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W. J. PERKINS.

CIRCULAR SAW MILL.

No. 321,525.

Patented July 7, 1885.

FIG. 1.

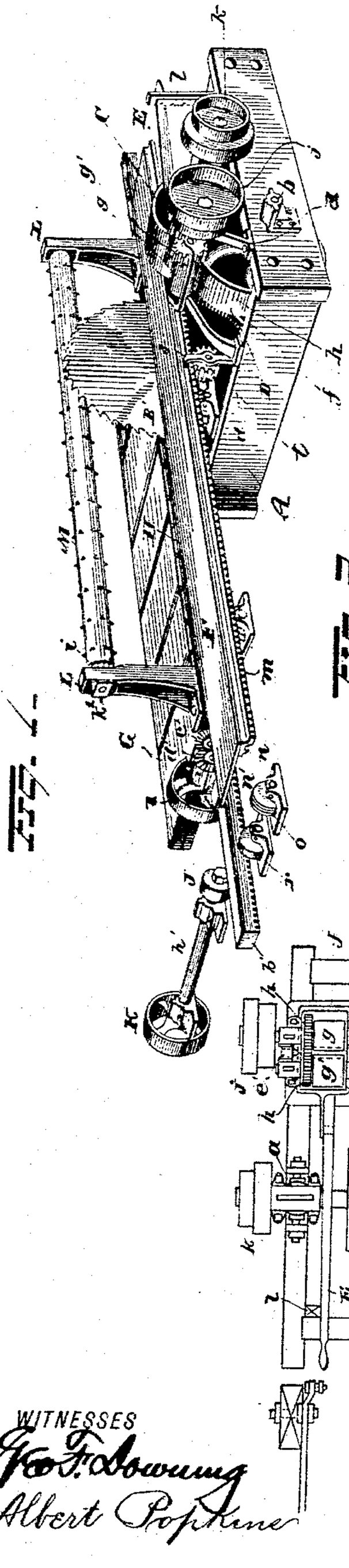

FIG. 2.

WITNESSES

Geo. F. Downing

Albert Popkine

INVENTOR

Willis J. Perkins

By Leggett & Leggett

ATTORNEYS

(No Model.)

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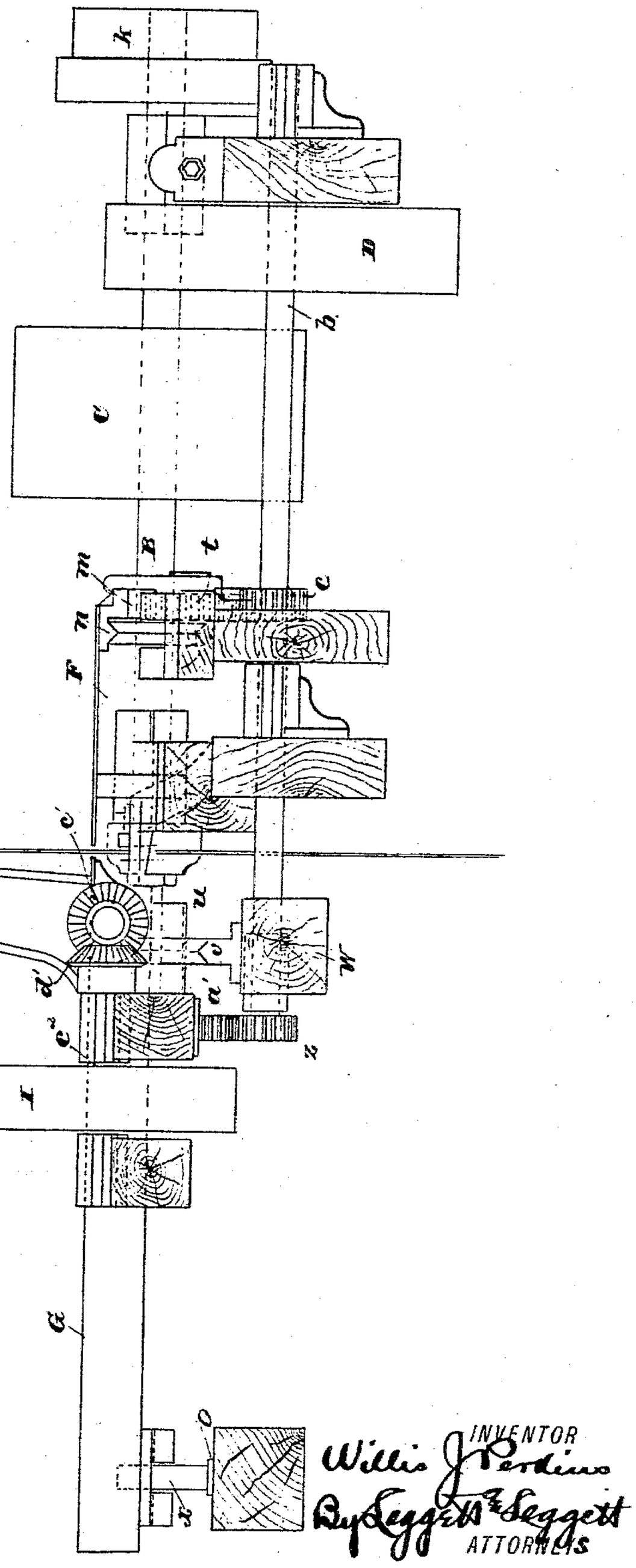
Fig. 3.



