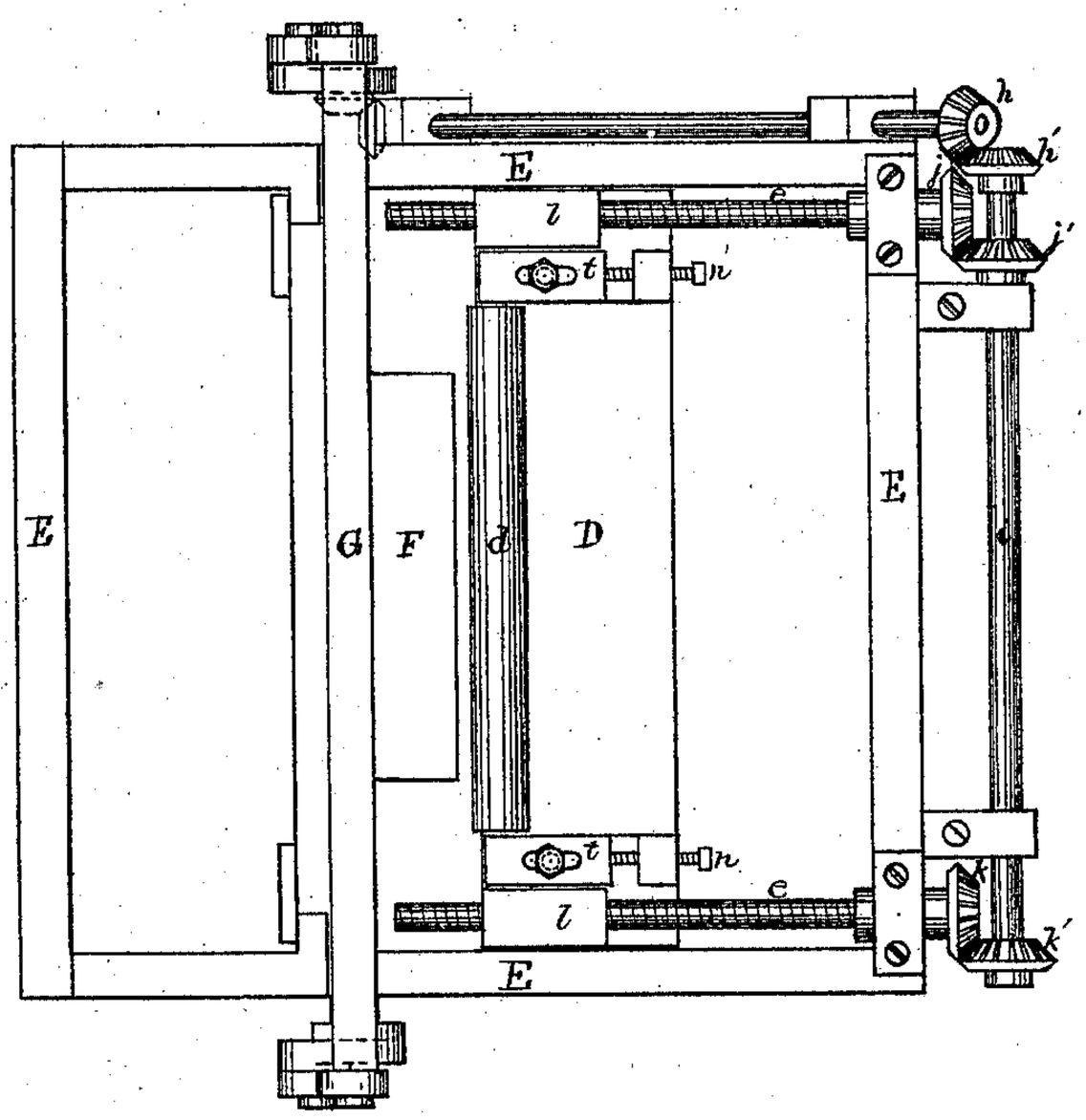

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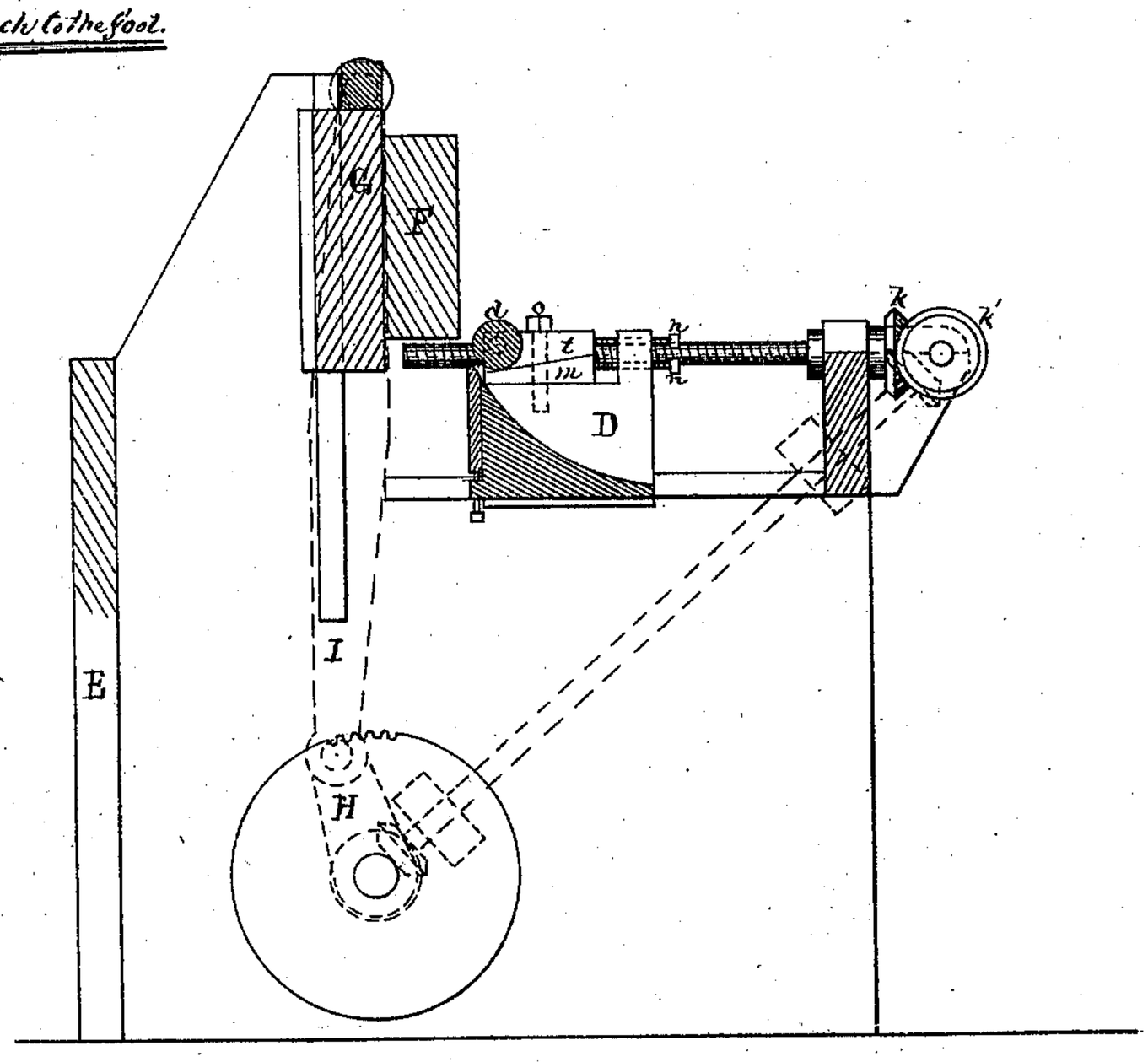


Witnesses
Wm C. Reddy
A. S. Fitch.