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INVENTOR

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ATTORNEYS

BELL BROS., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

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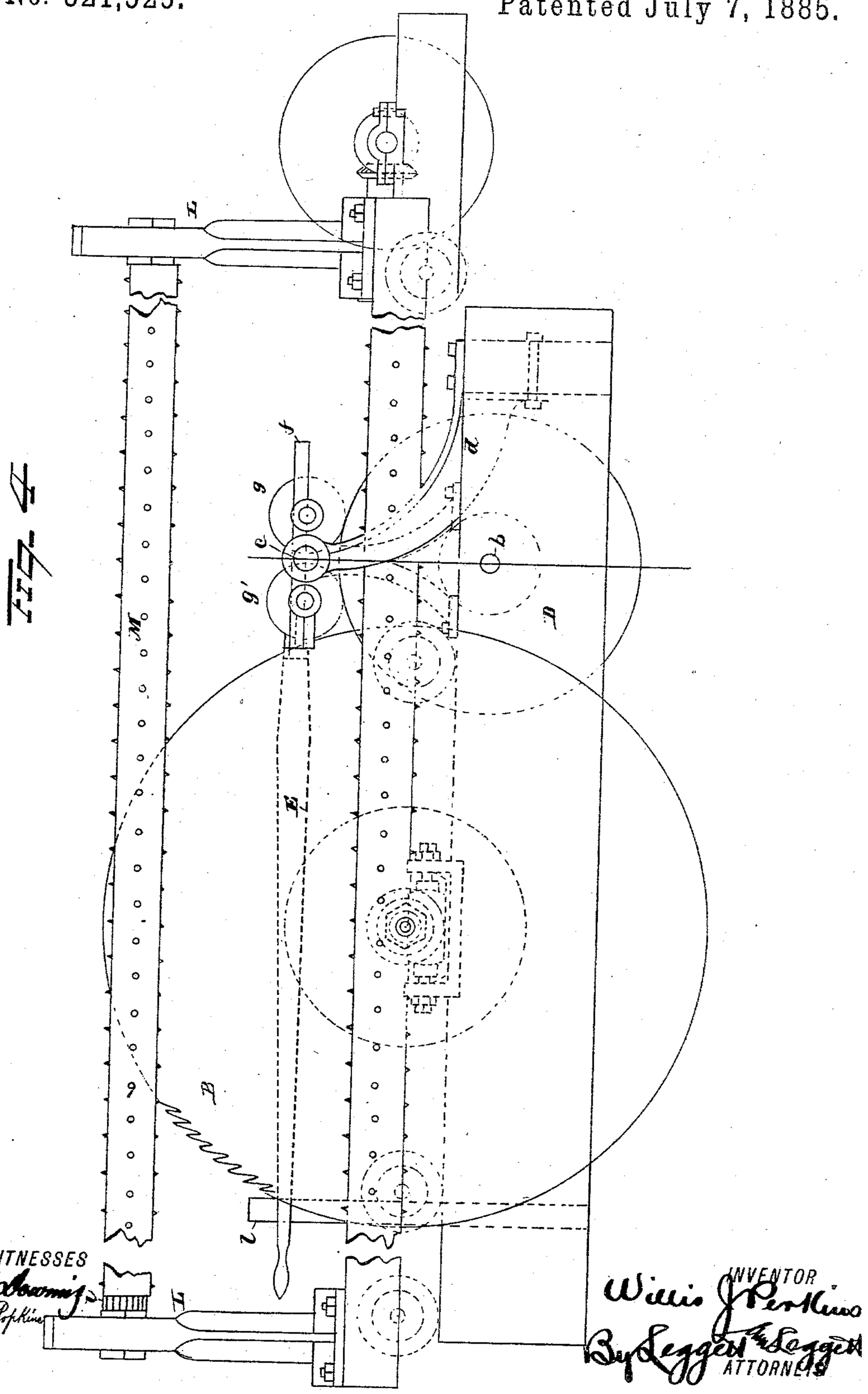

BELL BROS., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIS J. PERKINS, OF GRAND RAPIDS, MICHIGAN.

CIRCULAR SAW MILL.

SPECIFICATION forming part of Letters Patent No. 321,525, dated July 7, 1885.