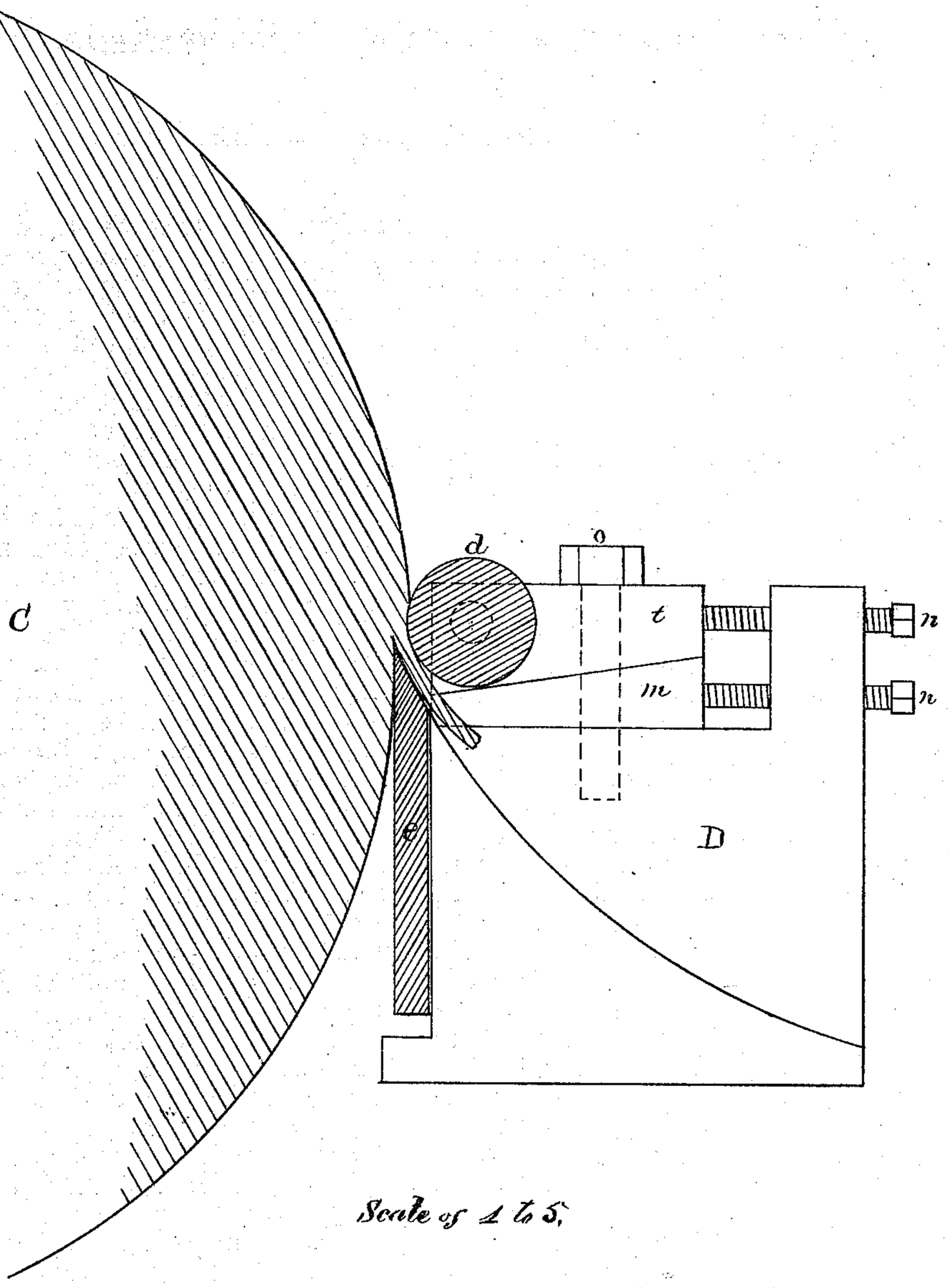
Inventor
Jonathan C. Brown
By Fitch & Co.
His attorneys.

3 Sheets--Sheet 3.

J. C. BROWN.

Improvement in Machines for Cutting Veneers.

No. 124,880. Patented March 26, 1872.



Scale of 1 to 5.

Witnesses.

Jno. C. Reddy

A. D. Fidlich.

Inventor:

Jonathan C. Brown

By Dick & Co.

Their attorneys.

124,880

UNITED STATES PATENT OFFICE.

JONATHAN C. BROWN, OF NYACK, NEW YORK.

IMPROVEMENT IN MACHINES FOR CUTTING VENEERS.

Specification forming part of Letters Patent No. 124,880, dated March 26, 1872.

To all whom it may concern:

Be it known that I, JONATHAN C. BROWN, of Nyack, Rockland county, State of New York, have invented a new and useful "Improvement in Machines for Cutting Veneers," of which the following is a specification, reference being had to the accompanying drawing forming part thereof.

Sheet I represents a machine embodying my improvement for cutting sheets of wood from a cylindrical log by revolving the log against the cutting instrument, in which Fig. 1 is a top view and Fig. 2 a vertical sectional view of said machine.

Sheet II represents a machine embodying my improvement for cutting sheets of wood from the plane face of a block, in which Fig. 1 is a top view and Fig. 2 a vertical sectional view of said machine.

Sheet III, Fig. 1, is a vertical sectional view of a portion of the machine represented in Sheet I, the same being the knife with its carriage, the pressure-roller with its adjustable journal-box, and a section of the cylindrical block or log of wood, the whole being adjusted for operation and in the act of cutting.

My invention relates to the prevention of the checking or splitting of staves, laths, shingles, or sheets of wood, while being cut from cylindrical or plane blocks, by the application of severe pressure by means of a revolving cylinder or roller upon the surface of the block over the line of cut, and extending along the several sheets over the face of the cutting instruments. It is well known that when staves, shingles, laths, or continuous sheets of wood of any considerable thickness are cut from a cylindrical log of wood by revolving the same against a cutting instrument, or by forcing the cutting instrument, arranged parallel with the grain of the wood, through the block in a right line, the severed piece is liable to be checked in the act of cutting. Severe pressure, properly applied to the surface of the log or block over the line of cut, will prevent this checking and cause the wood to be cut sound even up to three-fourths of an inch in thickness. To effect this result the pressure must be sufficient to somewhat compress the fibers of the wood just over the line of cut, and must be extended a little in advance of that line so as to prevent the wood from being split by the wedge-like action of the knife in advance of its cutting-edge. Without such pressure the operation is actually that of splitting or tearing the fibers of the wood asunder by a wedge-like action of the knife instead of severing them by its cutting-edge, the checking in the severed piece actually taking place in advance of the knife, and not altogether from the same, being bent outward by the face of the knife. When this pressure is applied the fibers of the wood are held undisturbed until they are severed by the knife's edge, and the severed pieces consequently come away whole.

A, Fig. 1, Sheet I, is a heavy iron frame, upon which the several parts of the machine are mounted. B B′ are two spindles having their bearings in the frame A, as shown. Upon the inner ends of these spindles are dogs *a a′* for grappling into and holding the log C to be cut. The power to revolve the log is applied to the gear *b*. D is a movable head-block, upon which is mounted the knife *c* and the pressure-roller *d*. This head-block is arranged to slide back and forth in suitable ways in the frame A, and is moved by the screws *e e′* working in the nuts *l l′*, to which screw motion is communicated from the spindle B′ through the gears and shafts *f f′*, *g*, *h h′*, *i*, *j j′*, and *k k′*. By these means the head-block, with its knife and pressure-roller, is moved up to the log correspondingly with the rotation of the latter. In the practical operation of cutting wood by my machine it is necessary that the knife, the pressure-roller, and the log should be nicely relatively adjusted. The roller may therefore have both a vertical and horizontal adjustment by means of the movable journal-box *t*, the under side of which is made beveling or inclined, it being made to rest upon a wedge-shaped block, *m*. The bolt *o* passes through slotted holes in them, whereby, when adjusted, they are made fast to the head-block D. The adjustment of the roller is conveniently effected by means of the set-screws *n*.