Application filed October 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIS J. PERKINS, of Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Saw-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in saw-mills, and more particularly to devices for sizing bolts into cants of uniform thickness for dimension shingles, the object being to provide means whereby the bolt may be automatically fed across the table for thickness of cant, the bolt to be automatically held in position on the carriage.

A further object is to provide means whereby the feed of the bolt to the saw and the reverse may be operated by a single lever; and, further, to provide a device which shall combine simplicity and economy in construction with durability and efficiency in use; and with these ends in view my invention consists in two separate and independent tables—one on either side of the saw; secondly, in providing two independent tables driven by the same shaft with separate gearing; thirdly, in providing the carriage or table with a friction-pulley adapted to come in contact with a similar stationary pulley, and thereby operate a toothed roller adapted to feed the bolt to the saw.

My invention further consists in certain novel features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of my improved machine. Fig. 2 is a top plan view thereof. Fig. 3 is an end view, and Fig. 4 is a detached view showing the mechanism for reversing and feeding the bolt to the saw.

A represents a wooden husk, preferably made of hard wood and in the form shown. To this husk are secured bearings *a*, in which is journaled the saw-arbor B, provided between the side beams of the husk with the band-wheel C, through which power is applied to the machine, and also on its outer end with a saw, B′. In this husk is also journaled a shaft, *b*, carrying a friction-wheel, D, and pinions *c z*, and to the husk are also secured the brackets *d*, provided at their upper ends with bearings *e e′* for yoke *f*. In this yoke are mounted two frictional rollers, *g g′*, the shafts upon which they are mounted also carrying two pinions, *h*, meshing with each other, the shaft i^2 of one of the rollers, *g*, being provided on its outer end with a band-pulley, *j*, from which passes a belt, which also passes around a pulley, *k*, secured to the outer end of the saw-arbor. The said rollers *g′ g* are located immediately above the friction-pulley D and in close proximity thereto.

To the yoke *f* is secured the inner end of the operating-lever E, the outer end being provided with a handle, and adapted to be held in any desired position by means of the vertical bar *l*, secured to the husk and provided with notches or recesses, in which the lever is adapted to fit. It will now be readily seen that when motion is imparted to the saw-arbor it will be transmitted through the pulleys *k* and *j* to the friction-rollers *g*, which will be turned in opposite directions. If, now, the handle of the lever be raised, the outer pulley will be lowered into contact with the friction-wheel D, and the latter set into motion. If, on the contrary, the lever be lowered, the inner friction-roller, *g′*, will be lowered into contact with the pulley D, and the latter turned in the opposite direction.

F represents a cant-table, to the outer edge of which is secured a rack-bar, *m*, the under side of the latter being provided with a V-shaped projection, *n*, adapted to engage a groove, *n′*, in the face of the rollers *o*, secured below the table. Rollers *r* are also secured to suitable rests below the table for the purpose of supporting the inner edge of the table.

To the middle beam of the husk is secured the lower end of a bracket-bearing, *s*, carrying an intermediate pinion, *t*, adapted to mesh with the pinion *c* on the shaft *b*, and with the rack-bar *m*, secured to the table.

A short distance beyond the cant-table is secured the carriage G, the inner side of which is supported by means of rollers *u*, journaled in bearings secured to the under side of the table, said rollers having their rims V shape, adapted to travel on a track, *v*, secured to beams *w*, secured to the foundation.

The outer side of the carriage is supported

on rollers *x*, mounted in bearings secured to the under side of the table, and adapted to travel on the tracks *y*, also secured to foundation-beams.

The shaft *b*, carrying the friction-pulley D and the pinions *c* and *z*, passes beneath the carriage, the pinion *z* on its end meshing with a similar pinion, *a'*, supported in bearings secured to the foundation-beams. On the under side of the carriage, and near the inner edge thereof, is secured a rack, *b'*, with which meshes the pinion *a'*. From the above arrangement of parts it will be readily seen that when motion is imparted to the shaft *b*, as before described, it will be transmitted through the pinions *c* and *t* to the cant-table, and through the gears *z* and *a'* to the carriage G, which will be moved accordingly, the rollers *o* and *u* keeping the tables in proper position, the direction of the moving tables being reversed by simply raising or lowering the levers, as hereinbefore set forth.

On the table is located a toothed roller, H, the ends being journaled in bearings secured to the table G, and having one end provided with a gear-wheel, *c'*, which meshes with a gear, *d'*, secured to one end of a shaft, e^2, mounted in bearings attached to the table G, the shaft *e* also carrying a friction-pulley, I, adapted, when the table is moved forward to the beginning of its travel, to come in contact with a friction-wheel, J, secured to the inner end of a shaft, *h'*, mounted in bearings on the foundation-beams, and having secured to its outer end a band-wheel, K. When these two wheels come in contact, the friction-wheel J imparts its motion to the wheel I, which in turn transmits it through the gears *c' d'* to the roller H, which is turned in a direction from the bolt-table G toward the cant-table F.

To the table G, near the inner ends thereof, are secured the supports L, in which is mounted in a sliding box, k^2, a vertically-adjustable roller, M, provided with teeth and on one end with a ratchet, *i*, which ratchet a pawl, *k'*, is adapted to engage. The pawl *k'* is pivoted to the sliding box k^2, thereby allowing the roller to be rotated in but one direction.

In order to regulate the thickness of the cant, I have provided a gage, N, to which are secured the arms *m'*, the opposite ends of the latter being provided with a series of bolt-holes, n^2, by means of which the arms are bolted to blocks *o'*, rigidly secured to the foundation-beams. By these means the gage may be secured at any desired distance from the edge of the cant-table, and thus regulate the thickness of the cant. After the gage has been properly set the bolt is set upon the carriage or table G, and the latter forced down beyond the saw B', which brings the friction-wheels I and J into contact and turns the roller H, thereby feeding the bolt over to the gage, the teeth in the rollers entering the bolt and securely holding it in place. The lever is then reversed, and, as before described, the carriage and cant-table are simultaneously moved toward the saw, thus cutting the bolt into cants of proper dimensions, the cant dropping onto the table F, from which it is removed, the lever being again reversed and the tables moved forward beyond the saw, the wheels I and J again coming in contact.

By means of my improved machine the bolt is automatically fed across the table for thickness of cant, and is automatically dogged or secured on the carriage. Again, by means of a single lever, the carriage cross-feed and dogging device is operated, and thus requires the attendance of but one man.

My device is exceedingly simple in construction, and is of few parts.

It is evident that numerous slight changes in the details of construction can be resorted to without departing from the spirit of my invention; and hence I would have it understood that I do not confine myself to the exact construction of the parts shown and described, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

I am aware that it is old to have a table on each side of a saw, and to move both tables by a pinion engaging a single rack-bar attached to one of the tables. In such construction and arrangement of parts the power is applied at one side of the saw, and hence there is a tendency to swing the tables laterally, which results in a gripping action and undue friction on the driving mechanism. By providing each table with a rack and driving pinions engaging therewith the power for driving the tables is equally disposed on each side of the saw—the point of resistance—and hence there is no unequal wear or binding of parts.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a saw-mill, the combination, with two reciprocating tables and a saw situated between them, of a rack secured to each table, and pinions and gearing engaging with the rack of each table and adapted to reciprocate them, substantially as set forth.

2. In a saw-mill, the combination, with two reciprocating tables, a saw situated between them, and racks and pinions and gearing connecting with each table for reciprocating them, of feed-rollers, one or more mounted on one of said tables, and constructed and adapted to feed the timber being sawed crosswise of the saw, substantially as set forth.

3. In a saw-mill, the combination, with a saw and a reciprocating table, of a spiked roller, and mechanism for rotating the same for feeding the bolt to the saw, and a spiked roller located over the lower spiked roller and disconnected therefrom, and serving simply as an idler, and pawl and ratchet for preventing the rearward rotation of the upper roller, substantially as set forth.

4. In a saw-mill, the combination, with a reciprocating table, a feed-roller journaled to said table at one side edge thereof, and a fric-

tion wheel and gearing journaled in bearings secured to or moving with the table, of stationary bearings, a shaft journaled in said latter bearings, and a friction-wheel secured to the shaft and adapted to automatically transmit motion to the feed-roll when the table has been moved to the end of its travel, substantially as set forth.

5. In a saw-mill, the combination, with a saw, a timber-carrying table, a shaft for moving the timber-carrying table, and a friction-wheel secured on said shaft, of a pivoted yoke, two friction-pulleys mounted in said yoke, intermeshing gear-wheels secured to said pulleys or to the shafts of said pulleys, and a belt-pulley secured to the shaft of one of said friction-pulleys, substantially as set forth.

6. In a saw-mill, the combination, with a saw, a timber-carrying table, mechanism for reciprocating the table, a feed-roller journaled on the table, and a friction wheel and gearing for transmitting rotary motion to the feed-roller, of a friction-wheel secured to a shaft mounted in stationary bearings, and arranged to engage the friction-wheel connected with the table at the limit of the travel of the table, substantially as set forth.

7. In a saw-mill, the combination, with a table, a shaft, gearing connecting the shaft and table, a friction-pulley secured on said shaft, a saw and saw-arbor, and a pulley mounted on the saw-arbor, of a yoke carrying two friction-pulleys, which latter are connected by intermeshing gearing, and a band-pulley secured on the shaft of one of said latter pulleys, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIS J. PERKINS.

Witnesses:
ARTHUR C. DENISON,
EDWARD TAGGART.