Figs. 1 and 2, Sheet II, represent, the former a face view and the latter a vertical sectional view of a machine for cutting shingles, staves, or sheets of wood from the plane surface of a bolt or block of wood, pressure in this machine also being applied to prevent checking by means of a pressure-roller. E is a heavy strong iron frame on which the working parts

are mounted. The knife, the roller, and the block and bearings in which they are mounted, and also the shafts and gear-wheels for moving the knife and roller up to the block, are all substantially similar to the corresponding parts in the machine represented on Sheet I; but in this machine the wood to be cut is a plain block or bolt, F, which is fastened in any suitable manner to a gate or carriage, G, working in ways, to which a vertical reciprocating motion is given by means of the crank H and pitman I.

Sheet III represents the knife *e*, roller *a*, and log C adjusted for operation, and the act of cutting being performed. It will be observed that the roller is shown as somewhat compressing the wood just over and above the line of cut. It is necessary that sufficient pressure should be thus applied to hold the fibers of the wood firmly while the knife severs them, also to prevent the wedge-like action of the knife as it enters the wood from splitting it in advance of the cutting-edge. It is also necessary that the roller should be of sufficient diameter to carry the pressure somewhat above the cutting-edge and down a little distance along the beveled face of the knife to prevent the too sudden turning outward of the severed piece. The entire machine and all its parts must of course be made heavy, and strong enough to bear the strain of the pressure of the roller upon the face of the log and hold the roller to the log without yielding or giving way. The feed-works for moving the head-block up to the log must be so adjusted as to have their movements correspond with the rotation of the log and be adapted to the depth of cut it is desired to make. I have found, by experiment and trial, that when pressure is thus applied to the surface of the log or block in the act of cutting it, shingles, staves, or continuous sheets may be cut, sound and free from checks or splits, up to even three-quarters of an inch thick or more.

In my machine, as herein described, the pressure-roller *d* is not intended to perform the office of a regulator or guide to gauge or control the depth of cut or thickness of the severed piece. The depth of cut is controlled or regulated by the rate at which the pressure-roller is, by positive acting mechanism, made to move up to the log as related to the motion of the log in its rotation, and the feed-works are constructed and adapted to increase or diminish the rate of feed relatively to the motion of the log as it may be desired to cut thicker or thinner stuff. The sole office of the roller *d* is to apply pressure upon the surface of the log over the line of cut, as described, for the purpose of preventing, in the act of cutting, the checking or splitting of the severed piece; and it is so combined with the other parts of the machine, and so arranged and adjusted, as to effect this result and no other. I therefore disclaim the roller when so constructed and arranged and combined with a cutting instrument and head-block in a machine for cutting veneers or other laminæ as to serve the purpose of a regulator of the depth of cut, (as in the machine for which Letters Patent of the United States were issued to John Humphry October 6, 1842,) and not to apply pressure to prevent the checking of the severed piece; nor do I claim, broadly, the application of pressure to the surface of the log for the purpose of preventing the checking of the severed piece, as I am aware that attempts have been made to prevent the checking of veneers in the process of cutting by applying pressure to their surface by means of a fixed stationary bar, also by passing the veneer through a rigid throat, as may be seen by reference to the patents of B. F. Sturtevant, December 27, 1859; Parker & Sleeper, July 1, 1862; and C. Jewell, July 30, 1867, which patents I fully disclaim.

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

Claim.

The combination of the knife *e*, the roller *d*, and the head-block D in a machine for cutting laminæ or sheets of wood from the face of a log or block, constructed, adjusted, and operating substantially as and for the purpose described.

J. C. BROWN.

Witnesses:
I. P. FITCH,
GEORGE GOTT.